

# ASSESSMENT OF ORAL HEALTH RELATED QUALITY OF LIFE IN COMPLETELY EDENTULOUS PATIENTS AFTER PROSTHODONTIC REHABILITATION AT NOBEL MEDICAL COLLEGE AND TEACHING HOSPITAL, BIRATNAGAR

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## ABSTRACT

### Introduction

Oral Health Related Quality of Life (OHRQoL) has been considered as a tool to measure the consequences of oral disorders and interventions on patients. Patient's perspective of their health related quality of life is usually different to that of the health care providers. Hence a combination of clinical and subjective indicators provide a more comprehensive measure of patient's oral health condition. Oral Health Impact Profile (OHIP) is one of the most efficient instruments used to measure OHRQoL.

### Objective

To assess the OHRQoL in patients wearing complete denture before and after treatment.

### Methodology

OHRQoL was determined using OHIP-14 English version in a sample of 80 edentulous patients treated with complete dentures. Participants were interviewed using OHIP-14 before prosthodontic treatment and one month after treatment. Collected data of total OHIP scores and all seven subscales before and after treatment were compared using T-test and Fisher's exact Test.

### Result

The statistical analysis showed significant difference in the OHIP scores before and after treatment with complete denture in relation to functional limitation, physical pain, psychological discomfort, psychological disability and physical disability. Statistically significant difference was registered for total OHIP scores before and after prosthodontic treatment.

### Conclusion

The results of the current study indicate an impact of the oral conditions associated with complete denture wearing on the oral health related quality of life. There is an improvement in OHRQoL after prosthodontic treatment with complete dentures compared to the situation before treatment.

## KEY WORDS

Complete dentures, oral health related quality of life, prosthodontics, tooth loss



## INTRODUCTION

Edentulism or loss of teeth, has a great impact on patient's quality of life as it negatively affects the person's physiological, biological, social and psychological state.<sup>1</sup> Completely edentulous patients have low self esteem, a decline in psychosocial well-being and avoid participation in social activities as they feel embarrassed about their appearance and their inability to eat and speak properly.<sup>2</sup> Edentulism is directly related to masticatory and nutritional problem and it is also regarded as a mortality indicator.<sup>3</sup> Various data suggest that more people worldwide are advancing into old age and a growing number of edentulous people are expected.<sup>4</sup> Implant retained overdentures are the best treatment option for completely edentulous patients.<sup>5</sup> But Nepal being a developing country with majority of population unable to afford implant dentistry, conventional complete denture therapy is likely to be the mainstay of treatment of these patients.

Use of various patient based outcome measures in oral health like oral health related quality of life (OHRQoL) has been in practice since 1980s. OHRQoL is defined as the person's assessment of how functional, psychological, social factors, pain or discomfort affect their well-being in relation to oral health.<sup>6</sup> These QoL assessment tools help us to identify the extent to which the disease/condition has affected the individual's well-being. It also enables us to assess the changes in quality of life (QoL) before and after treatment.<sup>7</sup> Dentist who are providing prosthodontic treatment are generally satisfied with their treatment. But it is essential that the caregiver knows about the patients' perspective, their experience and subjective assessment regarding the prosthodontic treatment. Patients' perceptions of their oral health status are important outcomes in prosthodontic treatment.<sup>8</sup> Among various OHRQoL instruments, the most published and tested is the Oral Health Impact Profile (OHIP) which was developed by Slade and Spencer.<sup>9</sup> OHIP is a forty-nine item questionnaire that describes the impact of oral health conditions in seven domains of oral health namely functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap.<sup>10,11</sup> Later, 14-item short form (OHIP-14) questionnaire was developed which was for use in situations where full set of 49 questions was inappropriate.<sup>13</sup>

Tooth loss and its prosthodontic replacement has a potential impact on every aspect of OHRQoL. Oral rehabilitation is found to be associated with positive effect on OHRQoL.<sup>14</sup> A large number of studies have compared OHRQoL outcomes before and after provision of partial or complete dentures.<sup>15</sup> The aim of this study is to determine whether complete dentures improve the oral health related quality of life of edentulous patients. This study will highlight patient's self-perception about the effect of edentulism and its treatment on their daily lives and thus help the clinicians make improvements in the quality of service they provide.

## METHODOLOGY

It was a cross-sectional study performed in the Department of Prosthodontics, starting from December 2017 to June 2018. Approval was acquired from the Institutional Review Board of the hospital before the start of the study. 80 completely edentulous patients who visited the Prosthodontic Department of Prosthodontics were included in the study. Complete dentures were fabricated for them by the final year students of Bachelor of Dental Surgery (BDS) under the supervision of the faculties. Purposive non-probability sampling technique was used in the study.

Patients having completely edentulous maxillary and mandibular arches, who had no previous denture wearing experience and whose last extraction was done at least 3 months back were included in the study. Patients with acute illness, temporomandibular disorders, systemic disease with oral manifestations, psychiatric problems were excluded from the study. Informed consent was taken from all the eligible candidates. The participants were clinically examined and then they were asked to fill a questionnaire eliciting information on socio-demographic data including name, age, sex, address and phone number. Also, participants were interviewed using OHIP-14 questionnaire to measure the OHRQoL. (Figure.1)

1. Have you had trouble pronouncing any words because of problems with your teeth, mouth and dentures?
2. Have you felt that your sense of taste has worsened because of problems with your teeth, mouth or dentures?
3. Have you had painful aching in your mouth?
4. Have you found it uncomfortable to eat any food because of problems with your teeth, mouth or dentures?
5. Have you felt conscious because of problems with your teeth, mouth or dentures?
6. Have you felt tensed because of problems with your teeth, mouth or dentures?
7. Has your diet been unsatisfactory because of problems with your teeth, mouth or dentures?
8. Have you had to interrupt meals because of problems with your teeth, mouth or dentures?
9. Have you found it difficult to relax because of problems with your teeth, mouth or dentures?
10. Have you been a bit embarrassed because of problems with your teeth, mouth or dentures?
11. Have you been a bit irritable because of problems with your teeth, mouth or dentures?
12. Have you had difficulty doing your job because of problems with your teeth, mouth or dentures?
13. Have you felt that life in general was less satisfying job because of problems with your teeth, mouth or dentures?
14. Have you been totally unable to function because of problems with your teeth, mouth or dentures?

Figure 1 : OHIP-14 questions



The questionnaire consisted of 14 questions. These questions cover seven domains namely functional limitation, physical pain, psychological discomfort, physical disability, social disability and handicap. Responses were made on a 5 point Likert scale and it was coded as (0=never: 1=hardly ever: 2=occasionally: 3=fairly often: 4=very often). Thus the scores ranged from 0 to 56. The scores on the Likert scale is inversely proportional to the improvement in OHRQoL. The participants were asked to fill the OHIP-14 questionnaire again, one month after the treatment with complete dentures. The data collected was analyzed using Statistical Package for Social Sciences (IBM SPSS statistics) version 23. The descriptive variables (age and gender) were analyzed using simple descriptive statistics. The total OHIP score before and after treatment was compared using t-test. Each question was individually analysed by comparing the pre and post treatment scores using Fisher's exact test with the level of significance kept at equal to or less than 0.05.

**RESULTS**

Out of 80 patients included in the study, the number of male patients was 53 (63.9%) and the number of female patients was 27(32.5%). The age of the patient ranged from 43 to 90 years. The mean age of the patients was 67.5±8.551 years. 48 (60%) of the patients were under 60 years of age and 32 of them over 60 years old (Table 1). Statistically significant difference (<0.001) was seen in the total OHIP score before and after treatment with complete dentures (Table 2). Arithmetic means of total OHIP score before and after treatment is presented in figure 2.

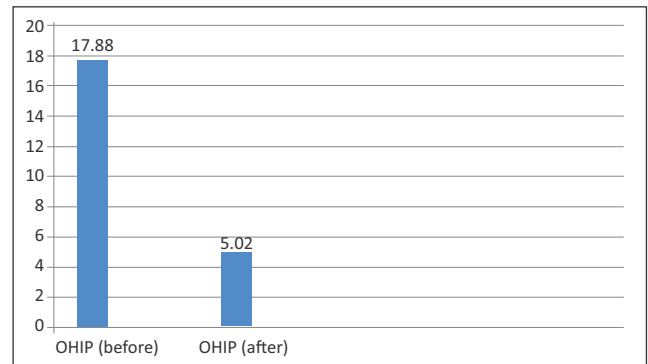
The statistical analysis showed a significant difference in the OHIP scores before and after treatment with complete dentures in relation to functional limitation, physical pain, psychological discomfort, psychological disability and physical disability (Tab. 3, 4, 5, 6, 7). In the other subscales, social disability and handicap, there was no statistically

**Table 1: Age and Gender distribution of the patients**

Demographic characteristics		Count (Count %)
Age	>60 years	48(60%)
	<60 years	32(40%)
Gender	Male	53(63.9)
	Female	27(32.5)

**Table 2: Comparison of OHRQoL in Complete denture patients before and after treatment**

OHIP score		Level of significance
Before treatment	17.88±5.840	<0.001 (significant)
After treatment	5.02±1.987	



**Figure 2:** Arithmetic means of total OHIP-14 scores before and after prosthodontic treatment.

**Table 3. Functional limitation**

Response	Question 1		Question 2	
	Before	After	Before	After
Never	12	30	27	52
Hardly ever	30	48	29	28
Occasionally	28	2	22	0
Fairly often	9	0	2	0
Very often	1	0	0	0
P value	0.000 (significant)		0.001(significant)	

**Table 4: Physical pain**

Response	Question 3		Question 4	
	Before	After	Before	After
Never	23	33	0	17
Hardly ever	36	44	10	54
Occasionally	18	3	29	9
Fairly often	3	0	32	0
Very often	0	0	9	0
P value	0.000 (significant)		0.438	

**Table 5: Psychological discomfort**

Response	Question 5		Question 6	
	Before	After	Before	After
Never	15	34	32	62
Hardly ever	20	43	23	18
Occasionally	29	3	17	0
Fairly often	16	0	8	0
Very often	0	0	0	0
P value	0.001 (significant)		0.000 (significant)	

**Table 6: Physical disability**

Response	Question 7		Question 8	
	Before	After	Before	After
Never	5	36	5	37
Hardly ever	15	44	19	26
Occasionally	30	1	32	15
Fairly often	23	0	20	2
Very often	7	0	4	0
P value	0.508		0.000 (significant)	



**Table 7: Psychological disability**

Response	Question 9		Question 10	
	Before	After	Before	After
Never	26	60	17	80
Hardly ever	39	13	24	0
Occasionally	15	7	26	0
Fairly often	0	0	11	0
Very often	0	0	2	0
P value	0.000 (significant)		1.00	

**Table 8: Social disability**

Response	Question 11		Question 12	
	Before	After	Before	After
Never	24	75	32	80
Hardly ever	40	5	42	0
Occasionally	12	0	5	0
Fairly often	3	0	1	0
Very often	1	0	0	0
P value	0.278		1.00	

**Table 9: Handicap**

Response	Question 13		Question 14	
	Before	After	Before	After
Never	40	79	47	80
Hardly ever	30	1	29	0
Occasionally	6	0	4	0
Fairly often	3	0	0	0
Very often	1	0	0	0
P value	0.513		0.329	

## DISCUSSION

The influence of various oral diseases and its treatment from patient's perspective is a very important socio-dental indicator as it gives us information regarding how the patient's day to day living is affected by the condition and its treatment. Mere clinical evaluation of quality of dentures is unreliable due to the lack of acceptable and reliable criteria.<sup>16-18</sup> Meta-analysis results suggests as strong evidence that tooth loss is associated with impaired OHRQoL.<sup>18</sup> Among the various tools to evaluate OHRQoL, OHIP-14 is one of the most popular tools in terms of its use in various researches and the same has been used in our study.

The current study carried out in eastern region of Nepal, assesses the OHRQoL in edentulous patients after complete denture rehabilitation. It was found that in these patients, the oral health related quality life improved significantly after treatment compared to that before treatment. A statistically significant improvement was seen in the domain of functional limitation, physical pain, psychological discomfort, physical disability and psychological disability. No statistically significant improvement was seen in the domain of social disability and handicap. The finding concur with the study carried out by Nikolovska et al<sup>19</sup> in Greece. This could be due to the short follow up period of one month. In our study, treatment was provided by BDS final

year students. The patients develop a degree of closeness towards their students during the course of treatment. So it can be assumed that many patients were biased when answering the questions and found it difficult to express their dissatisfaction.<sup>20,21</sup> This could have affected the overall result of our study.

A study<sup>22</sup> conducted in the same region has assessed the OHRQoL among villagers of Jyamirgadi VDC, Jhapa, Nepal. Nepali version of the OHIP-14 was used in the study. Mean OHIP-14 score of the population was found to be  $8.09 \pm 10.53$ . This score is less than the pre-treatment OHIP score ( $17.88 \pm 5.84$ ) of our study. This could be due to the fact that our subjects were completely edentulous and they showed more OHIP impact values. Another recent study conducted by Shrestha et al<sup>23</sup> has assessed the reliability and validity of the translated version of OHIP-EDENT-N for edentulous subjects. Hence further studies on OHRQoL among edentulous patients can be done using the OHIP-EDENT-N questionnaire.

## CONCLUSION

Despite the advances in dentistry, conventional complete denture still remains the most common and affordable treatment option for majority of the edentulous Nepalese population. The present study has shown statistically significant difference in the pre and post treatment scores and thus further justified that oral rehabilitation with complete denture improves OHRQoL among the elderly. Hence, the clinicians should recognize the vital role they play in improving patient's quality of life besides just manufacturing a denture for functional purpose. Routine assessment with OHRQoL indicators can serve as a complementary measure to clinical examination for more comprehensive patient assessment.

## LIMITATIONS OF THE STUDY

There are however some limitations in this study. The major drawback of the study is that the English version of OHIP-14 was used in the study. The recently developed OHIP-EDENT-N would have been more appropriate for our study. Also, the small sample size and a short review period of one month post treatment which could have affected the overall result of the study.

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## CONFLICT OF INTEREST

No conflict of interest

## FINANCIAL DISCLOSURE

None declared



## REFERENCES

1. A. K. Özdemir, H. D. Özdemir, N. T. Polat, M. Turgut, and H. Sezer. The effect of personality type on denture satisfaction. *Intl J of Prosthodontics* 2006;19(4):364–70. PMID 16900819
2. Kaushik K, Dhawan P, Tandan P, Jain M. Oral Health Related Quality of Life among patients after complete denture rehabilitation: A 12 month follow up study. *Intl J of Applied and Basic Medical Research* 2018;8(3):169-173. PMID 30123747
3. Gil-Montoya JA, de Mello AL, Barrios R, Gonzalez-Moles MA, Bravo M. Oral health in the elderly patient and its impact on general well-being: A nonsystematic review. *Clin Interv Aging* 2015;10:461–70. PMID 25709420
4. I. Polzer, M. Schimmel, F. Müller and R. Biffar, "Edentulism as part of the general health problems of elderly adults," *Intl Dent J* 2010;60(3) 143–55. PMID 20684439
5. Carlsson GE. Facts and fallacies: an evidence base for complete dentures. *Dent Update*. 2006;33(3):134-42. PMID 16700269
6. Strassburger C, Heydecke G, Kerschbaum T. Influence of prosthetic and implant therapy on satisfaction and quality of life: A systematic review. *Intl J Prosthodont* 2004;17:83-93. PMID 15008238
7. Shah RJ, Chaturvedi A, Malek F, Prajapati H. Association between complete denture wearing and denture quality with Oral Health Related Quality of Life in Elderly Gujrati Population. *IOSR J of Dent and Med Sci* 2014;13(7):30-38. DOI: 10.9790/0853-13713038
8. John M.T., Slade G, Szentpetery A and Setz J. The short term effect of prosthodontic treatment on self reported oral health status : the use of single item questionnaire. *Intl J Prosthodont* 2007;20(5):507-13. PMID 17944342
9. Slade GD, Spencer A. Development and evaluation of the Oral Health Impact Profile. *Community Dent Health* 1994;11:3-11. PMID 8193981
10. Peterson PE. The world oral health report 2003. Continuous improvement of oral health in the 21<sup>st</sup> century. The approach of the WHO Global oral health programme. *Comm Dent Oral Epidemiol* 2003;56: 863–72. PMID 15015736
11. Slade GD. Assessing change in quality of life using oral health impact profile. *Comm Dent Oral Epidemiol* 1998;26:52-56. PMID 9511843
12. Allen PF, McMillan AS. A longitudinal study of quality of life outcomes in older adults requesting implant prosthesis and complete removable dentures. *Clin Oral Implant Research* 2003;14: 173-79. PMID 12656876
13. Slade GD. Derivation and validation of a short form of OHIP. *Comm Dent Oral Epidemiol* 1997;25:284-90. PMID 9332805
14. Hultin M, Davidson T, Gynther G, Helgesson G, Jemt T, Lekholm U, et al. Oral rehabilitation of tooth loss: A systematic review of quantitative studies of OHRQoL. *Intl J Prosthodont*. 2012;25:543–52. PMID 23101034
15. Forgie AH, Scott BJ, Davis DM. A study to compare the oral health impact profile and satisfaction before and after having replacement complete dentures in England and Scotland. *Gerodontology* 2005;22(3):137-42. PMID 16163904
16. Berg E. Acceptance of full dentures. *Intl Dent J*. 1993;43:299-306. PMID 8406961
17. Weinstein M, Schuchman J, Lieberman J. Age and denture experience as determinants in patient denture satisfaction. *J Prosthet Dent* 1988;59:327-9. PMID 3162273
18. Gerritsen AE, Allen PF, Witter DJ, Bronkhorst EM, Creugers NH. Tooth loss and oral health-related quality of life: A systematic review and meta-analysis. *Health Qual Life Outcomes* 2010;8:126. PMID 21054099
19. Nikolovska J, Petrovski D. Oral Health Related Quality of Life (OHRQoL) before and after prosthodontic treatment with full removable dentures. *Balk J Stom* 2012;16:169-72. ISSN 1107 - 1141
20. Berg E. A 2 year follow-up study of patient satisfaction with new complete dentures. *J Dent* 1988;16:160-5.
21. Gukes AD, Smith DE, Swoope CC. Counselling and related factors influencing satisfaction with dentures. *J Prosthet Dent* 1978;39:259-67. PMID 273089
22. Agrawal SK, Dahal S, Shrestha A, Bhagat T.K. Assessment of Oral Health Impact Profile (OHIP-14) among villagers of Jyamirgadi VDC, Nepal: A cross-sectional study. *Eur J of Biomed and Pharmaceutical Sci* 2017;4(8):400-403. ISSN 2349-8870
23. Shrestha B, Niroula SR, Parajuli PK, Suwal P, Singh RK. Reliability and validity of a Nepalese Version of Oral Health Impact Profile for edentulous subjects. *J of Prosthodont* 2018;27(5): 416-420. PMID: 27338840

