



Original article

# The oral health-related quality of life in edentulous patients treated with Conventional complete dentures

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## The oral health-related quality of life in edentulous patients treated with Conventional complete dentures

**Objective:** To compare the oral health-related quality of life (OHRQoL) between patients with both maxillary and mandibular complete denture and those with either the maxillary or the mandibular complete denture.

**Background:** Satisfaction of denture wearers can be estimated using the OHRQoL questionnaires like the OHIP-EDENT and the Geriatric Oral Health Assessment Index (GOHAI).

**Methods:** Two questionnaires were used to compare the OHRQoL between edentulous patients who had conventional removable complete denture on both jaws and those who had on either one of the jaws.

**Result:** The age of the participants ranged from 42 to 75 years, with the mean age of  $58 \pm 8.12$  years. The mean OHIP-EDENT scores were significantly high among those who wore conventional dentures in both jaws ( $54.12 \pm 5.21$ ), compared with the participants who only had denture either on upper or lower jaw ( $46.52 \pm 7.35$ ). It was noticed that the mean GOHAI score was significantly lower ( $p < 0.05$ ) among participants who had conventional denture on both upper and lower jaw ( $28.25 \pm 3.67$ ), as compared to those who had conventional denture only on one arch ( $35.12 \pm 2.11$ ).

**Conclusion:** Patients with complete dentures in both jaw (Group I) were less satisfied than patients with single complete denture (Group II). The result obtained in this study shows dissatisfaction with conventional dentures among edentulous patients.

**Keywords:** geriatric oral health assessment index, oral health impact profile in edentulous, complete denture, patient satisfaction.

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## Introduction

Loss of tooth affects the normal functional activities resulting in a range of reactions in edentulous individuals<sup>1</sup>. Edentulous patients are always conscious about their general appearance. There are a large number of edentulous patients in all communities, and the trend suggests that the number in this group will continue to increase in the future. This can be explained with the increase in life expectancy rate<sup>2-4</sup>.

The most common treatment plan for the edentulous patients is the conventional complete denture<sup>5</sup>. It is extensively used because it is relatively inexpensive, aesthetically acceptable and easy to clean<sup>6</sup>. All normal functions can be regained within

a short period of time with these conventional dentures.

The success of the treatment plan of edentulous state depends mainly on the patient's opinion, as they are concerned more about their denture stability, comfort, speech, ease of removal and cleaning<sup>7</sup>. It seems that the success of complete dentures as a treatment option can be related to the quality of the impressions, the bite force and the chewing capacity and efficiency as well as the patient's perception<sup>8</sup>. Any removable prostheses, even at their best, have functional limitation on people<sup>9</sup>.

Outcome of any prosthetic treatment can be obtained either clinically or from patient satisfaction<sup>10</sup>. To capture the functional and psychosocial

aspects, the clinical indicators alone might not be sufficient, as they do not include the patients' perceived needs or preferences<sup>11</sup>.

Accessing the subjective perception is preferred in measuring the functional outcome of denture treatment, mainly because of the simplicity of the tools, low cost and lack of need for special equipment<sup>12</sup>.

The placement of new dentures should be accessed by the point of view of the patient<sup>13</sup>. Studies in edentulous subjects strongly support the concept of patient-based measures to be more reliable than functional measures<sup>14,15</sup>.

There are several socio-dental factors that can be used to assess the impact of oral disorder on the quality of patient's life<sup>16–21</sup> such as social impact of dental disease, dental impact profile, oral health impact profile, oral impact on daily performance, general oral health index, etc.

The oral health-related quality of life measures the degree to which oral health interrupts the normal life and social functioning of an individual<sup>22,23</sup>. From the review of literature, it was observed that the preferred tool to measure the individual's perception of the social impact of oral health was the oral health impact profile (OHIP) questionnaire<sup>24,25</sup>. This OHIP questionnaire was developed and validated by Slade and Spencer<sup>23</sup>, and this has been used in many clinical trials. To measure the oral health problems of older adults, Geriatric Oral Health Assessment Index (GOHAI) can be used. GOHAI was developed by Atchinson and Dolan<sup>26</sup>. GOHAI questionnaire has been already used in a previous study<sup>27</sup> from Saudi Arabia.

## Methods

This study involves 55 patients who received complete denture treatment at college of dentistry between the period of 2010–2011, at the college of dentistry. Approval from the Institution Review Board was obtained prior to the study. Patients were regularly followed up during the recall visits scheduled at 1 week, 1, 3, 6 and 9 months. Patient compliance was accessed during each recall visits. The patients were invited and were provided with study questionnaires during the 6-month recall visit. The patients who fulfilled the following inclusion criteria were considered for the study: patients who were edentulous on one or both the jaws arches and had received conventional complete denture, those who were free from any systemic diseases that affect oral functions and who did not have difficulty in recollecting past history. Patients were excluded if they had poor residual

ridge anatomy, recent teeth extraction or temporomandibular joint problems. The study population was divided into two groups: Group I included patients who were edentulous on both the arches and were rehabilitated with conventional removable complete denture on both the jaws. At the same time, group II included patients who were edentulous either on upper or lower jaw and were rehabilitated with conventional removable complete denture on the edentulous arch. Maxillary and mandibular complete dentures were fabricated by a single operator for all the study participants using standardised clinical and laboratory procedures. Conventional techniques were used to complete denture fabrication. All the dentures were processed in the same dental laboratory within the institution by compression moulding technique. Verbal and written complete denture care instructions were given to the patient with emphasis on wearing the dentures all the time except during sleep.

Informed consent of patients was obtained regarding their voluntary participation in the study. After obtaining informed consent from the patients, the questionnaires were administered to them by the students.

## Measurements

### Questionnaires

The OHIP-EDENT (Oral Health Impact Profile in Edentulous Adults) questionnaire was used. The OHIP-EDENT is a 19-question survey with seven subscales: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap.

This tool aids in detecting impact of oral health on the quality of life of patients who wear prostheses<sup>16,28</sup>. It is specific to edentulous patients and presents questions addressing masticatory capacity, pleasure in eating, level of comfort and assuredness while wearing the prosthesis, and relationship problems, among others. The tool detects the impact of oral health on the quality of life of patients with prostheses, before and after they have received them<sup>16</sup>.

The questionnaire gives a choice of five answers. A simple score was calculated by adding the responses to all the questions (0 = never; 1 = seldom; 2 = fairly often; 3 = often; 4 = very often). It ranges from 0 to 76. The lowest scores represent a satisfactory perception of an individual's oral conditions, and therefore higher satisfaction and better quality of life.

The oral health self-perception was measured based on Geriatric Oral Health Assessment Index (GOHAI) as well.

The Geriatric Oral Health Assessment Index (GOHAI) is used mainly to assess the oral health problems affecting elder adults<sup>26,29</sup>.

This includes 12 questions related to oral health. The respondent was asked to estimate the frequency of problems using a six point Likert scale (always [5], very often [4], often [3], sometimes [2], seldom [1] or never [0]). These questions covered three dimensions<sup>30</sup>.

The physical dimension (the individual's chewing, swallowing and vocal abilities), social dimension (satisfaction with the appearance of teeth; concern about teeth, gums or dentures; social limitations caused by oral appearance; self-consciousness about oral health and uncomfortable about eating in public), and concern dimension (ability to eat without discomfort, use of medication to relieve oral discomfort, and sensitivity to cold, hot or sweet foods). The GOHAI score is determined by summing the final score of each of the 12 items. GOHAI scores range from 0 to 60.

All the data analyses were carried out using t-test with the *p*-value <0.05 that was considered statistically significant. The statistical software used in the study was SPSS (SPSS Version 15.0; SPSS Inc., Chicago, IL, USA). A *p*-value of <0.05 was considered statistically significant.

## Result

A total of 55 questionnaires were returned, of which three were incomplete, and not used for data analysis. The age of the participants ranged from 42 to 75 years, with the mean age of  $58 \pm 8.12$  years. 55.76% of the study populations were males and 44.23% were females. Of the 52 participants, 27 had complete dentures in both maxilla and

mandible (group I) and 25 had complete dentures in either the maxilla ( $N = 21$ ) or mandible ( $N = 4$ ) (group II).

With regard to the OHIP-EDENT index, the mean score for both the groups was obtained as  $50.13 \pm 11.18$ . The mean OHIP-EDENT scores were significantly high in group I ( $54.12 \pm 5.21$ ), compared group II ( $46.52 \pm 7.35$ ). The mean value for all the subgroup of OHIP-EDENT index was observed to be high among group I (Table 1).

The mean GOHAI add score was  $31.68 \pm 2.13$  with a minimum GOHAI score of 16 and maximum of 43. It was noticed that the mean GOHAI score was significantly lower ( $p < 0.05$ ) among participants group I ( $28.25 \pm 3.67$ ) compared with group II ( $35.12 \pm 2.11$ ). The mean GOHAI score in both physical dimension and psychosocial dimension was significantly lower in group I (Table 2).

In regard to the physical dimension, of GOHAI (question 1–4), 73% reported 'always', 'very often' and 'often' to limit the kind or quantity of food they eat. Trouble in biting or chewing food was reported by 79%, but only 57% reported to have difficulty in swallowing. Around 45% of the study participants reported difficulty in speaking with the denture. In psychosocial dimension area (questions 5–12), only 12% reported that they were 'always' able to eat without any discomfort. Only 5% reported to be 'always' pleased with the look of their denture or teeth. In contrast, 67% of the study participants were feeling embarrassed to eat in front of others. Most of the respondents (45%) reported 'never' having used medication for oral pain relief. Fifty-two per cent of the study participant reported to be sensitive to hot or cold 'often' or 'very often'.

## Discussion

The result obtained in this study shows dissatisfaction with conventional dentures among

**Table 1** Mean OHIP-EDENT subscales in both the groups.

OHIP-EDENT Subscales	Denture either in upper or lower jaw Mean $\pm$ SD	Denture in both jaws Mean $\pm$ SD	<i>p</i> value
Functional limitation*	10.21 $\pm$ 3.05	11.50 $\pm$ 2.54	0.003
Physical pain*	11.29 $\pm$ 3.67	13.55 $\pm$ 3.37	0.024
Psychological discomfort*	4.32 $\pm$ 3.45	5.65 $\pm$ 2.02	0.015
Physical disability	9.10 $\pm$ 4.11	10.24 $\pm$ 3.32	0.08
Psychological disability	4.01 $\pm$ 2.35	4.94 $\pm$ 3.55	0.15
Social disability*	3.65 $\pm$ 1.01	4.21 $\pm$ 1.34	0.02
Handicap	2.44 $\pm$ 1.12	5.01 $\pm$ 1.56	0.05
Total	46.52 $\pm$ 7.35	54.12 $\pm$ 2.11	0.035

\*Statistically Significant.

OHIP, oral health impact profile.

<i>Denture in both jaws Mean ± SD</i>	<i>Denture either in upper or lower jaw Mean ± SD</i>	<i>p value</i>	<i>GOHAI Subgroup</i>
12.02 ± 1.43	15.66 ± 0.85	0.001	Physical dimension*
15.34 ± 1.11	19.89 ± 1.01	0.015	Psycho social dimension*

\*Statistically Significant.

GOHAI, Geriatric Oral Health Assessment Index.

edentulous patients, which was similar to the results reported in other published literatures<sup>9,31–33</sup>. The mean OHIP-EDENT scores were higher among group I as compared to group II. The mean GOHAI scores were lower among the group I patients as compared to the group II patients. This result was in agreement with other published articles<sup>16,34,35</sup>. A good proportion of participants reported a reduced overall oral health-related quality of life. The functional disability, pain psychological discomfort and social disability was experienced more among patients who had denture on both the jaws. In agreement with other studies, it was noticed that the oral health-related quality of life was poor among edentulous patients<sup>36–38</sup>. The fit, retention, stability, comfort and aesthetics of a denture will have an impact on the quality of life<sup>26,39</sup>. Most of the patient's reported speech discomfort with denture (both group). However, this could be because speech is a complex skill that requires prolonged adaptation to changes. The group that included patients who had denture only on one jaw (group II) reported lower physical pain and psychological discomfort scales.

The mean OHIP-EDENT score tend to increase with increase in age that is in agreement with other studies<sup>40</sup>. It was observed that, mean GOHAI score tends to decrease with increase in age (Table 3). The mean OHIP-EDENT scores were highest in

**Table 3** Age group wise distribution of mean OHIP-EDENT and mean GOHAI.

<i>Age group (in years)</i>	<i>Mean OHIP-EDENT</i>	<i>Mean GOHAI</i>
≤45 (4)	7.45 ± 1.10	6.43 ± 1.62
46–50 (8)	8.40 ± 0.95	6.25 ± 0.68
51–55 (7)	9.01 ± 1.21	6.15 ± 1.1
56–60 (14)	10.67 ± 0.23	6.08 ± 0.57
61–65 (10)	10.09 ± 1.02	5.32 ± 1.23
>65 (9)	8.12 ± 0.55	5.02 ± 0.54

GOHAI, Geriatric Oral Health Assessment Index; OHIP, oral health impact profile.

**Table 2** Mean GOHAI in both groups.

50–60 years age group, and mean GOHAI was highest among lesser than 45 year age group.

The participants who reported high OHIP-EDENT scores (i.e. poorer oral health status) and low GOHAI scores could be unsatisfied with their current denture. It was observed that people had dentures of particularly poor quality with a possible impact on their quality of life.

The success of the conventional complete dentures treatment is not stable, and this mainly depends on how the patient adapts to overcome the limitations of complete dentures by a training process<sup>2,41</sup>.

An alternative treatment plan to overcome the inadequacy of conventional treatment would be well accepted among such patients, thereby improving their functional as well as aesthetic limitations. The implant supported over dentures claims to be the best standard of care for edentulous patients and is said to improve the quality of life<sup>14,42–44</sup>, stability<sup>45</sup> and retention<sup>46</sup>.

Published literatures report that implant-supported dentures, either complete over denture or fixed complete denture, significantly improves the quality of life for edentulous patients compared with conventional removable complete dentures<sup>47,48</sup>. Functional and psychosocial disability experienced by the denture wearer will definitely influence the option for dental implant therapy and prosthetic rehabilitation<sup>49,50</sup>. For older edentulous subjects, the general health and financial status is of concern while preferring implant retained overdentures over conventional dentures.

One of the limitations of this study regarding the oral quality of life regarding patient satisfaction is that the length of the follow-up period should have been considered because some patients require a longer period of time for adjustment with dentures.

## Conclusion

Within the limitations of this study, it was observed that patients with complete dentures in both jaw were less satisfied than patients with single



complete The OHIP-EDENT score high and GOHAI scores were low among those who had denture on both jaws compared with the other group. This study leaves a scope for further research to analyse and compare the oral health-related quality of life among conventional denture wearer and implant retained overdenture wearer. The existing alternative treatment option could be implant supported over dentures. Further methodological work to assess quality of life of edentulous patients is required, and clinicians must consider the implications of these continuing patient needs.

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