

ORIGINAL ARTICLE

Patients' expectation and satisfaction with removable dental prosthesis therapy and correlation with patients' evaluation of the dentistsGRAZIELE PEREIRA DE SIQUEIRA¹, MATEUS BERTOLINI FERNANDES DOS SANTOS², JARBAS FRANCISCO FERNANDES DOS SANTOS^{1,3} & LEONARDO MARCHINI^{1,3,4}

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Abstract

Objective. Considering that patients' satisfaction is one of the most important goals in conducting removable dental prosthesis (RDP) therapy and the fact that there are many factors which influence this parameter, the present study aims to evaluate the expectation before and satisfaction after therapy with RDP in patients who seek such therapy. As a secondary objective, other variables that may be associated with patient satisfaction are also evaluated, such as gender, age, Kennedy's classification of the arch supporting the RDP, the number of RDP adjustments after delivery and patients' evaluation of the dentists' conduct.

Materials and methods. A sample of 44 patients who received RDP therapy were assigned visual analog scale scores for their expectation before and satisfaction after therapy regarding chewing, aesthetics, comfort and phonetics. They also completed a questionnaire concerning the dentists' conduct. **Results.** There was no statistically significant difference among scores concerning different genders, age, number of post-delivery settings and arch involved in the RDP. Regarding patients' evaluation of the dentists' conduct, there was a predominance of positive evaluations, but only different answers to the statement (i.e. 'The dentist I saw thoroughly explained the recommended treatment before it commenced') present statistically significant different scores for chewing ($p = 0.040$) and phonetics ($p = 0.046$). **Conclusions.** The average visual analog scale scores were high for both expectation prior to treatment and satisfaction after treatment; however, the scores for expectations were higher than those for satisfaction.

Key Words: *patient expectations, patient satisfaction, removable dental prosthesis*

Introduction

In many countries, oral health parameters have shown gradual improvement and the rate of edentulism is decreasing, which could lead to a reduction in the need for dentures. However, it is estimated that, despite the decline in edentulism rates, the number of edentulous patients will increase until the year 2020, due to an increase of the elderly population [1,2].

Thus, an interest in dental implants has increased rapidly over the last two decades. However, the vast majority of edentulous persons still have to accept conventional dentures, mainly due to economic factors. This outcome is attributed to the fact that toothless individuals usually belong to the poorest population *stratum* and have no access to treatment

with implants. Therefore, most prosthetic work undertaken by dentists still consists of conventional crowns and dentures. Thus, it is important to note that conventional dentures also provide benefits for edentulous patients, providing aesthetics and some function, as well as being socially acceptable for the replacement of missing teeth [2,3]. Some of the advantages of removable dental prosthesis (RDP) therapy vs conventional or implant-supported fixed bridges are that RDPs usually costs less and are easier to clean [4].

Considering that patient satisfaction is the ultimate objective during oral rehabilitation, it is interesting to note that few studies have been conducted in order to verify and understand the factors that affect this satisfaction [2].

Chewing ability, comfort, aesthetics and retention are important factors for acceptance by RDP wearers [5,6]. For some patients, the overall satisfaction with RDP is related to comfort and the ability to chew. For other individuals, aesthetics and retention seem to be the most important factors [7]. Thus, while dentures are constructed, great emphasis is placed on technical aspects that relate to the dentures' quality, which seems to play a role in the quality-of-life relating to oral health of RDP wearers [8]. Furthermore, it is also important to take into consideration the personality, attitude and motivation for RDP use, which also may influence patient satisfaction [4,9]. Therefore, satisfaction with dentures is multifactorial, involving technical aspects and also those that relate to the patient [2,9,10].

It is important to note that patients and health professionals evaluate their expectations and satisfaction with removable dentures therapy in completely different ways. This fact can lead to conflict and a deterioration of the patient/professional relationship [11], which may also influence patient satisfaction with their dentures [9].

In the light of the previous information, the present study aims to evaluate the expectation before and satisfaction after therapy with RDP in patients who desire such treatment. As a secondary objective, other variables that may interfere with patient satisfaction are also evaluated, such as gender, age, Kennedy's classification of the arch supporting the RDP, the number of RDP adjustments after delivery and the patients' evaluation of the dentists' conduct. Considering previous studies in samples of Brazilian denture wearers [10,11], the following hypotheses were formulated: (1) The satisfaction after treatment should exceed expectations; (2) no differences among patients' expectation and satisfaction scores related to clinical variables, nor with gender and age, should occur; and (3) there is no difference between patient expectation and satisfaction scores related to patient evaluation of the dentists' conduct.

Materials and methods

Subjects

The patients were conveniently obtained from those who received RDP, which were all custom-made with chromium-cobalt frameworks and acrylic resin bases and teeth at the dental clinic of the University of Vale do Paraiba. Fifty patients were invited to participate on the study and six of them refused. Of the 44 subjects who participated, 17 were men (38.6%), 27 were women (61.4%) and the mean age was 52.7 years (SD = 10.4), with a maximum and minimum age of 74 and 32 years, respectively.

All patients who agreed to participate signed an informed consent form. The study was approved by the Committee for Ethics in Research of the University of Vale do Paraiba (protocol number H119/CEP/2009).

Scoring patients' expectation before and satisfaction after RDP therapy

For the assessment of expectation before and satisfaction after RDP therapy, a visual analog scale (VAS) with a numerical sequence from 0–10, where 0 represented the worst possible outcome and 10 the best possible outcome, was used. The numbers chosen by the subjects before the commencement of treatment corresponded to the scores that they attributed to their expectations concerning RDP therapy. After completing therapy, the chosen numbers corresponded to the evaluations that patients attributed their satisfaction with the outcomes of therapy. In both situations, before and after treatment, the subjects assigned scores to four aspects of RDP outcomes: aesthetics, chewing, comfort and phonetics.

Clinical and patients' related variables assessment

The gender, age, arch involved in the manufacture of RDP, Kennedy's classification of the arch supporting the RDP and the number of post-delivery adjustments were noted in an appropriate form. The VAS scores were also recorded.

A questionnaire, using a Likert scale, was also prepared with the aim of noting patients' evaluation of the dentists' conduct, based on previously developed questionnaires [12,13]. The questionnaire was translated from its original version in English to Portuguese and then translated back in order to confirm the accuracy of the verbiage. Twenty volunteers answered the questionnaire, who reported that they fully understood its contents, prior to its administration to the study participants.

Data analysis

The data was tabulated and descriptive statistics were formulated. The Mann-Whitney test was used to determine whether there was a statistically significant difference among VAS scores between genders in all evaluated aspects (e.g. chewing, aesthetics, comfort and phonetics), as well as to determine if there were statistically significant differences among VAS scores for different responses to the tenth item on the questionnaire regarding patients' assessment of the conduct of dentists.

The Kruskal-Wallis test was used to assess whether there was a statistically significant difference among VAS scores to different arches involved in the manufacture of RDP (i.e. upper, lower or both); Kennedy's classification of the arch that supported the RDP; questions 1–9 of the questionnaire, in which patients assessed the conduct of dentists; and the expectation and satisfaction scores for the aforementioned aspects.

Further, the Spearman correlation test determined whether there was a correlation between expectation before and satisfaction after RDP treatment, as well as between patients' age, amount of adjustments after delivery and the expectation and satisfaction scores for the four evaluated aspects.

Results

Descriptive statistics

Seventeen individuals wore lower arch RDPs, 13 utilized upper arch RDPs and 14 wore RDPs on both arches. Further, 11 individuals reported that they had made no adjustments, 14 had a single adjustment session, 13 had two adjustment sessions, five had three adjustments sessions and only one said that adjustments had been made during six sessions.

Regarding the Kennedy classification for RDPs, of the 44 patients, 22 (50%) were bilateral free-ended partially edentulous (Class I), ten (22.7%) were unilateral free-ended partially edentulous (Class II), seven (16%) were unilateral or bilateral edentulous bounded by remaining teeth (Class III) and six (13.6%) were edentulous in the anterior region crossing the midline (Class IV).

Table I shows patients' scores for expectations before (pre) and satisfaction after (post) therapy with RPD for the entire sample, different Kennedy classes and the arch where RPDs were utilized.

With respect to the questionnaire regarding patients' evaluation of the dentists' conduct, it was possible to

verify an expressive majority of positive evaluations. Such results are presented in Table II, which shows the responses to questions 1–7 of the questionnaire.

Further, in an investigation of patient evaluation of the dentists' conduct, in response to question 10 (i.e. 'Which word better describes the dentists you saw?') 54.5% presented their answers as 'professional' and 45.5% answered 'careful'.

Correlation tests

It was observed that patients' age, gender, RDP dental arch, Kennedy's classification of the arch supporting the RDP and the amount of post-delivery adjustments did not correlate with patients' scores for satisfaction and expectation on all evaluated aspects.

In the same manner, there was no significant correlation between patients' expectation and satisfaction for chewing or comfort; however, there were significant correlations for phonetics (correlation coefficient = 0.43, $p = 0.003$) and aesthetics (correlation coefficient = 0.32, $p = 0.034$).

On the questionnaire items that concerned the patients' evaluation of the dentists' conduct, statistically significant differences were found for patients' scores for expectation and satisfaction with their RDP only for different answers to question 1 (i.e. 'The dentist I saw thoroughly explained the recommended treatment before it commenced') on chewing ($p = 0.040$) and phonetics ($p = 0.046$). All other answers to the questions had no statistically significant differences between patients' scores for expectation and satisfaction with their RDP.

Discussion

The patients in this sample presented higher expectation scores before RDP therapy for all evaluated criteria (i.e. aesthetics, chewing, comfort and phonetics) when compared to the scores for satisfaction

Table I. Patients' scores for expectation before (pre) and satisfaction after (post) therapy with RPD for the entire sample, different Kennedy classes and the arch where RPD were made.

	Chewing		Aesthetics		Phonetics		Comfort of use	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Average (entire sample)	8.4	7.6	8.6	8.2	8.2	7.7	8.6	7.5
SD (entire sample)	1.4	1.8	1.4	1.5	1.6	1.8	1.4	2.1
Kennedy class I	8.2	7.7	8.4	8.1	8.0	7.7	8.7	7.6
Kennedy class II	8.4	7.5	8.4	8.3	8.1	8.0	7.9	7.5
Kennedy class III	9.1	7.1	9.1	8.4	9.1	7.7	9.4	7.0
Kennedy class IV	8.2	7.8	8.7	8.0	8.3	7.5	8.2	7.7
Both arches	8.8	7.2	8.9	8.3	8.7	7.7	8.9	7.0
Lower arch	8.6	7.8	8.4	7.9	8.2	7.8	8.6	7.6
Upper arch	7.8	7.8	8.5	8.4	7.8	7.7	8.2	7.8

Table II. Distribution (%) of answers to questions 1–9 of the questionnaire concerning patients' evaluation of the dentists' conduct ($n = 44$).

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
<i>Question 1.</i> The dentists I saw thoroughly explained the recommended treatment before it commenced			36	39	25
<i>Question 2.</i> I am confident that I received good dental care			43	36	21
<i>Question 3.</i> The dentists I saw usually explained what they were going to do		2	39	41	18
<i>Question 4.</i> The dentists I saw were friendly to me			18	52	30
<i>Question 5.</i> The dentists I saw always treated me with respect		2	23	50	25
<i>Question 6.</i> The dentists I saw allowed me to express my opinion			34	46	20
<i>Question 7.</i> The dentists I saw were very careful to check everything when examining their patients		4	32	41	23
<i>Question 8.</i> The dentists I saw were impersonal or indifferent towards me	98				2
<i>Question 9.</i> The dentists I saw answered my questions			2	87	11

after therapy, thus refuting the first hypothesis. This result is similar to that observed by a previous study [11], but differs from the results reported by another [10], which evaluated patients with complete dentures. Whereas satisfaction with RDP is multifactorial, involving technical aspects as well as those that relate to the patient, several factors must be considered in the analysis of satisfaction (e.g. personality, attitude towards RDP and motivation to use the RDP) [4].

It was observed that there was no correlation between expectation and satisfaction scores concerning the aspects of chewing and comfort, although there was correlation between aesthetics and phonetics. These results differ from those reported by some studies [10,11] in patients with complete dentures, but corroborate the findings of another study in which the sample is composed of patients using implant-supported prostheses [14].

In this sample of RDP wearers, patients were predominantly female (61.4%). This finding is consistent with previous works [6,7], in which most RDP users were female. Elderly females have a higher number of missing teeth and, therefore, are most in need of prosthetic treatment [3]. Although it is believed that women may have higher expectation scores concerning RDP outcomes as well as a higher demand in relation to aesthetic results than men, no statistically significant difference between genders was achieved for VAS scores in the present sample. Such supports previously reported findings for complete denture patients [10,11] as well as those who use implant-supported prostheses [14].

Patients presented a mean age of 52.7 years, with a maximum of 74 and minimum of 32 years. Previous samples presented similar results regarding age [6,7]. Elderly patients who have previously worn dentures are more likely to accept the devices' limitations than younger users [1]. In the sample included in this study,

there was no significant correlation between age and scores for expectation and/or satisfaction with RDP. This outcome also supports previous research [11].

Two main reasons why patients seek RDP therapy are to improve aesthetics and chewing [5]. It is believed that the upper jaw, due to a higher aesthetic appeal, may create higher expectations concerning this aspect with RDP patients. Similarly, it was expected that patients who receive RDP on both arches may have higher expectations for chewing. However, there was no statistically significant difference of the VAS scores for different arches involved in the manufacture of RDP and, thus, the second hypothesis (for which there should not be significant differences among expectation and satisfaction scores related to clinical variables, nor with gender and age) was confirmed in this study.

Considering the importance of the patient/professional relationship to the success of denture therapy [2,11], a questionnaire was used to assess an important component of this relationship (i.e. the patients' evaluation of the dentists' conduct), which showed a clear predominance of positive ratings for all questions. However, there was a statistically significant difference of the average VAS scores to different questionnaire responses only for the first question (e.g. 'The dentist I saw thoroughly explained the recommended treatment prior to commencing my care') with VAS scores for expectations that relate to chewing and phonetics. This finding highlights the importance of the explanations that were given by dentists during the patients' first consultations. A detailed conversation allows the dentist to offer realistic explanations of dentures' limitations before treatment and serve as an important factor in assessing patients' satisfaction [11]. Thus, the success of denture therapy results not only from the dentists' skills, but also from their ability to relate to the patients and understand their needs. With respect to the remaining items on the

questionnaire regarding patients' evaluation of the dentists' conduct, there was no statistically significant difference of VAS scores, contrary to the indications of previous data [9]. Therefore, the third hypothesis was only partially confirmed.

One possible explanation for this result may involve other patient-related issues (i.e. previous experience with RDP, personality, attitude towards RDP and motivation for RDP use), which was not evaluated in this study but could strongly affect patients' scores for expectation and/or satisfaction with RDP more than the patient/professional relationship.

The limitations of the present study include a small sample size as well as the use of a quantitative approach and correlation-based analysis, which limits the evaluation of a cause-effect relationship among the evaluated variables. The number of remaining teeth, which was not evaluated in the present research, could also be a variable of interest for this matter and allow one to evaluate possible significant associations or correlations between the number of remaining teeth and other variables.

Regarding the methods of this study, both the VAS and Likert scale present some weaknesses, such as responsiveness in different settings and the fact that the wording of the response alternatives most likely affected the responses [15]. However, both scales have been evaluated and seem to be reliable, valid and responsive [16-18]. Despite its limitations, the present study is, to the best of our knowledge, the first research on expectations and satisfaction of RDP wearers in Brazil.

Conclusions

In this sample of RDP patients, the VAS scores for expectations prior to treatment were higher than those that indicated the patients' satisfaction after treatment. There was no statistically significant difference of VAS scores to different genders, age, number of post-delivery settings and arch involved in the RDP manufacture. Regarding the patients' evaluation of the dentists' conduct, there was a predominance of positive evaluations; however, only one statement (i.e. 'The dentist I saw thoroughly explained the recommended treatment before my care commenced') presents statistically significant differences of VAS scores regarding different answers.

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