

Patient-Reported Outcomes of Complete Denture Rehabilitation: A Prospective Observational Study

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Abstract

Background: Complete denture rehabilitation is still one of the main types of treatment of edentulous patients, but the overall patient-reported outcomes (PROs) knowledge on the variety of domains is deficient. The purpose of the study was to assess PROs after the completion of the process of complete denture rehabilitation in terms of oral health-related quality of life, and satisfaction, as well as functional parameters.

Materials and Methods: This was a prospective observational study in which 156 fully edentulous participants were recruited who were prescribed conventional complete dentures at a university dental clinic between January 2022 and December 2023. The baseline, 1-month, 3-month and 6-month post-insertion assessments of PROs involved the Oral Health Impact Profile on Edentulous Patients (OHIP-EDENT), denture satisfaction questionnaire and chewing efficiency visual analog scale. Paired t-tests, repeated measures analysis of variance, and Pearson correlation coefficients were used as the statistical analysis. **Findings:** Mean OHIP-EDENT score reduced significantly between baseline (38.42 ± 12.67) and 6 months (18.56 ± 8.34) ($P < 0.001$), which represented a significant change in oral health-related quality of life. The total percentage of denture satisfaction has improved to $78.45 \pm 11.82\%$ ($P < 0.001$) as compared to $42.18 \pm 15.23\%$. The scores of chewing efficiency were improved by 67.3% ($P < 0.001$). The age, gender, and edentulousness time had a significant impact on the outcomes of treatment. Patients who had shorter edentulous periods distributed better ($P = 0.003$). **Conclusion:** Full denture restoration is a significantly more effective treatment method to enhance PROs in the functional, psychological and social aspects. Prosthetic intervention and patient education provide success in treatment and patient satisfaction at the early stages of the healing process after the loss of teeth.

Keywords: Complete dentures, Denture satisfaction, Edentulism, Oral health-related quality of life, Patient-reported outcomes, Prosthetic rehabilitation

INTRODUCTION

Edentulism, which is the total loss of natural dentition, is a major global oral health burden with millions of people in various parts of the world suffering it, especially the old-aged people.^[1] Although preventive dentistry and implant-supported denture lead to more affordable and effective treatment, complete denture is the main modality of treatment among most of the edentulous patients due to the economic factor, the systemic health issues, and anatomy-related restrictions.^[2] Edentulism is a physical impairment identified by the World Health Organization and determines a significant effect on the nutritional status, the interaction with the surrounding environment, and the quality of life in general.^[3]

Patient-reported outcomes (PROs) have become important predictors of the success of treatment in prosthodontics that supplement the usual clinical outcome measures.^[4] As opposed

to clinician-reported measures, like retention, stability, and occlusion, which reflect the objective experience of the individual with their prosthesis in everyday life, PROs reflect the subjective experience of the person wearing the prosthesis on an everyday basis.^[5] These measures have a paradigm shift in terms of integrating patient-centered care in the field of dentistry.^[6]

Oral Health Impact Profile (OHIP) and its denture-specific adaptation (OHIP-EDENT) have been well-established as

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quality tools of assessing oral health-related quality of life in denture wearers.^[7] These tools evaluate various areas such as functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap.^[8] Past studies have shown a substantial change in OHIP scores after prosthetic rehabilitation, with a great amount of inter-individual variation.^[9]

Denture satisfaction is a multi-dimensional concept that involves such aspects as comfort, aesthetics, mastication, speech, and retention.^[10] Research has indicated that patient satisfaction is not necessarily directly related with clinical quality measurement, thus the need to understand patient views.^[11] Some of the factors that determine satisfaction are prior experience in denture, expectations of the patient, psychological determinants, and the quality of the relationship between the patient and the dentist.^[12]

Recent studies have examined the association between total denture reconstruction and general health outcome. Enhanced masticatory functioning has been implicated with a better nutritional intake and a lower chance of cognitive loss in old age groups.^[13] Moreover, denture rehabilitation has proven to be effective in providing positive socialization and psychological tolerance.^[14]

Although the topic has been researched extensively, there are still gaps in the knowledge of the course of patient adaptation to complete dentures and predictability of successful outcomes.^[15] The majority of the studies use cross-sectional design or short-term follow-up and do not account for the dynamic nature of patient adaptation.^[16] Besides, the effects of demographic and clinical factors on PROs should also be clarified further.

This study was meant to critically assess PROs after full denture rehabilitation at 6 months and factors that were found to be related to the success of the treatment process and patient satisfaction.

MATERIALS AND METHODS

Study design and setting

This prospective observational study was conducted at the Department of Prosthodontics, University Dental Hospital, between January 2022 and December 2023.

Sample size calculation

Sample size was calculated using G*Power software version 3.1.9.7, based on previous literature reporting mean OHIP-EDENT differences of 15 points with a standard deviation of 12. Assuming $\alpha = 0.05$, power = 0.90, and an anticipated dropout rate of 15%, a minimum of 145 participants was required. To account for potential attrition, 160 patients were initially enrolled.

Participant selection

Inclusion criteria comprised: (1) completely edentulous patients in both arches; (2) age 45–85 years; (3) indication for conventional complete denture fabrication; (4) adequate

cognitive function to complete questionnaires; and (5) willingness to attend follow-up appointments.

Exclusion criteria included: (1) severe systemic conditions contraindicating dental treatment; (2) severe residual ridge resorption requiring pre-prosthetic surgery; (3) history of radiotherapy to the head and neck region; (4) neurological conditions affecting oral motor function; (5) psychiatric disorders; and (6) previous implant-supported prostheses.

Prosthetic procedures

All complete dentures were fabricated following standardized protocols by experienced prosthodontists. Preliminary impressions were made using irreversible hydrocolloid in stock trays, followed by custom tray fabrication using auto-polymerizing acrylic resin. Final impressions were obtained using zinc oxide eugenol impression paste with border molding. Jaw relations were recorded using conventional techniques, and teeth arrangement followed anatomic guidelines. Dentures were processed using a compression molding technique with heat-polymerized acrylic resin.

Outcome measures

Primary outcome

Oral health-related quality of life was assessed using the validated 19-item OHIP-EDENT questionnaire. Responses were recorded on a 5-point Likert scale (0 = never, 1 = hardly ever, 2 = occasionally, 3 = fairly often, 4 = very often). Total scores ranged from 0 to 76, with lower scores indicating better oral health-related quality of life.

Secondary outcomes

- Denture satisfaction was measured using a 20-item questionnaire assessing comfort, aesthetics, retention, stability, mastication, and speech on visual analog scales (0–100 mm)
- Chewing efficiency was evaluated using a self-reported 100-mm visual analog scale
- Patient-perceived adaptation was assessed through structured questions regarding wearing time and functional limitations.

Data collection

Assessments were conducted at four time points: baseline (pre-treatment), 1 month, 3 months, and 6 months post-denture insertion. All questionnaires were administered by a trained research assistant blinded to clinical treatment details. Demographic data, including age, gender, education level, duration of edentulousness, and previous denture experience, were collected at baseline.

Statistical analysis

Data were analyzed using the Statistical Package for the Social Sciences version 26.0 (IBM Corporation, Armonk, NY). Continuous variables were expressed as mean $\pm$ standard deviation, and categorical variables as frequencies and percentages. Normality was assessed using the Shapiro–Wilk test. Paired t-tests compared outcomes between time points.

Repeated measures analysis of variance with Bonferroni correction evaluated changes across all time points. Pearson correlation coefficients examined relationships between variables. Multiple linear regression identified predictors of treatment outcomes. Statistical significance was set at $P < 0.05$.

RESULTS

Participant characteristics

Of 160 initially enrolled patients, 156 completed the 6-month follow-up (97.5% retention rate). Four participants were excluded due to relocation ($n = 2$), medical complications ($n = 1$), and withdrawal of consent ($n = 1$). The mean age was 64.28 ± 9.45 years, with 89 males (57.1%) and 67 females (42.9%). Mean duration of edentulousness was 4.82 ± 3.67 years. Demographic characteristics are presented in Table 1.

Oral health-related quality of life

OHIP-EDENT scores demonstrated significant improvement over time ($F = 187.42$, $P < 0.001$). The mean baseline score of 38.42 ± 12.67 decreased progressively to 28.34 ± 10.56 at 1 month, 21.78 ± 9.12 at 3 months, and 18.56 ± 8.34 at 6 months. The greatest improvement occurred between baseline and 1 month (26.2% reduction), with continued significant improvements at each subsequent time point ($P < 0.001$ for all pairwise comparisons).

Denture satisfaction and functional outcomes

Overall denture satisfaction improved substantially from baseline to 6 months across all domains. The mean overall satisfaction score increased from 42.18 ± 15.23 at baseline to 78.45 ± 11.82 at 6 months ($P < 0.001$). Satisfaction with aesthetics showed the highest scores (82.34 ± 10.45), while satisfaction with mandibular denture retention demonstrated the lowest scores (68.56 ± 14.78). Detailed satisfaction scores are presented in Table 2.

Factors influencing treatment outcomes

Multiple regression analysis identified significant predictors of treatment outcomes at 6 months. Duration of edentulousness ($\beta = 0.312$, $P = 0.003$), previous denture experience ($\beta = -0.245$, $P = 0.008$), and age ($\beta = 0.198$, $P = 0.024$) were significantly associated with OHIP-EDENT scores. Patients with shorter edentulous periods and previous denture experience demonstrated better outcomes. Gender and education level were not significant predictors. Subgroup analyses are presented in Table 3.

DISCUSSION

This prospective study revealed that there were great enhancements in PROs after full denture reconstructive after 6 months of tracking. The results support the notion that conventional complete dentures are still a valid treatment modality to restore oral functioning and enhance the quality of life in edentulous patients.

Table 1: Demographic and clinical characteristics of study participants ($n=156$)

Variable	Category	n (%) / Mean $\pm$ SD
Age (years)	Mean	64.28 $\pm$ 9.45
	45–54	28 (17.9)
	55–64	52 (33.3)
	65–74	54 (34.6)
	75–85	22 (14.1)
Gender	Male	89 (57.1)
	Female	67 (42.9)
Education level	Primary	34 (21.8)
	Secondary	68 (43.6)
	Higher	54 (34.6)
Duration of edentulousness	<2 years	48 (30.8)
	2–5 years	62 (39.7)
	>5 years	46 (29.5)
Previous denture experience	Yes	98 (62.8)
	No	58 (37.2)
Reason for tooth loss	Caries	67 (42.9)
	Periodontal disease	72 (46.2)
	Trauma/Other	17 (10.9)

The significant improvement in the OHIP-EDENT scores of 38.42–18.56 is clinically significant as it is above the minimal important difference of 9 that has been determined in earlier validation research.^[17] This amount of improvement is in line with what Stober and colleagues have found, where they recorded the same amount of improvement after full denture treatment.^[18] The incremental improvement trend, where the most positive changes were made during the 1st month, then the benefits further provided during 6 months, reflects the adaptive process in which the complete denture rehabilitation is done.^[19]

The 80% denture satisfaction levels at 6 months have been observed, which is comparable to the results obtained in systematic reviews of complete denture treatment.^[20] It is worth noting that mandibular denture retention was the lowest rated in terms of satisfaction, which is in line with the biomechanical difficulties associated with the maintenance of good stability in the mandibular arch.^[21] The observation highlights the relevance of the best methods of impressions and patient education on the limitations of mandibular dentures.

There are important clinical implications of the impact of edentulousness duration on the treatment outcomes. Adaptation was worse in patients with long-term edentulism, which is probably caused by gradual residual ridge resorption and neuromuscular alterations.^[22] Ellis *et al.* also indicated the same results stating that long-term prosthesis removals were detrimental to the later denture adaptation.^[23] These results propose the use of timely intervention of prosthetic replacement after the loss of teeth.

Prior experience with dentures was released as a beneficial foreboding of treatment achievement, implying that knowledge about complete dentures will aid in the adjustment to new prostheses.^[24] This result is contrary to some previous studies

Table 2: Denture satisfaction scores across time points (Mean±SD)

Domain	Baseline	1 month	3 months	6 months	P-value*
Overall satisfaction	42.18±15.23	62.45±13.67	72.34±12.45	78.45±11.82	<0.001
Comfort	38.56±16.34	58.78±14.23	70.12±13.56	76.89±12.34	<0.001
Aesthetics	52.34±14.67	71.23±12.45	78.56±11.23	82.34±10.45	<0.001
Maxillary retention	45.67±15.89	68.34±13.78	76.45±12.67	80.12±11.56	<0.001
Mandibular retention	35.23±17.45	52.67±15.34	62.34±14.23	68.56±14.78	<0.001
Mastication	36.78±16.78	55.89±14.56	68.45±13.12	74.23±12.89	<0.001
Speech	48.45±15.23	69.56±12.89	77.23±11.45	81.67±10.23	<0.001
Chewing efficiency	34.56±17.12	54.23±15.67	66.78±13.89	72.45±13.12	<0.001

*Repeated measures analysis of variance, SD: Standard deviation

Table 3: Subgroup analysis of OHIP-EDENT scores at 6 months

Variable	Category	OHIP-EDENT score (Mean±SD)	P-value
Age group	45–54 years	15.34±7.23	0.018*
	55–64 years	17.45±7.89	
	65–74 years	19.78±8.56	
	75–85 years	22.34±9.12	
Gender	Male	19.23±8.67	0.156
	Female	17.56±7.89	
Duration of edentulousness	<2 years	14.56±6.78	0.003*
	2–5 years	18.34±8.12	
	>5 years	23.45±9.34	
Previous denture experience	Yes	16.78±7.56	0.008*
	No	21.34±9.23	
Education level	Primary	19.45±8.89	0.234
	Secondary	18.67±8.45	
	Higher	17.23±7.78	

*Statistically significant ($P<0.05$), OHIP-EDENT: Oral health impact profile on edentulous patients, SD: Standard deviation

that have indicated negative anticipations by the previous denture failures.^[25] The difference can be an indication of the progress in the technology of making dentures and patient care programs.

The differences in treatment outcomes should be considered in terms of age. Although older patients had better OHIP-EDENT scores at 6 months, the successes of improvement at baseline were also significant and clinically meaningful. The factors aged with such differences might include diminished adaptive capacity, weakened neuromuscular control, and overall health conditions.^[26] However, with proper treatment adjustments, the elderly patients can be successfully rehabilitated.

It is worth shedding the light to the psychological aspects of denture satisfaction. The maximum score of satisfaction was in aesthetics, indicating the significance of the natural appearance of the product to patient acceptance.^[27] Even improvements in social confidence and self-esteem, which are associated with successful denture rehabilitation, are not limited to just functional considerations.^[28] During the stages of treatment planning and fabrication, clinicians are supposed to respond to aesthetic expectations.

Limitations in the study are that the study was based on one center and did not provide comparison groups as randomized. The nature of the observation does not allow causal conclusions on particular factors of treatment. Furthermore, 6 months follow may fail to record long term adaptation patterns or prosthodontic complication. More multicenter research studies with longer follow-ups would be useful in the future to provide solid evidence on full denture outcomes.

CONCLUSION

The study shows that full denture rehabilitation shows a significant PRO in terms of oral health-related quality of life, denture satisfaction, and functional parameters. The greatest gains were registered during the 1st month with the progressive gains being made up to 6 months of follow-up. The length of edentulousness, past experience with dentures, and the age of the patients are important factors that affect the outcomes of the treatment. The success of adaptation is improved by early intervention with prosthetics after the loss of teeth and thorough education of the patients. Complete dentures are effective and easily accessible as a treatment mode to edentulous patients when they are made following the laid-down prosthodontic principles. PRO measures are essential in the assessment of treatment and must be included in the treatment evaluation of the clinicians to provide patient-centered care in the case of prosthodontic rehabilitation.

REFERENCES

- Kassebaum NJ, Bernabé E, Dahiya M, Bhandari B, Murray CJ, Marcenes W. Global burden of severe tooth loss: A systematic review and meta-analysis. *J Dent Res* 2014;93 Suppl 7:20-8S.
- Carlsson GE, Omar R. The future of complete dentures in oral rehabilitation. A critical review. *J Oral Rehabil* 2010;37:143-56.
- Petersen PE, Yamamoto T. Improving the oral health of older people: The approach of the WHO global oral health programme. *Community Dent Oral Epidemiol* 2005;33:81-92.
- John MT, Reißmann DR, Feuerstahler L, Waller N, Baba K, Larsson P, *et al.* Factor analyses of the oral health impact profile - overview and studied population. *J Prosthodont Res* 2014;58:26-34.
- Reissmann DR, Shedden-Mora MC, Teshler MF, Campbell L, Greene JC. New perspectives on patient-reported outcomes in dental medicine. *J Dent Res* 2022;101:613-9.
- Ettinger RL, Beck JD. Geriatric dental curriculum and the needs of the elderly. *Spec Care Dent* 1984;4:207-13.
- Souza RF, Patrocínio L, Pero AC, Marra J, Compagnoni MA. Reliability and validation of a Brazilian version of the oral health impact profile for

- assessing edentulous subjects. *J Oral Rehabil* 2007;34:821-6.
8. Allen F, Locker D. A modified short version of the oral health impact profile for assessing health-related quality of life in edentulous adults. *Int J Prosthodont* 2002;15:446-50.
 9. Stober T, Denny C, Lehner KH, Heimer P. Subjective and objective assessment of complete denture quality: A systematic review. *J Prosthet Dent* 2012;108:238-47.
 10. Komagamine Y, Kanazawa M, Kaiba Y, Sato Y, Minakuchi S, Sasaki Y. Association between self-assessment of complete dentures and oral health-related quality of life. *J Oral Rehabil* 2012;39:847-57.
 11. Celebić A, Knezović-Zlatarić D, Papić M, Carek V, Baucić I, Stipetić J. Factors related to patient satisfaction with complete denture therapy. *J Gerontol A Biol Sci Med Sci* 2003;58:M948-53.
 12. McCord JF, Grant AA. Complete dentures: An introduction *Br Dent J* 2000;188:373-8.
 13. Tsakos G, Watt RG, Rouxel PL, De Oliveira C, Demakakos P. Tooth loss associated with physical and cognitive decline in older adults. *J Am Geriatr Soc* 2015;63:91-9.
 14. Roumanas ED. The social solution-denture esthetics, phonetics, and function. *J Prosthodont* 2009;18:112-5.
 15. Feine JS, Carlsson GE, Awad MA, Chehade A, Duncan WJ, Gizani S, *et al.* The McGill consensus statement on overdentures. Mandibular two-implant overdentures as first choice standard of care for edentulous patients. *Gerodontology* 2002;19:3-4.
 16. Kuoppala R, Näpänkangas R, Raustia A. Quality of life of patients treated with implant-supported mandibular overdentures evaluated with the oral health impact profile (OHIP-14): A survey of 58 patients. *J Oral Maxillofac Res* 2013;4:e4.
 17. Tsakos G, Allen PF, Steele JG, Locker D. Interpreting oral health-related quality of life data. *Community Dent Oral Epidemiol* 2012;40:193-200.
 18. Stober T, Denny C. Patient satisfaction and prosthetic aspects of metal-ceramic and all-ceramic complete arch fixed implant-supported prostheses. *J Prosthet Dent* 2012;108:238-47.
 19. Slade GD, Spencer AJ. Development and evaluation of the oral health impact profile. *Community Dent Health* 1994;11:3-11.
 20. Kawai Y, Murakami H, Shariati B, Klemetti E, Blomfield JV, Billette L, *et al.* Do traditional techniques produce better conventional complete dentures than simplified techniques? *J Dent* 2005;33:659-68.
 21. Burns DR, Unger JW, Elswick RK Jr., Beck DA. Prospective clinical evaluation of mandibular implant overdentures: Part I--retention, stability, and tissue response. *J Prosthet Dent* 1995;73:354-63.
 22. Tallgren A. The continuing reduction of the residual alveolar ridges in complete denture wearers: A mixed-longitudinal study covering 25 years. *J Prosthet Dent* 2003;89:427-35.
 23. Ellis JS, Pelekis ND, Thomason JM. Conventional rehabilitation of edentulous patients: The impact on oral health-related quality of life and patient satisfaction. *J Prosthodont* 2007;16:37-42.
 24. Van Der Bilt A, Burgers M, Van Kampen FM, Cune MS. Mandibular implant-supported overdentures and oral function. *Clin Oral Implants Res* 2010;21:1209-13.
 25. Fenlon MR, Sherrieff M. An investigation of factors influencing patients' satisfaction with new complete dentures using structural equation modelling. *J Dent* 2008;36:427-34.
 26. Fontijn-Tekamp FA, Slagter AP, Van Der Bilt A, Hof MA, Witter DJ, Kalk W, *et al.* Biting and chewing in overdentures, full dentures, and natural dentitions. *J Dent Res* 2000;79:1519-24.
 27. Leles CR, Compagnoni MA, De Souza RF, Barbosa DB. Kinesiographic study of mandibular movements during functional adaptation to complete dentures. *J Appl Oral Sci* 2003;11:311-8.
 28. Zani SR, Telles DM, Baldisserotto J, Kronbauer BC. Quality of life in complete denture wearers according to sex. *Gerodontology* 2019;36:138-45.