# Short Communication

# Factors Related to Patients' General Satisfaction with Removable Partial Dentures: A Stepwise Multiple Regression Analysis

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This study aimed to analyze factors related to patients' general satisfaction with removable partial dentures (RPDs), such as esthetics, retention, speech, chewing, and comfort. A total of 103 patients with Kennedy Class I RPDs (34 to 82 years old; mean age: 63; 35 men, 68 women) assessed their satisfaction with dentures. Stepwise multiple regression analysis was used to evaluate the relationship among the factors. Significant correlations were found between general satisfaction and each of the individual components (P < .05). The patients' assessment of esthetics explained almost 50% of general satisfaction in both arches (P < .05). Esthetics, chewing, and speech had significant effects on the patients' general satisfaction with dentures. *Int J Prosthodont 2008;21:86–88.* 

For some patients, overall satisfaction with dentures is related primarily to comfort and the ability to masticate, while in other patients, esthetics and retention seem to be more important.<sup>1–5</sup> The aim of this study of patients wearing Kennedy Class I removable partial dentures (RPDs) was to analyze the influence of patients' satisfaction with esthetics, retention, speech, chewing, and comfort of wearing on general patient satisfaction, and to identify the factors that significantly explain the variability in general patient satisfaction.

## **Materials and Methods**

This study involved 103 partially dentate patients (34 to 82 years old; mean age: 63; 35 men, 68 women) who were wearing a recently inserted second pair of Kennedy Class I RPDs (metal framework, maxillary U-shaped palatal major conector, mandibular linguplate,

cobalt-chromium clasps, occlusal indirect retainers) replacing teeth posterior to the canines and/or first premolars in both arches. The Ethics Committee of the Dental School of the University of Zagreb approved this study, and voluntary written informed consent was obtained from each patient.

The following parameters, correlated with the patients' satisfaction with their RPDs, were taken into consideration: general patient satisfaction and patient satisfaction with esthetics, retention, speech, chewing, and comfort.

Patients graded their satisfaction by using an analog scale ranging from 1 to 5 (1 = unsatisfactory, 5 = excellent). When assessing the comfort of denture wearing, the scale was reversed (1 = minimum discomfort, 5 = maximum discomfort) and the value zero (0) was included to describe a situation with no discomfort at all.

The data were analyzed with a statistical software package (SPSS 10.0, SPSS Inc). Spearman rank order correlations were used to test the correlations between the patients' satisfaction assessments (P < .05). Stepwise multiple regression analysis was used to sequentially identify the patients' assessments of esthetics, retention, speech, chewing, and comfort when wearing Kennedy Class I maxillary and mandibular RPDs (independent variables) that were most closely associated with general patient satisfaction (dependent variable).

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Fig 1 Patients' assessments of their maxillary and mandibular removable partial dentures (RPDs).

**Table 1** Stepwise Multiple Regression Analysis Showing the Factors Most Closely Associated with General Satisfaction (P < .05)

Independent variables	Dependent variables								
	General satisfaction (maxillary RPD)				Genera	General satisfaction (mandibular RPD)			
	R	$R^2$	Р	SE	R	$R^2$	Р	SE	
Esthetics	0.67	0.45	.000013	0.35	0.73	0.53	.000	0.36	
Chewing	0.73	0.53	.00074	0.34	0.79	0.1	.000	0.33	
Speech	0.75	0.56	.04010	0.37	-	-	-	-	

## Results

The patients were mostly satisfied with their prostheses and reported no pain under the denture-bearing area (Fig 1). For all parameters analyzed, the patients' assessments did not follow normal distribution and were skewed toward positive scores, except for the assessments of the comfort of wearing RPDs, which were skewed toward negative scores because of the reversed scale, as the patients reported minimum discomfort (P < .05, Kolmogorov-Smirnov normality test; Fig 1).

General satisfaction was positively correlated with the patients' assessments of esthetics, retention, speech, and chewing (P < .05) and negatively correlated with comfort of wearing (lower pain sensation under the denture base was associated with higher patient satisfaction) (P > .05).

Multiple regression analysis showed that patients' general satisfaction with maxillary RPDs significantly

correlated with their assessments of esthetics (P < .001), chewing (P < .001), and speech (P < .05), and the combination of these factors explained the variability of the patients' general satisfaction by 56% (Table 1).

In mandibular RPD wearers, multiple regression analysis showed that patients' general satisfaction significantly correlated with their assessments of esthetics (P < .001) and chewing (P < .001), and the combination of the factors explained the variability of the patients' general satisfaction by 63% (Table 1).

### Discussion

In a previous study, Strassburger et al<sup>4</sup> stated that the most frequently used questions when assessing patient satisfaction with prosthodontic therapy were related to chewing function (86%), esthetics (77%), speech (68%), and general satisfaction (67%). Therefore, the same parameters were chosen in this study. The results showed that esthetics, retention, speech, chewing, and comfort of wearing all significantly influence patients' satisfaction with RPDs. The majority of the variances in both arches were explained by the patients' assessment of esthetics (45% in maxillary RPDs, 53% in mandibular RPDs). It seems that the visual appearance of the RPDs is more important for most patients than function, which is in agreement with previous studies.<sup>2,3</sup>

Although significant correlations were found between general satisfaction and patients' assessments of retention and comfort of wearing (P < .05), these correlations did not reach a level of significance in a multiple regression analysis (P > .05).

## Conclusions

This study suggests that esthetics, chewing, and speech are important factors in patients' general satisfaction with RPD therapy, with esthetics explaining almost 50% of general satisfaction.

## References

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#### Literature Abstract

#### Direct loading of Nobel Direct and Nobel Perfect one-piece implants: A 1-year prospective clinical and radiographic study

The aim of this prospective study was to analyze whether the Nobel Direct and Nobel Perfect 1-piece implants (OPIs), minimize marginal bone loss when used for immediate function, whether vertical placement can be varied, and whether the esthetic result is optimized as claimed by the manufacturer. Forty-eight patients (mean age: 67.8 years) were provided with 115 OPIs for loading with a provisional crown or fixed prosthesis within 24 hours and followed for at least 12 months with clinical and radiographic examinations. A group of 97 patients (mean age: 62.3 years) previously treated under identical conditions by the same team with 380 2piece implants (TPIs) for immediate loading in the mandible and maxilla served as the reference group. One hundred and one implants were placed in healed sites and 14 in extraction sockets. Single crowns were not in occlusion and were free from proximal contacts. One month to 3 months after implant placement, the fixtures were prepared with a chamfer using purpose-made drills depending on soft tissue healing. Clinical follow-up was carried out at 3, 6, and 12 months and annually thereafter. The marginal bone was evaluated in digital periapical radiographs taken after surgery and after 1 year in function. Descriptive statistics were used, and the data were presented as mean values with standard deviations. A life table was used to calculate implant survival rates. The Spearman correlation test was used to evaluate the possible relation between implant insertion depth and marginal bone resorption. Six (5.2%) OPIs failed during the follow-up due to extensive bone loss. Five (1.3%) implants failed in the reference group. After 1 year, the mean marginal bone loss was 2.1 mm (SD: 1.3) for OPIs and 0.8 mm (SD: 1) for TPIs. Twenty percent of OPIs showed more than 3 mm of bone loss compared with 0.6% for TPIs. When compensating for vertical placement depth, OPIs still showed a lower marginal bone level and thus more exposed threads than TPIs. Depending on the criteria used, the success rate for OPIs was 46.1% or 72.2% compared with 85% or 91.6% for TPIs. The Nobel Direct and Nobel Perfect OPIs show lower success rates and more bone resorption than TPIs after 1 year in function. The authors speculated that factors such as implant design, insertion depth, rough surface toward the mucosa, in situ preparation, and immediate loading may have an influence on the clinical outcome.

Ostman PO, Hellman M, Albrektsson T, Sennerby L. Clin Oral Implants Res 2007;18:409–418. References: 25. Reprints: Dr Per-Olov Östman, Holmgatan 30, SE-79171 Falun, Sweden. E-mail: po.ostman@telia.com—Tapan N. Koticha, National University of Singapore Faculty of Dentistry, Singapore Copyright of International Journal of Prosthodontics is the property of Quintessence Publishing Company Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.