

Assessment of Oral Health Related Quality of Life and Patient Satisfaction after Complete Denture Therapy- An Observational Study

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Abstract

Objective : To assess the oral health related quality of life (OHRQoL) and patient satisfaction after complete denture therapy.

Methodology : Participants in the study included 60 first time complete denture wearers. OHRQoL was assessed using Oral Health Impact Profile-Edentulous(OHIP-EDENT) questionnaire; denture quality and patient satisfaction was assessed using denture quality evaluation parameters and patient satisfaction questionnaire respectively. Paired t test was used to analyse pre and post change in OHRQoL and Pearson Correlation coefficient was used to assess the co-relation between various parameters.

Results: There was a statistically significant change in the mean OHIP score of patients before and after rehabilitation ($p < 0.001$). Across the seven domains used for measuring the denture quality, stability and retention of mandibular denture showed statistically significant reduction after one month. Significant correlations were observed between the patient satisfaction parameters and the denture quality as well as OHRQoL ($p = 0.001$, $p = 0.001$ and $p = 0.01$).

Conclusion: OHRQoL improved significantly in first time denture wearers.

Keywords: Complete denture, Quality of life, patient satisfaction, denture retention

Introduction

Oral health is an essential and integral part of systemic health.¹ Edentulism considerably influences the OHRQoL in the elderly people as it leads to disability, impairment and handicap.^{2,3}

Despite the various rehabilitation modalities, a considerable number of patients, out of necessity or choice, receive conventional complete dentures. Complete denture therapy has been the most accessible treatment for edentulism for many decades, owing to its cost effectiveness, esthetic appeal, and easy maintenance.⁴ Also, edentulousness and the wearing of complete dentures can affect the quality of life and patient satisfaction.⁵

The OHRQoL determines the degree to which oral health affects an individual's daily life and social functioning.^{6,7,8} The most preferred tool to measure the patients OHRQoL is by using the OHIP questionnaires.^{7,9,10-13} The original OHIP comprises

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of 49 questions and a shortened version of this OHIP-EDENT^{14,15} specifically for the edentulous patients has been developed.

Patient satisfaction is one of the important objectives to achieve after complete denture treatment¹⁶ and is influenced by socioeconomic status, age, gender, number of post-delivery appointments, previous experience, oral condition and patient-dentist relationship.¹⁷ ^{18,19,20,21} However, patients' expectations can sway their satisfaction with the prostheses.

Further, little is known about the consequence of conventional complete dentures on OHRQoL and patient satisfaction in first time denture wearers. Thus, the current study was planned to assess the impact of complete dentures on OHRQoL and patient satisfaction in first time denture wearers attending the Prosthodontic Department in a Dental School in India. Also, the correlation between denture quality parameters, patient satisfaction and OHRQoL was explored.

The null hypotheses of the study was complete denture therapy has no influence on the OHRQoL in first time denture wearers.

Method

The study involved 60 completely edentulous subjects, who were first time complete denture wearers. All study related procedures were approved by institutional ethics committee.

Participants included were edentulous patients who satisfied class I prosthodontic diagnostic index,²² no previous history of complete denture wear, no significant medical history, those who were able to respond to test questionnaires.

Old denture wearers, those who opted for tooth/implant supported overdentures, those with symptoms of temporomandibular disorders, xerostomia, orofacial motor disorders, severe oral manifestations of systemic diseases, psychological conditions, cognitive disturbance, neurological disorders and unwilling to participate in the study were excluded. Informed consent was obtained from all the participants.

The pre-treatment OHRQoL was evaluated using a shortened version of the OHIP questionnaire -OHIP-

EDENT.²¹ The OHIP-EDENT consists of 19 questions belonging to the same seven conceptual domains i.e. functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, handicap. All questions were responded on Likert scale: 0=never, 1=hardly ever, 2=occasionally, 3=fairly often, 4=very often. Lower scores represented a better OHRQoL. The response codes for each of the items were calculated within each of the seven domains to give seven subscale scores. Higher OHIP-EDENT summary scores indicated OHRQoL impairment.

The rehabilitation of patients with conventional complete dentures was performed by post graduate students under the faculty supervision. During the denture insertion appointment, denture quality was evaluated by two prosthodontists using 'denture quality evaluation parameters' consisting of 7 criteria i.e esthetic lip support, esthetic lower lip, stability of maxillary denture, stability of mandibular denture, retention of maxillary denture, retention of mandibular denture, occlusion. All the clinical parameters were described precisely and evaluated on a dichotomous scale [satisfactory=1 and unsatisfactory=0].²³ Post-treatment review was scheduled one month later. At this visit, the subjects were asked to repeat the OHIP- EDENT instrument.

Patient satisfaction was assessed using patient satisfaction questionnaire with the use of 100mm Visual Analog Scale.²⁴ General satisfaction, ability to masticate, ability to speak, ease of cleaning, stability, retention, esthetics and comfort were selected as evaluation items for the prosthesis. The satisfaction rate for each item were recorded by drawing a vertical line on a 100mm VAS for each item of the questionnaire. Each horizontal line in this questionnaire represented "very satisfied" (100) at the extreme right and "very dissatisfied" (0) at the extreme left.²⁴ All the data were analysed using SPSS v.22 software package.

Results

A total of 60 edentulous subjects were included in the study with the mean age of 65.57 years.

A comparison was made between the OHIP scores for all subjects before and after treatment. Paired t test was used to analyse the change in OHRQoL in patients before and after complete denture therapy. The results

indicated that in all domains there were significant improvements in the OHIP scores with the new complete dentures.(p<0.001) (Table 1).

Paired t test was used to analyse the change in denture quality parameters before and after complete denture therapy and the mean scores for the denture quality parameters were 0.926 and 0.892, respectively. However, there was no statistically significant difference (Table 2). Statistically significant reduction was seen in the stability and retention of mandibular denture (p <0.047 and p < 0.07 respectively) after a month.

An improvement in the overall patient satisfaction level was observed post one month of the complete denture therapy, with mean total 84.75(Table 3). The

mean values of the evaluation items such as comfort (90.88) and easiness to clean (90.85) was higher than the other items evaluated.

Pearson Correlation coefficient was used to assess the co-relation between the technical quality of the denture and the general patient satisfaction. Statistical significance was set at p < 0.05 and p < 0.001. Significant correlations (Table 4) were observed between the patient satisfaction domains of denture stability, retention, easiness of clean and denture quality after one month (p= 0.001, p=0.001 and p= 0.01) . There was a positive correlation between all the domains of patient satisfaction and OHRQoL (Table 4).

Table 1- Mean OHIP-EDENT scores

	BEFORE	POST ONE MONTH	P value
Mean	0.697	0.192	0.0001*(t=9.45)
Sd	0.267	0.316	

*P<0.05 statistically significant

Table 2- Denture quality parameters after complete denture insertion

	BEFORE		POST 1 MONTH		P VALUE
	MEAN	SD	MEAN	SD	T TEST
ESTHETIC LIP SUPPORT	0.95	0.219	0.96	0.181	0.785(t=0.276)
ESTHETIC LOWER LIP	0.96	0.181	0.98	0.129	0.785(t=0.276)
STABILITY(MAXILLA)	1	0	1	0	---
STABILITY (MAND)	0.93	0.251	0.81	0.390	0.047*(2.001)
RETENTION(MAX)	1	0	1	0	---
RETENTION(MAND)	0.7	0.462	0.5	0.494	0.07*(t=2.736)
OCCCLUSION	0.93	0.251	0.9	0.302	0.555(t=0.591)
TOTAL	0.926	0.160	0.892	0.190	0.291(t=1.06)

*P<0.05 statistically significant

Table 3: Patient satisfaction using Visual Analog Scale

	MEAN	SD
General satisfaction	83.08	9.97
Mastication	85.85	7.23
Speech	87.33	5.72
Easiness to clean	90.85	4.63
Stability	82.18	5.36
Retention	73.98	7.77
Esthetics	88.03	5.22
Comfort	90.88	3.17
Total	84.75	2.11

Table 4: Correlation table- Patient satisfaction level vs OHIP and denture quality parameters.

Patient satisfaction		OHIP-EDENT Before	OHIP-EDENT After	Denture quality after insertion	Denture quality post one month
General satisfaction	r value	-0.01	0.20	-0.07	0.007
	P value	0.97	0.51	0.82	0.98
Mastication	r value	0.12	0.11	0.004	0.05
	P value	0.69	0.72	0.98	0.87
Speech	r value	0.13	0.14	-0.04	-0.119
	P value	0.67	0.64	0.98	0.69
Easiness to clean	r value	0.007	0.002	0.122	0.309
	P value	0.84	0.89	0.54	0.01*
Stability	r value	0.006	-0.04	0.303	0.437
	P value	0.98	0.76	0.01*	0.001*
Retention	r value	0.13	-0.04	0.168	0.712
	P value	0.32	0.76	0.22	0.001*
Esthetics	r value	0.06	0.24	-0.127	-0.04
	P value	0.64	0.06	0.51	0.76
Comfort	r value	-0.11	-0.11	-0.02	-0.252
	P value	0.40	0.40	0.84	0.05

*P<0.05 statistically significant

Discussion

The findings of the present study allowed the rejection of the null hypothesis. The OHIP-EDENT was used because it is a validated questionnaire specific for edentulous patients.¹⁴ High OHIP-EDENT scores were verified before the treatment. Usually, loss of all the teeth compromises the chewing, speech, sleep, emotional and social stability of patients.^{25,26} Oral health related quality of life improved significantly after the complete denture treatment probably due to the replacement of teeth which improved the function, esthetics, comfort and self-esteem of the person.¹⁰

With regard to the general patient satisfaction, the patients reported improved satisfaction with the dentures. This indicates new complete dentures had good fit and adapted well to the oral tissues⁵, reducing functional restrictions that happen as a consequence of pain.¹¹

There was a statistically significant co-relation between the denture quality parameters and patient satisfaction domains and the results agree with the previous studies.^{19,27,28}

There was a positive correlation between general patient satisfaction and the OHRQoL. Stable conventional complete dentures improve chewing capacity, thereby have a positive effect on their quality of life. Therefore, stability and retention takes precedence over other factors while fabricating the complete dentures. Biomechanical factors like muscle tonus, neuromuscular coordination, tongue, cheeks, lips, saliva may help to achieve adequate denture stability and retention in cases of severe residual ridge resorption.²⁹

In general, patient satisfaction and denture related OHRQoL depends more on acceptance of denture limitations than functional accuracy of their dentures. What is accepted as a normal level of discomfort or handicap to one patient, may be unbearable to another.³⁰

When conventional approach fails to achieve optimum retention and stability in cases of ridge resorption dental implants are an alternate option. Evidence also suggests that implant supported overdentures is a feasible and predictable treatment option that can result in high levels of patient satisfaction.³¹⁻³⁶ However, this treatment modality may not be feasible as a result of

morphological, psychological or socioeconomic factors.

The use of a validated denture quality evaluation parameter and denture satisfaction scale, the high inter-examiner and intra-examiner agreement, add to the scientific rigor and external validity of this research. However, long term follow up studies are needed to confirm these results.³⁷

Finally, patients' perception regarding the experience with their complete dentures is inherently unique and highly subjective.¹¹ Therefore, a certain level of discomfort or handicap may be acceptable to one patient and unbearable to another.¹¹ Beyond the technical quality of the dentures, variables like oral health status, the patient's personality and psychological state, and neuromuscular adaptation are to be considered. However, the available scientific literature does not provide conclusive evidence about this issue. Therefore, it is prudent for clinicians to establish good clinician-patient rapport.

Conclusion

There was a significant improvement in OHRQoL in first time denture wearers after rehabilitation with complete dentures. There was also a marked improvement in the general patient satisfaction.

Conflict of Interest : Nil

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