

Impact on quality of life of removable partial denture wearers after 2 years of use

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Abstract

The use of clinical indicators of satisfaction (OHIP) can be applied to evaluate the impact of denture use on patient quality of life, since dental problems and disorders interfere in the normal life of individuals. **Aim:** This study aimed at evaluating the satisfaction level of patients rehabilitated with removable partial dentures (RPD) after 2 years of use. **Methods:** An observational study was carried out on 28 patients with a mean age of 45 years, treated with RPD at the Department of Dentistry of the Federal University of Rio Grande do Norte in 2005. Patients signed informed consent and answered the Oral Health Impact Profile (OHIP) questionnaire on three occasions: prior to rehabilitation and at 3 months and 2 years of denture use. Repeated-measures ANOVA was applied for data analysis. **Results:** A difference was found between data obtained at the moment of fitting and three months after denture use ($p < 0.001$). However, no variation was observed when comparing data from 3 months and 2 years of use ($p > 0.05$). The variables of gender and age did not interfere in the result ($p > 0.05$). **Conclusions:** The degree of patient satisfaction after RPD installation was significant at the moment of fitting and 3 months after denture use, but no significant difference was found between 3 months and 2 years of denture use.

Keywords: oral health, removable partial denture, quality of life.

Introduction

Reestablishing and maintaining stomatological health in edentulous patients through different types of prostheses is aimed at providing biopsychosocial balance. Removable partial denture (RPD) is a common treatment alternative to restore edentulous areas because it requires conservative preparations and offers rapid resolution and more accessible costs¹.

Oral rehabilitation can have a positive impact on the physical, social and psychological well-being of patients. It may hence prevent problems such as concentration difficulties, anxiety and even social exclusion²⁻³. With this in mind, dental surgeons have become increasingly concerned about the influence of clinical outcomes on quality of life in their patients².

According to Ruffino Netto⁴, good quality of life provides minimum means for individuals to fully develop their potential. These include living, feeling or loving, working to produce assets or services, making art or science, being useful citizens or simply existing. Quality of life is also understood as a standard that

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society itself defines and attempts to achieve, consciously or subconsciously⁵.

Substantial interest in quantifying the consequences of disease on quality of life prompted the development of several instruments indicating the impact of oral health on quality of life. Among these, the OHIP (Oral Health Impact Profile) is a powerful tool in oral health assessment related to quality of life³. The questionnaire was developed by the researchers Slade and Spencer⁶. Its original version presents 49 items and is considered a subjective indicator as it reveals individual expectations in relation to oral health.

The OHIP is based on Locker's⁷ conceptual model of oral health and includes seven dimensions: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and incapacity⁸. In a study evaluating oral health issues, or specific health issues, the OHIP was considered the optimal questionnaire in accordance with the EQ-5D+ (European quality of life indicator or euroQol Instrument)⁹. This is due to the wide scope of its seven dimensions. Pires et al.¹⁰ validated the questionnaire after translation into Portuguese and adaptation to the Brazilian culture. Results showed that the questionnaire is valid in assessing the impact of oral conditions on the quality of life of Brazilians.

In most people, oral health changes such as tooth loss affect quality of life¹¹. The fully edentulous condition negatively impacts oral health-related quality of life (OHRQoL)¹², including the inability to chew, poor speech, pain, and dissatisfaction with appearance¹³. Biazevic et al.¹⁴ used the OHIP to evaluate the impact of oral condition on quality of life of elderly peoples. The authors concluded that the need for prosthesis was related to the impact on quality of life. Variables such as type of denture use, gender, age, education level and area of residence are also assessed by the OHIP questionnaire¹⁵. Only type of prosthesis was found to influence quality of life.

Each population has different perceptions of their oral health status and quality of life¹⁶, depending on their lifestyle, socioeconomic status and access to the health system. The aim of the present study was to assess the impact of oral health on quality of life in patients with RPD after 2 years of use.

Material and methods

The present intervention study was carried out in the Department of Dentistry at the Federal University of Rio Grande do Norte, with patients from the Removable Partial Denture and Integrated Clinic disciplines and approved by the UFRN Research Ethics Committee (protocol number 11/05). The initial sample included all patients in the RPD fitting phase in 2005, making randomization unnecessary. All of the 56 patients who received RPDs in 2005 had previously used prostheses. However, 2 were lost to follow up for reasons such as transfer to another state and lack of interest in participating. This represents a loss of 3.57%, totaling 54 patients. Of these, 38 were female and 16 were male, with an age range between 26 and 66 years and a mean age of 45 years.

Patients were rehabilitated by undergraduate dental students under the supervision of Prosthodontics professors. All participants received prior oral treatment and mouth preparation specific to each case, planned with the assistance of a delineator. Every care was taken to maintain the state of health of biological structures. In addition, patients were instructed on care and cleaning procedures for the dentures.

The OHIP questionnaire was applied before fitting the new removable partial denture (baseline) to evaluate the impact of oral health on quality of life in wearers. It was reapplied 3 months (time 1), time needed for patients to adapt to new prosthesis, and 2 years (time 2) after fitting, allotted time for patients able to identify possible changes in quality of life, totaling 3 assessment times. At time 2, there was a 56% loss of baseline patients due to transfer to another state, disinterest in participation or loss of contact (address/telephone), totaling a final sample of 28 patients. Of these, 16 were female and 12 male, with a mean age of 46 years.

Data were then compiled into a databank on Microsoft Office Excel 2003 and SPSS 13.0 software was used for descriptive statistical analysis. The three assessment times were compared by analyzing the mean (*m*) and standard deviation (*SD*) of the OHIP dimensions. A normality test was applied (Kolmogorov-Smirnov) followed by repeated-measures ANOVA. Student's *t*-test was performed to determine whether the variables of gender and age interfered in results.

Results

In relation to the duration of RPD use: before fitting (baseline), after 3 months (time 1) and after 2 years (time 2) of wearing the new RPD, a statistically significant difference was found from baseline (mean: 125.75) to time 1 (mean: 88.61) ($p < 0.001$). However, no such difference was recorded from time 2 (mean: 88.61) to time 3 (mean: 83.82), ($p > 0.05$) (Table 1).

Both the mean OHIP value and its dimensions decreased. The former fell by 33%, from the baseline (mean: 125.75) to time 2 (mean: 88.61) (Figure 1), as well as its seven dimensions: Incapacity (baseline:10.75 and time 2: 9.09), disability social (baseline: 9.61 and time 2: 7.57), disability psychological (baseline:14.57 and time 2: 4.43), disability physical (baseline: 22,89 and time 2: 5.37), discomfort psychological (baseline: 17.14 and time 2: 8.3), physical pain (baseline: 24.46 and time 2: 10.04) and limitation functional (baseline: 26.32 and time 2: 5.4) (Figure 2).

The mean variables gender, of non-evaluated patients, at baseline (Male: 118,7 and Female: 131.0) , time 1 (Male: 86.3 and Female: 90.3) and time 2 (Male: 92.42 and Female: 77.4) as well as the variable age, at baseline (up to 46: 135.9 and over 46:115.6) , time 1 (up to 46: 90.4 and over 46: 86.8) and time 2 (up to 46: 96.8 and over 46:70.9) did not interfere in the results obtained for OHIP values ($p > 0.05$) (Table 2).

Table 1: OHIP Values of the respective dimensions in relation to time: before, after 3 months and after 2 years of RPD use.

Dimension	n	Before		3 months		2 years		p*
		Mean	S.D	Mean	S.D	Mean	S.D	
Functional Limitation	28	26.3 ^a	8.8	17.7 ^b	7.6	16.0 ^b	5.4	< 0.001
Physical Pain	28	24.5 ^a	6.1	18.3 ^b	7.2	18.1 ^b	10.0	0.004
Psychological Discomfort	28	17.1 ^a	4.8	11.7 ^b	4.9	12.1 ^b	8.3	0.002
Physical Disability	28	22.9 ^a	8.7	16.8 ^b	5.6	13.9 ^b	5.4	< 0.001
Psychological Disability	28	14.6 ^a	6.4	9.5 ^b	4.2	8.5 ^b	4.4	< 0.001
Social Disability	28	9.6 ^a	5.3	6.5 ^b	2.7	6.9 ^b	7.6	0.081
Incapacity	28	10.8 ^a	4.5	8.1 ^a	4.1	8.3 ^a	9.1	0.225
OHIP	28	125.8 ^a	35.0	88.6 ^b	30.0	83.8 ^b	41.3	<0.001

* Repeated-measures ANOVA Test. Same letters, no significant difference; different letters, significant difference.

Table 2. OHIP values in relation to gender (female/male) and age (up to 46 years/over 46 years).

Variable	N	Before			3 months			2 years		
		Mean	S.D	p*	Mean	S.D	p*	Mean	S.D	p*
Gender										
Male	12	118.7	38.3	0.382	86.3	37.2	0.751	92.42	56.3	0.403
Female	16	131.0	32.6		90.3	24.5		77.4	25.4	
Age										
Up to 46 years	14	135.9	37.6	0.129	90.4	33.8	0.755	96.8	54.8	0.107
Over 46 years	14	115.6	30.2		86.8	26.9		70.9	13.29	

* Student's T-test

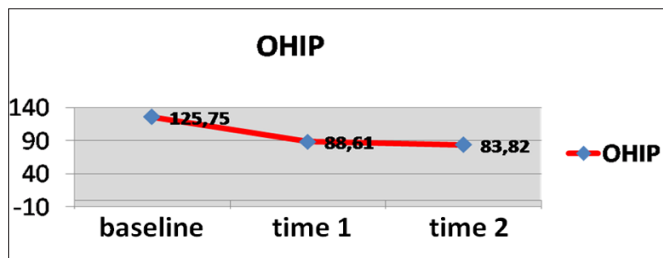


Fig. 1. Mean OHIP value in relation to time: before (baseline), after 3 months (time 1) and after 2 years (time 2) of removable partial denture use.

Discussion

Based on a recent systematic review, there is a trend in the literature indicating that validated instruments, such as OHIP, are being increasingly applied to investigate the influence of prosthodontic and dental implant treatment on patient satisfaction and OHRQoL¹⁷⁻¹⁸. The present study found that prior to fitting the new RPD (baseline) and following 3 months of use, OHIP values decreased by approximately 33%, representing a statistically significant difference ($p < 0.001$).

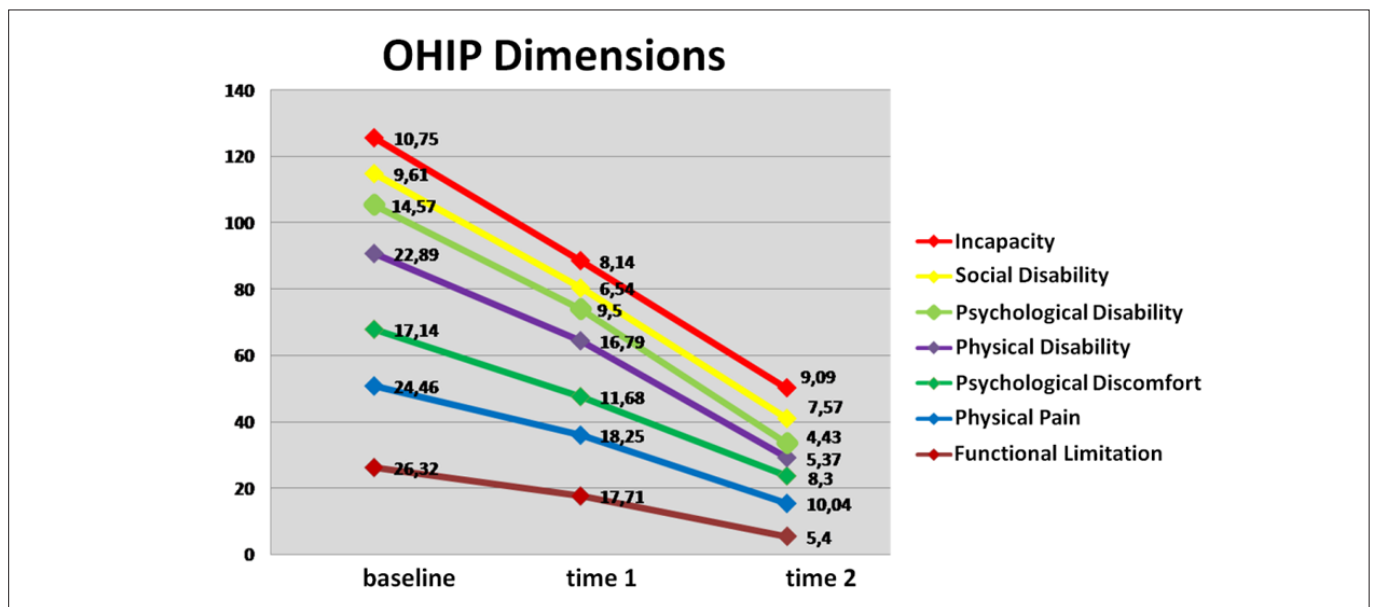


Fig. 2. Mean OHIP dimension values in relation to time: before (baseline), after 3 months (time 1) and after 2 years (time 2) of removable partial denture use.

These results show that patients were already in a better quality of life after 3 months using the new dentures. John et al.¹⁹ investigated the minimal important difference (MID) in OHIP scores in prosthodontic patients. In corroboration with data from our study, these authors assessed a consecutive sample of 224 adult patients who answered the OHIP questionnaire twice before treatment and 4 to 6 weeks after completion of the prosthodontic treatment. The mean baseline and follow-up OHIP differences (score change) were calculated for subjects (N = 47). A slight improvement was reported in the amount of 6 OHIP units (95% confidence interval). Similarly, Jokovic and Locker²⁰ evaluated the dissatisfaction with oral health in 907 50-year-old Canadians and found that edentulous patients are more unsatisfied than dentate subjects. Comparable findings were reported by Smith, Baysan and Fenlon²¹ in a sample of 216 patients aged 18-83 years, recruited from the implant assessment clinic. These authors concluded that the impact of oral health on quality of life in these subjects was strongly associated with general well-being. Biasevic et al.¹⁴ also observed that quality of life was affected in patients requiring prosthesis. The type of prosthesis may also impact the life quality of wearers, with complete dentures obtaining worse results²².

When analyzing the influence of denture use times on quality of life, we found that wearers maintained the same quality of life after 3 months (time 1) and 2 years (time 2) of RPD use, since levels of the OHIP dimension were not statistically different between times 1 and 2 ($p > 0.05$), even with a reduction of 50% of the participants can observe similarity in mean OHIP. These results show that professors and students are careful when making the prosthesis, thereby helping to achieve patient satisfaction with their denture over 2 years. Zlataric²² confirms that greater dissatisfaction about RPD is related to esthetics (50%), which depends on the dental surgeon for success. Chewing ability, a common and important oral health indicator among the elderly²³⁻²⁴ has been reported to affect general health and quality of life when unsatisfactory. Kim et al.²⁵ investigated the association between chewing capacity and oral health-related quality of life (OHRQoL) by applying the Oral Health Impact Profile-14 (OHIP-14). This cross-sectional study comprised a sample of 307 community-dwelling and 102 institutionalized people over the age of 60, using a cluster sampling procedure. A significant association was found between chewing ability and OHRQoL measured by the OHIP-14 score. Amelioration of chewing ability might independently contribute to improving OHRQoL in elderly patients.

In an effort to clarify the exact nature and use of OHRQoL instruments, several researchers have explored comprehensive relationships between these and other potentially associated factors such as: demographic²⁶⁻²⁷ and socioeconomic factors²⁸, clinical measurements of oral health²⁶⁻²⁹ health behaviors including patterns of dental attendance²⁸, need for dental treatments²⁷, self-perceived health, differences in target population age, types of treatment provided, cultural and different expectations. This may indicate that the minimal important difference (MID) for OHIP instruments is not

constant across settings¹⁹. In the present study, the variables gender and age were analyzed to determine whether they interfered with results for time of denture use in relation to quality of life. Both variables were found to have no influence on results. Gonçalves et al.³⁰ reported similar findings as they observed no difference in the impact on oral health between men and women. John et al.¹⁵ assessed the influence of variables: type of prosthesis, gender, age, education and area of residence on quality of life. Only the type of prosthesis was found to influence quality of life, with the RPD achieving better satisfaction from wearers. However, John et al.¹⁹ observed slight to moderate differences in OHIP mean scores between gender and age groups. Differences in mean baseline scores were usually slight, indicating no subgroup differences in the level of OHRQoL impairment. Score changes (baseline and follow-up) varied somewhat more - in female subjects, younger individuals and patients with removable dentures experienced marginally larger changes than the remaining subjects. No attempt was made to assess the statistical significance of these differences since the minimal important difference (MID) was not expected to vary between subgroups. Similarly, Gilbert et al.¹⁶ observed the gender and age range associated with some disadvantages and found that women were more likely to report avoiding tough foods. Thus, these factors should be taken into account when investigating the possible relationship between oral conditions and well-being²¹.

The obtained results indicate that oral rehabilitation with RPD reestablishes and maintains health in the stomatological system and can therefore improve patient quality of life.

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