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Brief Communication

Removable partial dentures: Patient satisfaction and complaints in Makkah City, KSA

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Abstract

Objective: To assess the satisfaction level and complaints among patients using different types of removable partial dentures (RPDs) in Makkah city, KSA.

Methods: In this retrospective study, 551 patients who had received RPDs between February and December 2015 were contacted by telephone. One hundred patients responded, and 60 of them agreed to participate in the study. The participants were asked two questions to determine their satisfaction level and complaints with RPD usage, eating, communication, and aesthetics. Data were analysed statistically by chi-square, analysis of variance, and Scheffe's tests.

Results: Of 60 patients, 35% were very satisfied, 21.7% were satisfied and 23.3% were nearly satisfied. However, only 20% were not satisfied. There were no significant differences in mean RPD satisfaction among different age groups and between sexes ($P > 0.01$). There was a significant difference in satisfaction among RPD type ($P < 0.01$). However, no significant differences were recorded between either metal and acrylic, or acrylic and flexible RPDs ($P < 0.01$). As many as 26.7% of respondents complained of aesthetic problems, 16.7% complained of pain during mastication, 10% complained of gag reflex, and 8.3% complained of phonetic problems. However, the majority of respondents (38.3%) had no complaints.

Conclusion: The majority of patients were satisfied with the quality of removable partial dentures treatment in Makkah city hospitals. Oral rehabilitation with RPDs should be applied with care when patients have high aesthetic demands.

Keywords: Aesthetics; Dental prosthesis; Oral complaints; Patient satisfaction; Removable partial denture

Introduction

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.[1] In a study conducted by Akeel (2003), 82% of Saudi Arabian male patients stated their desire to restore missing teeth. It was reported that the main reason was decreased mastication efficiency followed by aesthetic concerns.[2]

There are several modalities of treatment for rehabilitation of partially edentulous patients. These include implant-supported prostheses, teeth-supported bridges, and removable partial dentures (RPDs).[3,4] However, some options, such as dental implants, can be difficult to implement due

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to general and/or oral limitations, financial issues, and patient preferences.[5] Accordingly, based on a 2016 survey of 200 Saudi Arabian volunteers whose missing teeth had been successfully restored with a prosthesis, it was concluded that level of education and monthly income had a significant influence on the treatment choice.[6]

RPDs are applied to restore facial form and masticatory function after loss of natural teeth. Historically, several different materials have been developed for the construction of RPD frameworks. Acrylic polymers (polymethyl methacrylate [PMMA]) and metallic (chrome cobalt alloys) materials are routinely used. However, due to the considerably low cost, ease of manipulation, and utilisation of inexpensive equipment, acrylic denture bases are the most popular material for RPD framework fabrication.[7] Furthermore, in terms of flexibility, nylon-derived denture base material has been revolutionised as an effective alternative material to overcome some limitations and drawbacks of acrylic dentures.[8,9]

There is a lack of available information on patient satisfaction and complaints with RPD usage in Middle Eastern populations. Some studies conducted across different populations showed that the majority of patients are generally satisfied with their RPDs.[10,11] Correspondingly, in a telephonic interview with 52 Saudi Arabian male patients who had received RPDs fabricated by undergraduate students at King Saud University, 64% of the patients indicated continuous wear of their RPD.[12]

Although RPDs are a non-invasive and reversible treatment option, with a more acceptable cost and easier oral hygiene techniques in most cases, they are associated with several oral complaints, such as speech, mastication, pain, and aesthetic issues.[13,14] Therefore, the purpose of this retrospective study was to investigate the satisfaction level and complaints among patients using different types of RPDs in Makkah city, KSA.

Materials and Methods

This retrospective study received ethical approval from three Institutional Review Boards: the Umm Al-Qura University Faculty of Dentistry (Ref No. 31-16), Al-Noor Specialist Hospital, (Ref No. 32637), and the Security Force Hospital Program-Makkah (Ref No. 0067-06041). The dental records of these three hospitals were searched for study participants. Patient inclusion criteria included the following: age between 21 and 85 years, ability to communicate by phone, accurate and complete dental records, and available treatment plan details. Patients with severe disabilities or systemic diseases that may affect oral health, such as uncontrolled diabetes and oral cancer, were excluded.

A total of 551 patients treated with RPDs between February and December 2015 were then contacted by telephone. Of them, 100 patients responded. Of the 100, 60 patients (30 male and 30 female patients) agreed to participate in the survey as shown in Figure 1. Each participant was asked two questions that were explained over the telephone to determine their level of satisfaction and complaints with RPD usage, eating, speaking, and aesthetics. The first question was "From 1 to 4, how satisfied are you with the RPD?" The level of RPD satisfaction was classified as 1: not satisfied, 2: nearly satisfied, 3: satisfied, or 4: very satisfied. The second question was: "Do you have any complaints (comments)?" Patient demographics (age and sex) and information on the type of RPD (metal, acrylic, or flexible) were obtained from the patients' dental records.

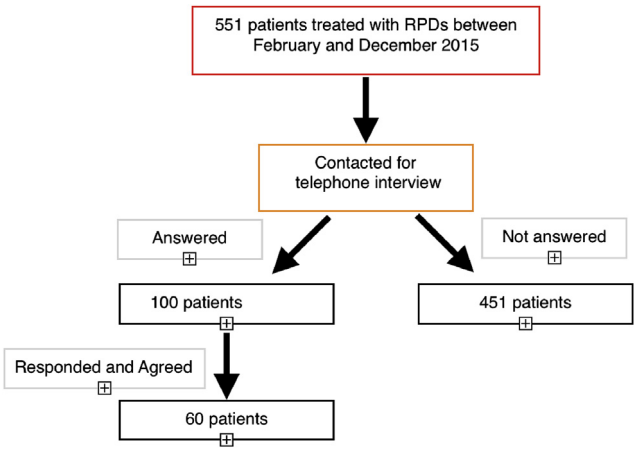

Figure 1: Study flow chart.

Statistical analysis

Simple descriptive statistics were calculated; variables were recorded as mean ± standard deviation (SD) counts and percentages. Chi-square test was used to determine the relationships between categorical variables and to identify significant differences in the occurrence of RPD complaints. To evaluate differences in RPD satisfaction level between male and female patients, an independent sample *t*-test was utilised. For the comparison of multiple mean groups, an analysis of variance test was used, and to evaluate the difference between mean satisfaction level among the different types of RPDs, the Scheffe's test was used. To identify the most common complaints, the recurrence rate and percentage of each complaint was calculated. A P-value < 0.01 was the criterion for rejection of the null hypothesis. Data were collected from patients' electronic files into a Microsoft Excel for Mac 2011, v. 14.6.3 spreadsheet (Redmond, WA 98052-6399, USA). SPSS (v. 17.0 IBM, Chicago, IL, USA) was used for all statistical analyses.

Results

Among the 551 RPD users from the three hospitals between February and December 2015, 334 (61.25%) wore acrylic (PMMA-based) RPDs, 146 (26.1%) had flexible (nylon-based) RPDs, and 71 (12.67%) wore metallic (chrome cobalt alloys) RPDs. Sixty patients (30 male and 30 female patients) with different types of RPDs participated in this study. Verbal informed consent was obtained from all patients. Of 60 patients, 35% were very satisfied, 21.7% were satisfied and 23.3% were nearly satisfied. However, only 20% were not satisfied. The mean ± SD age of the subjects was 51.18 ± 13.06 years (range: 23–79 years).

There were no significant differences in the mean level of satisfaction between sexes ($P > 0.01$). Patient satisfaction did not differ significantly between patients aged ≥50 years and

Table 1: Patient satisfaction in relation to the type of RPD.

Source of Variance	Sum of Squares	df	Mean Square	F- value	*P*-value
Between Groups	12.858	2	6.429	5.610	0.006*
Within Groups	65.326	57	1.146		
Total	78.183	59			

*P value < 0.01.

Table 2: Comparison of satisfaction level between different multiple mean groups.

Type of RPD	Mean	Metal	Acrylic
Flexible	2.21	1.24*	0.67
Metal	3.45	–	0.57
Acrylic	2.88	–	–

*P value < 0.01.

those aged <50 years ($P > 0.01$). Table 1 shows that there was a significant difference in mean level of satisfaction among the different types of RPDs ($P < 0.01$). There was a significant difference in patient satisfaction between metal and flexible RPDs. However, no significant differences were recognized between either metal and acrylic, or acrylic and flexible RPDs ($P < 0.01$), as shown in Table 2.

Table 3 shows that 26.7% of respondents complained of aesthetic problems, 16.7% complained of pain on eating, 10% complained of gag reflex, and 8.3% complained of speech problems. However, the majority of respondents (38.3%) had no complaints at all.

Discussion

This retrospective study assessed the level of satisfaction and complaints among 60 patients using different types of RPDs in Makkah city, KSA. The present study shows that the majority of patients were satisfied with their RPDs treatment. This result is in agreement with similar studies in other countries on the patient's satisfaction with RPDs.[10,21] There was no significant difference in RPD-related satisfaction level between men and women in the present sample. This finding is similar to those reported by previous studies.[14,15] The mean age of RPD users in the present sample was 51.18 years (range: 23–73). Previous studies also reported on a patient sample with a similar age range.[15–17] There was no significant correlation between age and RPD satisfaction rate in the present study. This outcome is also comparable to that observed by a previous study.[14]

A flexible partial denture based on nylon is one of the most recently introduced base materials; it is considered an effective alternative to the typical base material used to restore defects.[8] Sharma & Shashidhara (2014) determined that when undercuts or high aesthetics are required, flexible RPDs produce acceptable outcomes.[9] The present study showed that flexible RPDs have been used commonly as an alternative material for denture fabrication with acceptable results.

There was a significant difference in patient satisfaction among different RPD framework materials. Metallic (chrome cobalt alloys) RPDs were associated with a higher satisfaction level, followed by acrylic resin (PMMA), while flexible nylon-base material was associated with the lowest level of satisfaction. These results are supported by those of Yoshida et al. (2011), who found that patients with chrome cobalt alloy base RPDs had a higher level of satisfaction than those with acrylic RPDs.[18]

Moreover, even though acrylic resin base material does not have superior characteristics compared with metallic base material, acrylic resin base RPDs were the most commonly used in the present study (61.25%). These results are in agreement with previous studies conducted in Middle Eastern countries. Ismail and Hussien (2009) found that over 97% of Iraqi patients wore acrylic dentures.[19] Similarly, in the Kingdom of Bahrain, Rahdi et al. reported that 89% of RPDs prescribed were acrylics.[20]

Even though RPDs are widely used for the replacement of missing teeth, many complaints associated with their use have been reported among different populations.[11,13,14,21,22] In the present study, the most common complaints from RPDs users were aesthetic problems followed by pain during eating. Similarly, in KSA, Akeel (2010) reported that pain and discomfort were the most common reasons for non-use of RPDs.

It should be noted that the patients who participated in this study were treated at three governmental dental centres that provide free dental prosthetic treatments. Therefore, the RPDs treatments included in this study were not affected by socio-economic limitations. Based on a study conducted on the same population, Shafaei 2016 concluded that financial status was one of the most important factors affecting patient treatment choice.[6]

Furthermore, the present survey was conducted after less than 1 year of RPD application, which may be considered a short period to determine the precise level of patient satisfaction. Among a sample of Saudi Arabian patients, Akeel et al. (2010) reported that 36% of RPDs users discarded their

Table 3: Complaints among RPD users.

	Frequency	Percentage	Chi-squared	df	*P*-value (two-tailed)
Pain in eating	10	16.7	18.83	4	0.001*
Aesthetic problems	16	26.7			
Speech problems	5	8.3			
Gag reflex	6	10.0			
No complaints	23	38.3			
Total	**60**	**100.0**			

*P value < 0.01.

RPDs 1 year after insertion.[12] It was suggested that a survey based on systematic recall time should be developed.

A potential limitation of the present study is that the results were based on telephone interviews. The patients' own perception, time of calling, and social factors (such as work stress) might have affected their responses. Due to several significant clinical considerations influencing patient satisfaction with dentures such as abutment teeth status, denture bearing areas, oral mucosal condition, saliva quality, and oral hygiene habits, further studies should be conducted in combination with clinical examinations. Despite these limitations, the present study provides a general perspective on the satisfaction of RPDs wearers in KSA.

Conclusions

Within the limitations of this study, the majority of patients were satisfied with their removable partial dentures treatment, indicating that the quality of RPD treatment in Makkah city hospitals met patient demands. The most common complaint was aesthetic issues, which suggests that dental treatments with RPDs should be applied with care when patients have high aesthetics concerns.

Authors' contributions

MA: Initiated the study, organised team meetings, obtained ethical approval, was responsible for data entering and data collection, and wrote the manuscript. RS: Wrote the introduction and discussion, performed the referencing, and communicated with the journal. TO: manuscript revision, statistical analysis, and methodology.

Conflict of interest

The authors have no conflict of interest to declare.

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References

1. Tyson K, Yemm R, Scott B. *Understanding partial denture design*. 1st ed. Oxford: Oxford University Press; 2007. pp. 3–6. Section 1.
2. Akeel R. Attitudes of Saudi male patients toward the replacement of teeth. **J Prosthet Dent 2003**; 90(6): 571–577.
3. Stilwell C. Risk management in clinical practice. Part 6b. Identifying and avoiding medico-legal risks in removable dentures. **BDJ 2010**; 209(7): 339–350.
4. Furuyama C, Takaba M, Inukai M, Mulligan R, Igarashi Y, Baba K. Oral health-related quality of life in patients treated by implant-supported fixed dentures and removable partial dentures. **Clin Oral Implants Res 2012**; 23(8): 958–962.
5. Sakka S, Baroudi K, Nassani MZ. Factors associated with early and late failure of dental implants. **J Investig Clin Dent 2012**; 3(4): 258–261.
6. Shafaei A. Correlation between socioeconomic status and different types of prosthetic modalities in hail region, Saudi Arabia. **Dent Oral Craniofacial Res 2016**; 2(5): 344–348.
7. Stipho H. Effect of glass fiber reinforcement on some mechanical properties of autopolymerizing polymethyl methacrylate. **J Prosthet Dent 1998**; 79(5): 580–584.
8. Singh J, Dhiman R, Bedi R, Girish S. Flexible denture base material: a viable alternative to conventional acrylic denture base material. **Contemp Clin Dent 2011**; 2(4): 313.
9. Sharma A, Shashidhara HS. A review: flexible removable partial dentures. **J Dent Med Sci 2014**; 13(12): 58–62.
10. Wu J, Yang Y, Wang C, Lee H, Du J. Effects of denture maintenance on satisfaction levels of Taiwanese elderly using removable partial dentures: a pilot study. **Gerodontology 2011**; 29(2): 458–463.
11. Cosme DC, Baldisserotto SM, Fernandes ED, Rivaldo EG, Rosing CK, Shinkai RS. Functional evaluation of oral rehabilitation with removable partial dentures after five years. **J Appl Oral Sci 2006**; 14(2): 111–116.
12. Akeel R. Usage of removable partial dentures in Saudi male patients after 1 year telephone interview. **Saudi Dent J 2010**; 22(3): 125–128.
13. Khan M, Khan A. Oral complaints and level of satisfaction among the removable denture wearers. **Pak Oral Dent J 2015**; 35(1).
14. Shams A, Tavanafar S, Dastjerdi MR, Chaijan KA. Patient satisfaction and complication rates after delivery of removable partial dentures: a 4-year retrospective study. **SRM J Res Dent Sci 2015**; 6(4): 225–229.
15. Siqueira GP, Dos Santos MB, 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(1): 210–214.
16. Pellizzer EP, Almeida DA, Falcón-Antenucci RM, Sánchez DM, Zuim PR, Verri FR. Prevalence of removable partial dentures users treated at the Aracatuba Dental School -UNESP. **Gerodontology 2012**; 29(2): 140–144.
17. AL-Dwairi Z. Need and demand of removable dentures by Jordanian adults and relationship to socioeconomic factors. **J Oral Hyg Health 2013**; 1(2): 113.
18. Yoshida E, Fueki K, Igarashi Y. A follow-up study on removable partial dentures in undergraduate program: Part I. Participants and denture use by telephone survey. **J Med Dent Sci 2011**; 58: 61–67.
19. Ismail IJ, Hussein BM. Frequency and suppliers of removable partial dentures among group of Iraqi population. **J Bagh Coll Dent 2009**; 21(2): 49–54.
20. Radhi A, Lynch CD, Hannigan A. Quality of written communication and master impressions for fabrication of removable partial prostheses in the Kingdom of Bahrain. **J Oral Rehabil 2007**; 34(2): 153–157.
21. Knezović Zlatarić D, Čelebić A, Valentić-Peruzović M, Ćelić R, Filipović-Zore I, Baučić M. The satisfaction with the removable partial denture therapy in the Croatian adult population. **Coll Antropol 2000**; 24(2): 485–494.
22. Yeung A, Lo E, Clark R, Chow T. Usage and status of cobalt-chromium removable partial dentures 5-6 years after placement. **J Oral Rehabil 2002**; 29(2): 127–132.

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