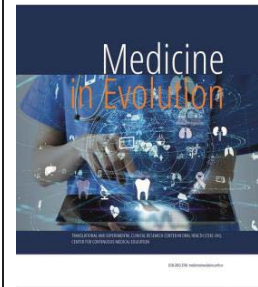


The degree of satisfaction of wearers of fixed prosthetic dentures



Todor L.¹, Olariu I.², Todor S.A.³, Lile I.², Fluieraş R.^{2,4}, Cosoroaba R.⁴, Cot D.E.⁴, Popovici R.A.⁴, Lucaciu Lupulescu T.E.²

¹Department of Dental Medicine, Faculty of Medicine and Pharmacy, University of Oradea, Romania

²Department of Dental Medicine, Faculty of Dental Medicine, "Vasile Goldiș" Western University of Arad

³Dentist doctor, private medical office, Oradea, Romania

⁴Department 1, Faculty of Dental Medicine, "Victor Babeș" University of Medicine and Pharmacy, Timisoara, Romania

Correspondence to:

Name: Iustin Olariu

Address: Department of Dental Medicine, Faculty of Dental Medicine, "Vasile Goldiș" Western University of Arad, Romania, Liviu Rebreanu Str, no. 86, 310414, Arad, Arad County, Romania

Phone: +40 723423263

E-mail address: iustin_olariu@yahoo.com

Abstract

Assessment of patient satisfaction with fixed prosthetic treatment should be a consideration of overall prosthetic success. The aim of this study was to evaluate patient satisfaction with prosthetic treatment with ceramic fixed prosthetic dentures (FPD) on metal framework.

Material and method: We selected and surveyed a group of 40 patients aged between 20 and 57 years who required fixed prosthetic treatment. Patients had a choice between 3 types of materials: metal-ceramic (MC), zirconia (Zr) and polymethyl methacrylate (PMMA). Patients were informed about the advantages and disadvantages of each FPD and were asked to choose and justify the choice made. Results showed that the patients who chose PMMA argued this choice for purely financial reasons. Patients who chose Zr for aesthetic reasons argued that it was worth the financial effort. Most patients chose metal-ceramic restorations, reasoning that they present an optimal aesthetic/functionality/cost ratio. **Conclusion:** Metal-ceramic FPD is still the most commonly used restoration to replace missing teeth, especially in the lateral areas.

Keywords: Satisfaction, fixed prosthetic dentures, metal-ceramic restoration

INTRODUCTION

Dental tissues do not have the ability to regenerate like most other tissues in the human body. Once lost, they need to be restored directly or indirectly [1]. The edentulous state affects aesthetics, mastication and phonation and has influence on the quality of life, on the patients' self-perception [2]. Fixed partial dentures (FPD) are the treatment of choice for replacing missing teeth because they are economical compared to implants [3]. They will improve the functions of the dento-maxillary apparatus, maintain the health and integrity of the dental arches and increase the patients' self-image [4,5].

There is a growing awareness among dentists that assessing patient satisfaction with the value of prosthetic treatment must be a consideration of overall prosthetic success. Fixed prosthetic treatment is often perceived by patients as expensive. That is why it is important to know if patients consider that the treatment provides quality of life, aesthetics and functions of the dento-maxillary apparatus and that they have gained economic value following the prosthetic treatment [2]. There are numerous studies on patient satisfaction with total dentures [6-8], implant-supported partial or total dentures [9-12] or removable partial dentures [13-16]. Thus, the researchers felt the need to evaluate the satisfaction of patients rehabilitated with FPD, looking at both the aesthetic and functional result, as well as the quality of life after the prosthesis [17-20].

The objectives of these studies were to assess patients' awareness of oral health, the need for prosthetic treatments and oral hygiene practices. Prosthodontists must identify and understand patient expectations from consultation to treatment completion [21].

Aim and objectives

The aim of this study was to evaluate patient satisfaction with prosthetic treatment with ceramic FPD on metal framework.

MATERIAL AND METHODS

We selected and surveyed a group of 40 patients aged between 20 and 57 years. The criterion for which this group was selected was their need for fixed restoration. All surveyed and treated patients signed and informed about all treatments performed and participation in this study.

Out of the total of 40 patients, 60% of them are female and 40% male, 20% are aged between 20 and 30, 35% are aged between 31 and 44 and 45% are aged between 45 and 57 years old (Figure 1, Table 1).

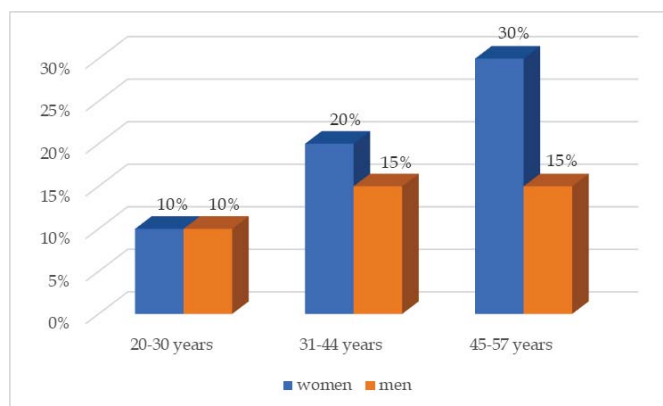


Figure 1. Distribution of patients by age group and gender

Table 1. Distribution of patients by age group and gender

age	Women	men	percentage
20-30 years	4	4	20%
31-44 years	8	6	35%
45-57 years	12	6	45%

From the point of view of income, we divided the patients into three groups: group A - with monthly incomes lower than the minimum wage in the economy (e.g. students, day laborers, unemployed, etc.); group B - with monthly income equal to or higher than the minimum wage in the economy and group C - patients with good living conditions, above average (higher education, stable job) (Table 2).

Table 2. Distribution of patients according to income

Group A	Group B	Group C
15%	60%	25%

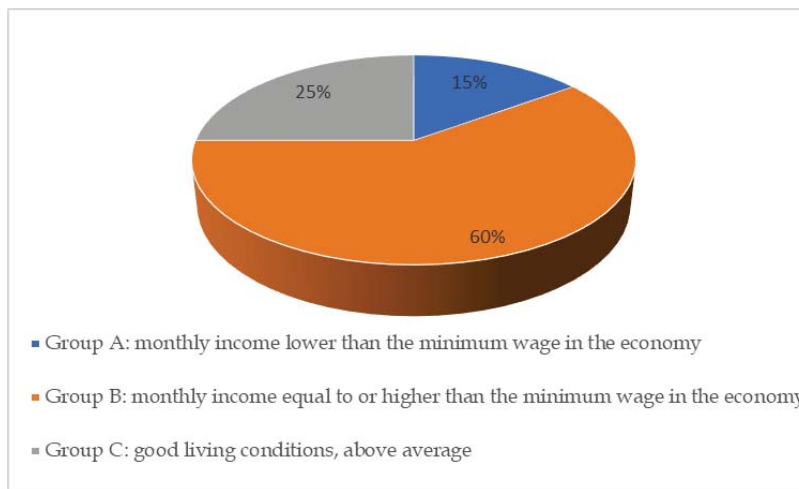


Figure 2. Distribution of patients according to income

Patients had a choice between 3 types of materials: metal-ceramic (MC), zirconia (Zr) and polymethyl methacrylate (PMMA). Patients were informed about the advantages and disadvantages of each FPD and were asked to choose and justify the choice made.

RESULTS

Patients who chose PMMA argued this choice for purely financial reasons. Patients who chose Zr for aesthetic reasons are part of group A and group B in equal proportions, those in group B arguing that it is worth the financial effort (Table 3, Figure 3).

Table 3. Choice of material for FPD

	Group A	Group B	Group C	% of the total
MC	2	16	6	60%
Zr	0	4	4	20%
PMMA	4	4	0	20%

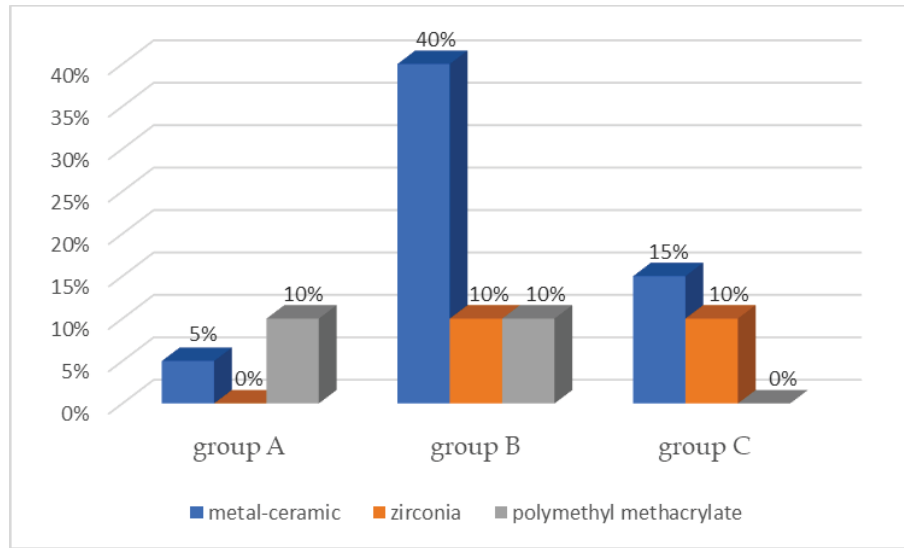


Figure 3. Choice of material for FPD

Patients who chose metal-ceramic restorations argued that the quality-price-aesthetic ratio is very convenient. Out of a total of 40 patients, 34 had or have at least one metal-ceramic crown, of which 27% had at least one such prosthesis less than 3 years, 20% between 3 and 5 years and 53% more than 5 years. The degree of satisfaction with metal-ceramic FPDs was evaluated in these patients. 64.71% declared themselves satisfied, while 35.29% were dissatisfied with fit and aesthetics (Table 4, Figure 4). Patients' complaints over time are related to the aesthetics of the gingival margin, the discolorations that occur as a result of gingival retraction and the accumulation of bacterial plaque.

Table 4. Satisfaction over time of metal-ceramic FPD wearers

Patients	Satisfied	Dissatisfied
Total	22	12
with FPD under 3 years	10	2
with FPD between 3-5 years	8	4
with FPD over 5 years	4	6

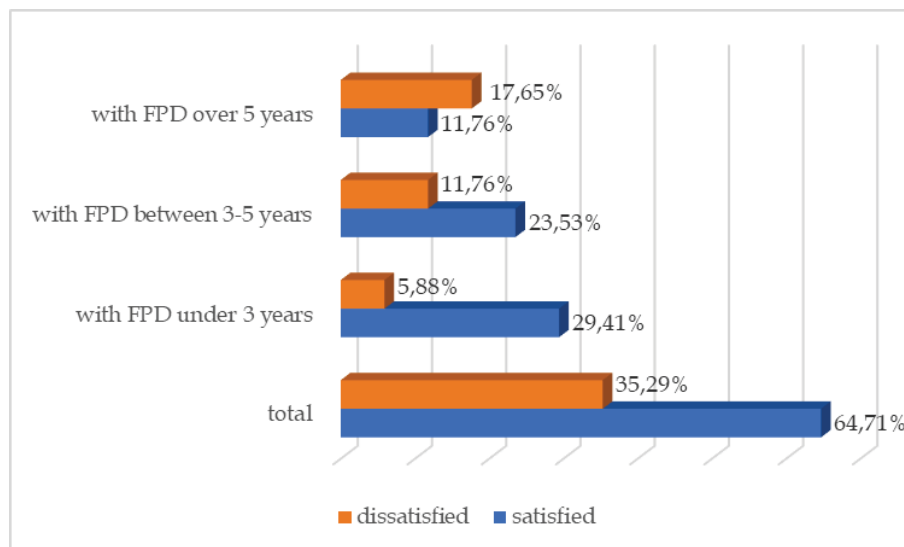


Figure 4. Satisfaction over time of metal-ceramic FPD wearers

DISCUSSIONS

The performance of an FPD is evaluated differently by patients and clinicians. Patients evaluate it based on subjective criteria; aesthetics, mastication, longevity and comfort, while clinicians focus primarily on technical features [22]. Studies consider both clinician and patient satisfaction [23].

In the study by Tan et al., over 90% of patients were satisfied with FPD treatment both functionally and aesthetically, and the costs were considered reasonable [19]. Kashbur et al. reported a very high level of satisfaction (80.9%) in patients undergoing fixed prosthetic treatment [17]. In the study by Zavanelli et al., 72.58% of patients were satisfied with FDP [24]. Kola et al. noted high levels of satisfaction with the functional and aesthetic aspects of the fixed prosthesis [25]. In the study by Shrestha et al., 76.4% of patients were satisfied with the aesthetics of the fixed prosthesis [1]. Geiballa et al. also reported a very high level of satisfaction (80%) with regard to the appearance of the fixed prosthesis [26]. Napankangas and Raustia, in an 18-year retrospective clinical study, evaluated the success rates of metal-ceramic fixed partial dentures made by dental students, concluding that there was good patient satisfaction and few complications in terms of biological or technical [27]. Nayan and Kumari concluded in their study that 90% of patients were satisfied with the functionality of the FPD and 80% were aesthetically satisfied [28].

Banerjee et al. concluded that 94% of patients were satisfied with FDP aesthetics immediately after insertion in the oral cavity, with satisfaction increasing to 98% one week after cementation, respectively 91% of patients were satisfied with masticatory functional capacity. Regarding the assessment of patient satisfaction for hygiene and awareness of oral hygiene techniques, only 58% of patients were satisfied with the cleaning ability of the FDP, with 3% complaining of unpleasant taste and odor [3].

Geiballa et al. found that 94% of patients did not use any additional hygiene techniques to maintain their fixed prosthesis [26]. Maintaining good oral hygiene in FDP wearers is very important to prevent periodontal disease and carious lesions. It is the responsibility of the dentist to inform and train his patients on the techniques and additional means of oral hygiene [23,26,29].

CONCLUSIONS

Metal-ceramic FPDs offer a reliable treatment option, showing good longevity. Metal-ceramic FPD is still the most commonly used restoration to replace missing teeth, especially in the lateral areas.

Most patients were satisfied with the performance of metal-ceramic FPDs in terms of mastication and appearance. Factors such as cleaning and comfort of the fixed prosthesis play an important role in patient satisfaction and the success of the prosthesis.

Counseling patients on FPD expectations and hygiene techniques should be done from the diagnosis and treatment planning stage to ensure a high level of satisfaction and success of fixed prosthetic treatment.

REFERENCES

1. Shrestha L, Dahal S, Pradhan D, Lohani J. Satisfaction Level among Patients Treated with Fixed Dental Prosthesis in a Tertiary Care Hospital: A Descriptive Cross-sectional Study. *JNMA J Nepal Med Assoc.* 2020 Jan;58(221):15-19.
2. Newton JT, Prabhu N, Robinson PG. The impact of dental appearance on the appraisal of personal characteristics. *Int J Prosthodont.* 2003;16:429-434.

3. Banerjee R, Gajbhiye V, Radke U, Bangare T. Patient satisfaction after rehabilitation with tooth-supported fixed partial dentures: A cross-sectional study. *Indian J Multidiscip Dent.* 2019;9:3-8
4. Smith W, Rafeek R, Noel V, Ogaki C, Goberdhan A, Coppin E, et al. A retrospective study to determine patients' satisfaction with fixed dental prostheses provided during the period 2008-2012 at the School of Dentistry In Trinidad. *Int J Dent Oral Sci.* 2016;3(11):372-374.
5. Layton D, Walton T. Patient-evaluated dentistry: development and validation of a patient satisfaction questionnaire for fixed prosthodontic treatment. *Int J Prosthodont.* 2011 Jul-Aug;24(4):332-341.
6. Devi BV, Ahmed N, Ganapathy D, Maiti S, Pandurangan KK. Expectation of treatment outcomes in complete denture wearers. *J Adv Pharm Technol Res.* 2022 Nov;13(Suppl 1):S277-S281.
7. Subramanian D, Govindarajulu RT, Narayanan V, Kalimuthu ND. Comparison of expectation and satisfaction among new and existing denture wearers and correlation of duration of previous denture-wearing experience to satisfaction in completely edentulous patients: A pilot study. *J Indian Prosthodont Soc.* 2019 Oct-Dec;19(4):324-331.
8. Teng CJ, Lin SC, Chen JH, et al. The association between denture self-satisfaction rates and OHRQoL - a follow-up study. *BMC Oral Health.* 2020;20:140.
9. Baracat LF, Teixeira AM, Santos MBF, Cunha VP, Marchini L. Patients' expectations before and evaluation after dental implant therapy. *Clin Implant Dent Relat Res.* 2011 Jun;13(2):141-5.
10. Yi SW, Carlsson GE, Ericsson I, Kim CK. Patient evaluation of treatment with fixed implant-supported partial dentures. *J Oral Rehabil.* 2001 Nov;28(11):998-1002.
11. Neshandar Asli H, Babae Hemmati Y, Ghaffari ME, Falahchai M. Satisfaction of patients with mandibular implant-supported overdentures using a generalized estimating equation model: A prospective study. *J Osseointegr.* 2021;13(2):1.
12. Bajunaid SO, Alshahrani AS, Aldosari AA, Almojel AN, Alanazi RS, Alsulaim TM, Habib SR. Patients' Satisfaction and Oral Health-Related Quality of Life of Edentulous Patients Using Conventional Complete Dentures and Implant-Retained Overdentures in Saudi Arabia. *Int J Environ Res Public Health.* 2022 Jan 4;19(1):557.
13. Shala KS, Dula LJ, Pustina-Krasniqi T, Bicaj T, Ahmedi EF, Lila-Krasniqi Z, Tmava-Dragusha A. Patient's Satisfaction with Removable Partial Dentures: A Retrospective Case Series. *Open Dent J.* 2016 Dec 9;10:656-663.
14. Celebić A, Knezović-Zlatarić D. A comparison of patient's satisfaction between complete and partial removable denture wearers. *J Dent.* 2003;31(7):445-451.
15. Aljabri MK, Ibrahim TO, Sharka RM. Removable partial dentures: Patient satisfaction and complaints in Makkah City, KSA. *J Taibah Univ Med Sci.* 2017;12(6):561-564.
16. Luma Musa Ibrahim. Satisfaction and Complaints of Patients with Removable Partial Dentures: In Sample at Baghdad City, Iraq. *Medico Legal Update.* 2021;21(1):456-461.
17. Kashbur N, Bugaighis I. Patients' satisfaction, expectation, care, and maintenance of fixed prosthesis. *Libyan Int Med Univ J* 2019;4:26-32.
18. Geiballa GH, Abubakr NH, Ibrahim YE. Patients' satisfaction and maintenance of fixed partial denture. *Eur J Dent.* 2016 Apr-Jun;10(2):250-253.
19. Tan K, Li AZ, Chan ES. Patient satisfaction with fixed partial dentures: A 5-year retrospective study. *Singapore Dent J* 2005;27:23-29.
20. Zubair N, Raza M, Khan MS, Ubaid B, Alam A, Hashim L, Ali Z. (2022). Evaluation of Patient Satisfaction with Fixed Prosthodontic Therapy Visiting Prosthodontic Department of a Teaching Dental Hospital. *Pakistan Journal of Health Sciences.* 2022;3(6):212-215.
21. 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;71:210-214.
22. Zlataric DK, Celebic A. Treatment outcomes with removable partial dentures: a comparison between patient and prosthodontist assessments. *Int J Prosthodont.* 2001;14(5):423-426.
23. Craciun A, Cerghizan D, Baloş M, Gribincea V, Albu A, Muică A. Statistical study on the degree of satisfaction of patients with fixed prosthetic dentures. *Acta Stomatologica Marisiensis Journal.* 2019;2:188-194.

24. Zavanelli AC, Mazaro JVQ, Nobrega PI, Falcon-antenucc RM, Zavanell RA. Data collection about failures in fixed partial dentures: 1-year monitoring. *RGO, Rev Gauch Odontol.* 2018;66(3):250-256.
25. Kola MZ, Alqahtani F, Alqarni AAM, Alharbi TGH, Almutairi MNB. Assessment of level of satisfaction and problems in patients treated with fixed partial denture in Alkharj City (Kingdom of Saudi Arabia) *Int J Med Heal Res.* 2017;3(5):53-58.
26. Geiballa GH, Abubakr NH, Ibrahim YE. Patients' satisfaction and maintenance of fixed partial denture. *Eur J Dent.* 2016;10(2):250-253.
27. Napankangas R, Raustia A. An 18-year retrospective analysis of treatment outcomes with metal-ceramic fixed partial dentures. *Int J Prosthodont.* 2011;24(4):314-319.
28. Nayan K, Kumari L. Patient's Satisfaction with the Use of Fixed Partial Denture. *Ann. Int. Med. Den. Res.* 2019;5(2):DE20-DE22.
29. Roscher T, Rosing CK, Gjermo P, Aass AM. Effect of instruction and motivation in the use of electric and manual toothbrushes in periodontal patients. A comparative study. *Braz Oral Res.* 2004;18(4):296-300.