

# Oral Health Related Quality of Life among Completely Edentulous Patients using Geriatric Oral Health Assessment Index

Dr. Lajana Shrestha,<sup>1</sup> Dr. Sirjana Dahal<sup>2</sup>

<sup>1</sup>Department of Prosthodontics and Maxillofacial Prosthetics, Kathmandu Medical College, Duwakot, Bhaktapur, Nepal;

<sup>2</sup>Department of Community and Public Health Dentistry, Kathmandu Medical College, Duwakot, Bhaktapur, Nepal.

## ABSTRACT

**Introduction:** Complete loss of teeth, though not life threatening, does have a significant impact on an individual, resulting in functional, psychological, and social limitations, affecting the quality of life and general health. Oral health related quality of life describes the outcomes of oral health conditions and therapy to those conditions.

**Objective:** Geriatric Oral Health Assessment Index questionnaire (GOHAI) consists of 12 items that have an impact on quality of life of the older population, such as functional limitation, psycho-social limitation, and self-medication administered for dental pain. The study aimed to assess the effects of complete edentulousness before prosthodontic rehabilitation using GOHAI.

**Methods:** Descriptive cross-sectional questionnaire study was done among 35 completely edentulous patients prior to prosthodontic rehabilitation using standardised GOHAI questionnaire consisting of 12 items and the twelfth item was eliminated due to its irrelevancy in the study group.

**Results:** The mean age of the participants was 64.86±8.28 years with the mean duration of edentulousness of 4.02±5.4 years. The ability to swallow comfortably had highest mean GOHAI score (2.80±0.47) followed by use of medication to relieve pain and discomfort around the mouth. The least mean GOHAI score was found in trouble biting or chewing any kinds of food, such as firm meat or apples (1.26±0.56). However, the psychosocial impairment due to problems associated with complete edentulousness was less.

**Conclusion:** Complete edentulousness was associated with impairment in physical functions like trouble in biting and chewing, with a need to limit the kinds and amount of food.

**Keywords:** Complete denture; edentulism; geriatric oral health assessment index; oral health-related quality of life.

## INTRODUCTION

Although complete loss of teeth is not life threatening, it does have a significant impact on individual, resulting in functional, psychological and social limitations, affecting quality of life and general health.<sup>1</sup> Loss of teeth affects the ability to chew effectively causing them to alter food choices, affecting digestive process and compromised nutrition.<sup>2</sup> It also affects ability to speak clearly<sup>3</sup> and participate fully in activities due to feelings of insecurity and inferiority leading to psycho-social problems.<sup>4</sup> Facial sagging leads to compromised aesthetics giving aged appearance.<sup>5</sup>

Generally, studies take into account clinical aspects of disease measurements, relegating patient self-perception to a second tier. Therefore, concept of Oral health related quality of life (OHRQoL) is established by some questionnaires, including Geriatric Oral Health Assessment Index (GOHAI) to assess

patient self-perception.<sup>6,7</sup> GOHAI, complements clinical measures by paying special attention to problems related to physiological, physical and psychological needs.<sup>8</sup>

The purpose of the study was to recognise the problems of completely edentulous patients and determine their relationship with quality of life. Since, literature regarding GOHAI in completely edentulous in Nepal is scarce; this article aims to assess functional, psychosocial status of completely edentulous patients reporting to Kathmandu Medical College, Duwakot before rehabilitation with complete dentures.

## METHODS

A descriptive cross-sectional study was carried out in the department of Prosthodontics of Kathmandu Medical College, Duwakot for two months (August- September 2019) among completely edentulous patients, before treatment with complete dentures. Ethical approval for the study was obtained from Institutional Review Committee of Kathmandu Medical College (IRC No. 1207201919). The confidentiality of the participants was fully maintained and written consent was obtained after explaining in detail the entire study protocol. Those who did not give consent for any reason were excluded from the study. No names, documents or results were disclosed or circulated anywhere other than among the researchers. The names of the participants do not appear in the final report.

## Correspondence:

Dr. Lajana Shrestha

Department of Prosthodontics and Maxillofacial Prosthetics, Kathmandu Medical College, Duwakot, Bhaktapur, Nepal.

email: lajanashr@gmail.com

## Citation

Shrestha L, Dahal S. Oral Health Related Quality of Life among Completely Edentulous Patients using Geriatric Oral Health Assessment Index. *J Nepal Soc Perio Oral Implantol.* 2019;3(6):47-50.

The inclusion criterion was: Completely edentulous patients with adequate systemic and physical conditions to answer the questionnaire and willing to sign a written consent. The exclusion criteria are: i) Completely edentulous patients with systemic diseases and oral ulcerations, temporomandibular disorders; ii) Complete edentulism in one arch; iii) Previous complete denture wearers.

The participants were selected from daily outpatient department (OPD). Sample size determination was done on the basis of monthly OPD of the institution for the complete denture category. Convenience sampling technique was utilised for selecting sample. A total of 35 patients were enrolled in the present study.

The GOHAI consists of 12 items reflecting an impact upon the quality of life in older population, such as functional limitation, aesthetic dissatisfaction, chewing discomfort and avoidance of certain food, the avoidance of social contacts, and self-medication administered for dental pain. Standard back-translation method was used for translation and validation of English version of the questionnaire to Nepali language. Face and content validity were assessed.

A pilot study was conducted before conducting the main study among 10 completely edentulous patients. Intra-class correlation coefficient was done to measure intra-examiner reliability and excellent agreement (0.9) was obtained. The questionnaire consisted of 12 items of GOHAI. Since 12th item of GOHAI explaining about sensitivity to hot, cold or sweet food was invalid for completely edentulous patients, it was removed from the main study. The 12th item was

removed in other studies conducted by Dable et al.<sup>9</sup> and Shigli et al.,<sup>10</sup> where the study participants were completely edentulous.

The questionnaire was given to the participants prior to the treatment at first visit. Although the items are usually scored on five point Likert scale, the GOHAI was administered using a three point Likert scale (always, sometimes, never).<sup>10-12</sup> The GOHAI scores were calculated by addition of 11 items (response set is always, often=1, seldom, sometimes=2, never=3) after reversing the response of three items (item 3: swallow comfortably; item 5: eat anything without feeling discomfort; item 7: happy with looks).<sup>12</sup> A simple summative score ranging from 11 to 33 was calculated for each patient, with a higher score indicating better self-reported oral health. Means, standard deviations were calculated.

The data were subsequently entered into Statistical Package for Social Sciences (SPSS) for Windows version 20.0. Armonk, NY: IBM Corp., SPSS Statistics. The descriptive analysis was done to derive mean and standard deviation.

## RESULTS

The highest mean GOHAI score for completely edentulous patients was for ability to swallow comfortably followed by use of medication to relieve pain and discomfort around the mouth (Table 1). Majority of the participants (29, 82.9%), stated that they were always or often able to swallow comfortably. The least mean GOHAI score was related to trouble biting or chewing any kinds of food, such as firm meat or apples, followed by need to limit the kinds or amounts of food they eat because of problems with their teeth.

**Table 1: GOHAI scores for different items n (%).**

Items	1	2	3	GOHAI scores (Mean±SD)
1. How often did you limit the kinds or amounts of food you eat because of problems with your teeth or dentures?	19 (54.3)	11 (31.4)	5 (14.3)	1.60±0.73
2. How often did you have trouble biting or chewing any kinds of food, such as firm meat or apples?	28 (80.0)	5 (14.3)	2 (5.7)	1.26±0.56
3. How often were you able to swallow comfortably? (problem to swallow)	29 (82.9)	5 (14.3)	1 (2.9)	2.80±0.47
4. How often have your teeth or dentures prevented you from speaking the way you wanted?	7 (20.0)	19 (54.3)	9 (25.7)	2.06±0.68
5. How often were you able to eat anything without feeling discomfort? (discomfort eating any kind of food)	4 (11.4)	14 (40.0)	17 (48.6)	1.63±0.69
6. How often did you limit contacts with people because of the condition of your teeth or dentures?	7 (20.0)	4 (11.4)	24 (68.6)	2.49±0.81
7. How often were you pleased or happy with the looks of your teeth and gums, or dentures?	17 (48.6)	5 (14.3)	13 (37.1)	2.11±0.93
8. How often did you use medication to relieve pain or discomfort from around your mouth?	2 (5.7)	8 (22.9)	25 (71.4)	2.66±0.59
9. How often were you worried or concerned about the problems with your teeth, gums or dentures?	13 (37.1)	11 (31.4)	11 (31.4)	1.94±0.83
10. How often did you feel nervous or self-conscious because of problems with your teeth, gums or dentures?	8 (22.9)	12 (34.3)	15 (42.9)	2.20±0.79
11. How often did you feel uncomfortable eating in front of people because of problems with your teeth or dentures?	9 (25.7)	14 (40.0)	12 (34.3)	2.09±0.78
Q1-Q11(cumulative mean and SD for 11 questions)				22.82±4.26

1: impact reported "always and often"; 2: impact reported "sometimes and seldom"; 3: impact reported "never"

**Table 2: Distribution of patients by duration of edentulousness.**

	Gender	Mean±SD (years)
Duration of edentulousness	Male	3.51±6.56
	Female	4.57±3.96

The first four GOHAI items are related to functional problems in swallowing, speech and ingestion. Majority of the participants did not take medication for relieving pain and discomfort around the mouth. The rest of the GOHAI items (items 6, 7, 9, 10, 11) describe the psychosocial aspect.

The age of the participants ranged from 48-86 years with the mean age of 64.86±8.28 years. Out of 35 patients 18 (51.4%) were males (64.78±6.38 years) and 17 (48.6%) of them were females with mean age of 64.94±10.12 years. Mean duration of edentulousness is 4.02±5.4 years (Table 2).

**DISCUSSION**

Geriatric Oral Health Assessment Index, as the name suggests, is an assessment tool, not an objective measure of the patients’ oral health condition and cannot be used to diagnose dental diseases. GOHAI should not be used in place of clinical oral examination or dental radiographs, which provide objective signs of disease. The tool is designed to assess oral health status at two levels: the patient level and the population level. On the patient level, GOHAI can be used to indicate when a comprehensive oral examination or dental referral is necessary. It provides valuable information about oral symptoms, psychosocial and functional problems of the patients. On the population level, the tool could be a cost-effective mean of gathering information about peoples’ oral health status for epidemiologic purposes.<sup>12</sup> Katz suggests, that measurement of functional status is useful to demonstrate the outcome of treatment for a particular condition.<sup>13</sup> So, GOHAI can be used for assessment of outcome of treatment to evaluate effectiveness of those treatments. GOHAI is divided into three dimensions: physical function (eating, speech, and swallowing), psychosocial function (worry or concern about oral health, self-image, self-consciousness about oral health, and avoidance of social contacts because of oral problems) and pain or discomfort.<sup>12</sup>

In the present study, the most severe impact of complete edentulism was found in the functional limitation: in which the participants limited the amount or kinds of food they eat, had trouble biting or chewing any kinds of food like firm meat or apples, and had discomfort eating anything. Similar findings were found in the study by Dable et al.<sup>9</sup> and Norlela et al.<sup>14</sup> The lowest mean GOHAI score contributes a significant burden on the individual and the community.

Study by Dhama et al. reported that most of the geriatric patients had difficulty in chewing food with the lowest mean GOHAI score due to the condition of mouth and teeth.<sup>15</sup> Masticatory ability and food selection are largely affected by loss of teeth forcing edentulous people to choose soft and easy to chew food compared to dentate individuals<sup>16,17</sup> and they therefore constitute the group most likely to change their diet.<sup>18</sup>

The highest mean GOHAI score was found to be able to swallow comfortably and similar result was found in study by Shigli et al.<sup>10</sup> In contrast to the findings in the study by Dable et al.,<sup>9</sup> in the present study, there was lesser degree of impairment in speaking and swallowing due to loss of teeth. On the other hand, pain or discomfort domain (use of medication to relieve pain) had lesser impact on quality of life, supporting the findings of study by Norela et al.<sup>14</sup> Incidentally, there was lesser impact of complete edentulism in the psychosocial function of the participants compared to the findings in the studies by Dable et al.<sup>9</sup> and Norela et al.<sup>14</sup> The cumulative mean GOHAI score in the study was 22.82±4.26, which was found to be lesser than study by Shigli et al.<sup>10</sup>

The present study was conducted to assess the quality of life in completely edentulous patients before prosthodontic rehabilitation. However, GOHAI can be implemented to assess quality of life in these patients after rehabilitation with complete dentures. It can be used to compare the pre-treatment and post-treatment scores to assess the outcomes of the treatment and evaluate whether or not the quality of life has been improved.<sup>9,10</sup> Further studies with a larger sample size and post-rehabilitation evaluation of longer duration are essential before generalising the results.

**CONCLUSION**

Within the limitations of the study, highest mean GOHAI score of the completely edentulous patients was seen with the ability to swallow comfortably. The least mean GOHAI score was seen with trouble in biting and chewing any kinds of food with the need to limit the kinds and amount of food. However the impact of edentulism on psychosocial function was lesser compared to its impact on physical functions.

**Conflict of Interest:** None

## REFERENCES

1. Polzer I, Schimmel M, Muller F, Biffar R. Edentulism as part of the general health problems of elderly adults. *Int Dent J.* 2010;60(3):143-55.
2. Walls, AWG. Mastication, nutrition, oral health and health in older patients. In: Lamster IB, Northridge ME, editors. *Improving Oral Health for the Elderly: An Interdisciplinary Approach.* New York: Springer; 2008. p.353-67.
3. Jokovic a, Locker D. Dissatisfaction with oral health status in an older adult population. *J Public Health Dent.* 1997;57(1):40-7.
4. Slade GD, Spencer AJ. Social impact of oral conditions among older adults. *Aust Dent J.* 1994;39(6):358-64.
5. Hewlett SA, Yawson AE, Calys-Tagoe BNL, Naidoo N, Martey P, Chatterji S, et al. Edentulism and quality of life among older Ghanaian adults. *BMC Oral Health.* 2015;15:48-56.
6. Hassel AJ, Rolko C, Koke U, Leisen J, Rammelsberg P. A German version of the GOHAI. *Community Dent Oral Epidemiol.* 2008;36(1):34-42.
7. Hebling E, Pereira AC. Oral health-related quality of assessment tools used in of life: a critical appraisal elderly people. *Gerodontology.* 2007;24(3):151-61.
8. Gil-Montoya J, Subirá C, Ramón J, González-Moles M. Oral health-related quality of life and nutritional status. *J Public Health Dent.* 2008;68(2):88-93.
9. Dable RA, Nazirkar GS, Singh SB, Wasnik PB. Assessment of Oral Health Related Quality of Life Among Completely Edentulous Patients in Western India by Using GOHAI. *J Clin Diagn Res.* 2013;7(9):2063-7.
10. Shigli K, Hebbal M. Assessment of changes in oral health-related quality of life among patients with complete denture before and 1 month post-insertion using Geriatric Oral Health Assessment Index. *Gerodontology.* 2010;27(3):167-73.
11. Kressin NR. Associations among different assessments of oral health outcomes. *J Dent Educ.* 1996;60(6):501-7.
12. Atchison KA, Dolan TA. Development of the geriatric oral health assessment index. *J Dent Educ.* 1990;54(11):680-7.
13. Katz S, Akpom CA. A measure of primary sociobiological functions. *Int J Heal Serv.* 1976;6(3):493-508.
14. Winarti TM, Yacob N, Nor W, Wan S, Ali A. The Assessment of Quality of Life Using GOHAI among Edentulous Patients. *J Dent Maxillofac Res.* 2019;2(1):1-3.
15. Dhama K, Razdan P, Niraj L, Ali I, Patthi B, Kundra G. Magnifying the senescence: Impact of oral health on quality of life and daily performance in geriatrics: A cross-sectional study. *J Int Soc Prev Community Dent.* 2017 Oct 1;7(Suppl 2):S113-8.
16. Hung HC, Willett W, Ascherio A, Rosner BA, Rimm E, Joshipura KJ. Tooth loss and dietary intake. *J Am Dent Assoc.* 2003;134(9):1185-92.
17. Paturu R, Veeravalli PT, Vaidyanathan AK, Grover M. Evaluation of nutritional status and eating pattern in first and second-time denture wearers: A prospective 60 days (2 months) pilot study. *J Indian Prosthodont Soc.* 2011;11(3):156-64.
18. Hutton B, Feine J, Morais J. Is there an association between edentulism and nutritional state? *J Can Dent Assoc.* 2002;68(3):182-7.