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# Satisfaction and Fibromucosa Integrity in Patients Wearing Mandibular Kennedy Class I RPDs

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## Abstract

**Introduction:** The association between the patient's satisfaction and the occurrence of ulcers is important for treatment predictability. The aim of this study was to evaluate the satisfaction level, fibromucosa integrity and relation between these two factors in patients wearing mandibular Kennedy Class I removable partial dentures (RPD) and maxillary complete dentures at the Dental Department of Federal University of Rio Grande do Norte (UFRN).

**Materials and Methods:** The satisfaction of 52 patients was evaluated based on a questionnaire about current prostheses, reasons for dissatisfaction, personal opinions about the prostheses, function and period 6 months to 1 year after insertion of denture wearing. The fibromucosa integrity was based on the occurrence of ulcers after 24 hours; 7, 15, 30 and 60 days, and 6 months.

**Results:** A total of 90.4% of the patients (n=47) wore RPDs. Most of the patients (75%, n=39) reported satisfaction with RPDs; functional problems were the main reason for dissatisfaction (21.2%, n=11). The occurrence of ulcers decreased over time. The ulcers were usually located in the region of fornix. Patients were classified into Class III and IV according to the PDI classification. Fisher's exact test was used to assess any association between satisfaction and fibromucosa integrity and no significant difference was found ( $p=0.275$ ).

**Conclusions:** The patients reported appropriate satisfaction with the Kennedy Class I RPDs after 6 months and 1 year. There was no association between patients' satisfaction and fibromucosa integrity.

**Keywords:** Mandible; Oral ulcer; Partially edentulous arch; Removable partial denture; Satisfaction

dentures during the follow-up due to the need of repair or replacement.

## Introduction

Although removable partial dentures (RPDs) are widely used for rehabilitation of partially edentulous patients, some individuals report problems in function and esthetics with increased risk to caries and periodontal disease in patients with poor oral hygiene [1-6]. The instability observed with mandibular free-end RPDs may cause discomfort and problems during eating and speaking [7].

Some studies revealed discomfort and dissatisfaction in patients wearing those prostheses [8,9]. Witter et al. demonstrated no improvement in chewing after rehabilitation of some patients with mandibular free-end RPDs [8]. In their study, oral comfort was compared among individuals presenting shortened arch (n=74), shortened arch with free-end RPD (n=25), and dentate arch (n=72). The comfort was measured based on chewing, esthetics and occurrence of pain during 7 years. No significant difference was found among the groups regarding pain or discomfort. A total of 20% of the patients wearing RPD reported problems and 20% did not wear the

Vanzeveren et al. evaluated the efficacy of rehabilitation with removable partial dentures including 182 mandibular prostheses (137 Kennedy Class I and 24 Kennedy Class II) [10]. Among 292 dentures, 74 prostheses were replaced by a new RPD or complete denture since some RPDs were not worn. The failure rate was significantly higher for mandible in comparison to maxilla and most of the failures were observed with mandibular free-end RPD. A total of 63.6% of the patients reported continuous wearing of the dentures and high satisfaction level according to a 1-10 score. Similar satisfaction was observed for maxillary ( $8.9 \pm 1.3$ ) and mandibular ( $8.9 \pm 1.4$ ) RPDs. However, although some patients reported great satisfaction, this factor depends on the frequency of follow-ups and need repair, relining and teeth insertion.

Knezovic Zlatarić et al. also evaluated the satisfaction of patients wearing RPDs regarding social-economical situation, hygiene, comfort and denture characteristics [11]. A total of 205 patients answered a specific questionnaire and the dentures were scored from 1 to 5 according to the satisfaction level. The study included 123 maxillary and 138 mandibular RPDs (75.2% Kennedy Class I and 17.1%

Kennedy Class II). The results revealed that most of the patients were satisfied with the prostheses but the highly educated individuals were more concerned about esthetics ( $p < 0.05$ ) of the maxillary dentures. Significant difference was found between the satisfaction levels regarding comfort with mandibular dentures and number of tooth loss and between hygiene of mandibular dentures and hygiene habits. Dissatisfaction was associated to chewing, esthetics, number of tooth loss and oral hygiene. Dias et al. evaluated the change in quality of life of 33 patients treated with mandibular Kennedy Class I RPDs and maxillary complete dentures, using the Oral Health Impact Profile (OHIP-14) at baseline and 6 months after denture insertion. The authors observed that the rehabilitation improved oral health related to quality of life [12].

Although several studies have evaluated the patient's satisfaction in oral rehabilitation, there is a lack of evidence about the influence of ulcers occurrence on patient's comfort and satisfaction with RPDs. Considering that this association is important for treatment predictability, the aim of this study was to measure the satisfaction level of patients wearing mandibular Kennedy Class I RPD after a 1-year follow-up and its association with fibromucosa integrity regarding the occurrence of ulcers after 24 hours; 7, 15, 30 and 60 days, and 6 months.

## Materials and Methods

A longitudinal cohort study was conducted with 52 patients wearing mandibular Kennedy class I RPDs at the Dental Department of the Federal University of Rio Grande do Norte (UFRN). All patients signed an informed consent form about the purpose, risks and benefits of the research. The study was approved by the Ethics in the Research Committee of Onofre Lopes University Hospital, Natal, Brazil (Protocol Number 60244).

According to the inclusion criteria, all patients should wear maxillary complete denture and mandibular Kennedy Class I RPDs. All individuals were treated at the UFRN to standardize the procedures of denture fabrication. The new dentures were fabricated according to the protocol suggested by Carr et al. [13].

Patients were classified into Class III and IV according to the Prosthodontic Diagnostic Index (PDI) suggested by the American College of Prosthodontics [14,15]. According to this index, patients can be classified based on the severity of pre-treatment dental conditions. For partially edentulous patients, the classification depends on the position and extension of the edentulous areas, abutment conditions, occlusion and characteristics of the residual ridge. Most of the patients in this study were classified as Class IV since the panoramic radiographs revealed residual bone height  $\leq 10$  mm. Thus, those patients required surgical reconstruction. So they were treated due to the bone loss. For edentulous patients, the classification was based on mandibular bone height, inter arch relationships, morphology of the maxillary residual ridge and location of muscle insertions. Considering that the patients in this study exhibited edentulous maxillae and partially edentulous mandibles, each arch was diagnosed according to their respective classifications.

The patient's satisfaction about the treatment was evaluated based on a specific questionnaire. Rehabilitation and data collection were conducted by different operators to avoid any embarrassment for answering the questionnaire. The questionnaire was applied 6 months and 1 year after insertion of the new denture to evaluate satisfaction level and the reason for any dissatisfaction (i.e. function or esthetics).

The patient was asked to choose the answer that better fitted to the satisfaction/dissatisfaction level about the new denture. The absence of answer to any alternative was considered as a rejection to the affirmation. The answer chosen by the patients revealed their satisfaction level about the final treatment. The analysis of fibromucosa integrity was based on the occurrence of traumatic ulcer, which is commonly observed in denture wearers as a result of iatrogenic procedures [16]. The traumatic ulcer is clinically characterized by a small soreness surrounded by erythematous halo without elevation of the whitish margins [16,17]. The occurrence of ulcers was evaluated after 24 hours; 7, 15, 30 and 60 days; and 6 months. The follow-ups were carried out to observe the presence of ulcers and make any adjustments.

The variables were described as absolute values and percentage. The chi-square test was conducted to reveal any association between the dependent and independent variables at 5% level of significance.

## Results

The sample had 52 patients with mean age of 59.3 years and included 7 men (13.5%) and 45 women (86.5%).

Patients' Satisfaction		
Satisfaction with the new denture	n	%
Dissatisfied	13	25.0
Satisfied	39	75.0
Total	52	100
Reason of dissatisfaction		
Function	11	21.2
Another reason	2	3.8
Total	13	25.0
Personal opinion about the prosthesis		
Positive	49	94.2
Negative	3	5.8
Total	52	100
Functional use of the RPD		
Frequent wearing	47	90.4
Non-wearing	5	9.6
Total	52	100
Period of RPD wearing		
Day and night	17	36.2
Only day	30	63.8
Total	47	100

**Table 1:** Sample distribution according to the patients' satisfaction after 6 months and 1 year of insertion of new dentures.

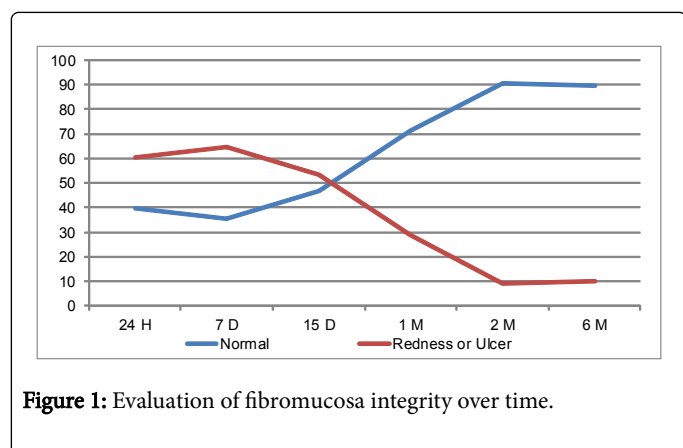
The patients' satisfaction after 6 months and 1 year wearing the new dentures is shown in Table 1. A total of 13 patients were dissatisfied with the RPD due to functional and esthetical problems. The patients also reported their personal opinion about the mandibular RPD. Most patients (63.8%) wore RPD only during the day.

Table 2 shows the results about fibromucosa integrity in the different periods of evaluation, up to 6 months follow-up. The number

of participants decreased because some patients did not show up in the follow-up sessions after insertion of the prosthesis. After 15 days, the amount of areas presenting redness or lesion decreased over time. It was observed that the patients were adapted to the new condition after 2 months (Figure 1).

Fibromucosa integrity	Follow-Up											
	24 hours		7 days		15 days		30 days		60 days		6 months	
	n	%	n	%	n	%	n	%	n	%	n	%
Normal	15	34.9	15	36.6	18	48.6	24	68.6	29	87.9	27	90
Redness or lesion	28	65.1	26	63.4	19	51.4	11	31.4	4	12.1	3	10
Total	43	100	41	100	37	100	35	100	33	100	30	100

**Table 2:** Sample distribution according to the fibromucosa integrity at different periods of evaluation.



**Figure 1:** Evaluation of fibromucosa integrity over time.

Satisfaction	Fibromucosa Integrity						p-value*
	Normal		Redness or Lesion		Total		
	n	%	n	%	n	%	
Dissatisfied	1	11.1	12	27.9	13	25.0	0.275
Satisfied	8	88.9	31	72.1	39	75.0	
Total	9	100	43	100	52	100	

\*Fisher's exact test

**Table 3:** Sample distribution according to the fibromucosa integrity and patient's satisfaction.

Table 3 shows the results about association between fibromucosa integrity and patient's satisfaction. Fisher's exact test demonstrated no statistically significant association between the two factors (p=0.275). No statistically significant association between satisfaction and fibromucosa integrity was found. It was found that 72.1% of the patients reported satisfaction with the new prostheses even in the presence of redness and/or lesion. The satisfaction is probably related

to the restoration of masticatory function and psychosocial habits; such as smiling, talking and social interaction. Furthermore, the patients were informed about the period of adaptation and occurrence of pain and discomfort in the soft and hard tissues. Thus, all patients were aware about the occurrence of complications.

## Discussion

The patients presented a mean age of 59.3 years. According to Van Waas et al., elderly are more satisfied with the treatment with RPDs when a significant number of occlusal unities are added to the dentition [18]. Thus, the RPD represents a satisfactory approach when the occlusal unities are enough for appropriate chewing even when the viscoelastic characteristics of the supporting tissues are different.

Several studies reported that the patients were dissatisfied with their mandibular RPDs due to functional limitations during daily routine [19,20]. The main reasons included poor denture retention and food impaction under the distal extensions [18]. The low level of dissatisfaction in the present study may result from appropriate techniques of impression and RPD fabrication, which demonstrates that all steps are important for the treatment success. The periodical follow-ups after denture insertion are also a great influence on patient's satisfaction since the prosthesis conditions (i.e. fit and occlusion) and the tissues health can be evaluated [13].

The problems with fibromucosa integrity during the initial phase of dentures insertion was not a great influence on patients' satisfaction. After adaptation, the areas presenting redness or lesion decreased over time and discomfort was not reported. The period of adaptation may vary. According to Abel and Manly, the maximum masticatory efficiency was observed 1 month after new RPD insertion [21]. Garrett et al. observed minimum functional alterations 4 months after denture insertion while Zarb et al. stated that 6 to 8 weeks are required for appropriate chewing with a new occlusal pattern [22,23].

According to Fueki et al., the RPD is a common treatment alternative for partially edentulous patients since it is a non-invasive and low-cost approach [24]. However, the patients with loss of posterior teeth frequently stop wearing this prosthesis [19,25].

Despite the limitations of mandibular free-end RPDs, most of the patients presented normal fibromucosa and appropriate satisfaction 2 months after new dentures insertion. This data is relevant since RPDs can be an alternative for rehabilitation of mandibular posterior region when limited bone height is observed and bone reconstruction is counter-indicated.

In the present study, the sample size included a total of 52 patients. The authors suggest that a larger sample should be evaluated after a longer follow-up. In addition, the poor social-economical condition of the patients also influenced the results, revealing the findings for only a specific group. Considering that not all patients wore RPDs before the new dentures insertion, the sample was not completely standardized. In this sense, the patients that had a previous experience with RPD treatment (21.1%) were aware about the limitations of this prosthesis as a consequence of individual characteristics of mandibular residual ridge (i.e. bone height and shape). Thus, most of the patients that had a positive previous experience wearing RPD were easily adapted to the new condition.

## Conclusion

According to the methods and results, it was concluded that the patients presented appropriate satisfaction about RPD treatment. In addition, no association was found between patient's satisfaction and fibromucosa integrity based on the occurrence of ulcers after new dentures insertion. Regarding fibromucosa integrity, the patients were adapted to the new condition 2 months after wearing RPDs.

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