

Research

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Effects of Dental Health on the Quality of Life of Elderly Patients

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ABSTRACT

Aim: Oral health can affect the quality of life (QoL), and the oral health impact profile-14 (OHIP-14) index utility to assess this impact.

Objective: To study the impact of oral health on quality of life of patients older than 50 years, verifying, preliminarily, the reliability of the OHIP-14 index.

Methods: We studied the internal consistency of the index by applying the alpha-Cronbach coefficient. The OHIP-14 index was obtained by the additive method, and the patients were divided according to gender, age and education level.

Results: Considering all the issues that make up the OHIP-14 index, good internal consistency was obtained. The homogeneity of the questions in the index, it was confirmed that condition, since the difference between the value of the total Cronbach's alpha-factor and issues was less than 0.03. The values of the intraclass correlation show the stability of their items.

Conclusion: The OHIP-14 index was consistent and proved to be there relatively high impact of oral health on QoL of patients, with a predominance of physical pain in its components "feel bothered to feed" and "feel pain in the mouth" as well as the components of the psychological impairment.

KEYWORDS: OHIP-14; Physical pain; Psychological disability; High impact.

ABBREVIATIONS: QoL: Quality of Life; OHIP-14: Oral Health Impact Profile-14; WHO: World Health Organization; REC: Research Ethics Committee.

INTRODUCTION

Over the last few decades, there have been several changes in the political, social and economic scenarios in Brazil. The health of the elderly is increasingly awakening the interest of researchers, since aging of the population is now a reality both in developed and developing countries. Oral health is among the factors that can exert influence on the QoL of the elderly people, since poor oral health conditions result in difficulty in chewing, speaking, or even in the relationships with other people.¹⁻³

The concept of QoL is related to self-esteem and personal well-being and covers aspects such as socio-economic status, lifestyle, cultural, ethnic and religious values, health, family support, self-care, intellectual, social interaction, emotional state, job satisfaction and activities of daily life and the environment in which we live. Thus, the concept of QoL is subjective and depends on socio-economic status, age, and desires of each individual.³⁻⁵

Measuring QoL is very subjective, because it is inherent to the individual, related to their more personal characteristics, both in aspects of hereditary nature as those stuck for life.³⁻⁵ There are two ways to measure quality of life: generic tools and specific instruments. The con-

cept of oral health-related quality of life describes the impact of oral facial conditions and effect of dental interventions. It is a broad and comprehensive concept which is widely influenced by physical health, psychological state, social relationship and environment.²⁻⁵

Among the instruments that assess the impact of oral health conditions on QoL of individuals, there is the oral health impact profile (OHIP).⁶⁻¹¹ OHIP-14 is a subjective indicator and the most widely used to assess the impact caused by oral conditions and QoL.^{9,11} Considering that oral health might have a negative impact on the QoL, the aim of this study is to evaluate the influence of oral health conditions on QoL elderly patients.

MATERIALS AND METHODS

It is cross-sectional study, conducted by personal interview, applying the Brazilian version of OHIP-14 (Table 1). They interviewed patients older than 50 years who required routine care at the Faculdades Unidas do Norte de Minas (FUNORTE), MG 39404-549, Brazil. The survey was conducted in the first half of 2016 and turned to the problems that the patient would have presented the six months preceding the interview. All patients had signed an informed consent statement.

It was adopted a non-probabilistic sampling methods,

according to which the patients were interviewed in order of presentation, constituting a convenience sample. Table 1 shows the composition of the OHIP-14 index. Through interviews, problems have been reported (over the past six months) according to the perception that being classified as the frequency of appearance. The OHIP-14 comprises 14 items that explore seven dimensions of impact: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap. The responses were classified using the Likert scale with five options ranging from “never” (0) to “very often” (Tables 1 and 2).

Personal interviews were conducted by a single interviewer, previously trained in the application of OHIP-14 form. To study the reliability of employee questionnaire (OHIP-14) was applied to the alpha-Cronbach coefficient. The results of OHIP-14 scale application were analyzed to applying the additive method due to its high discriminatory power. It calculated the sum of the points for each item per individual, with the scale could have a range of 0 to 56, allowing the calculation of the average OHIP-14; note that the highest value indicates the greatest impact on oral health QoL. The significance level was 5% for decision making.

This study was approved by the Research Ethics Committee (REC) of Faculdades Unidas do Norte de Minas (FU-

Question: ... Because of problems with your teeth, your mouth or your dentures?	Answer: 0=never; 1=rarely; 2=sometimes; 3=repeatedly; 4=always.
1. Have you had trouble speaking a word ...	
2. Did you feel that the taste of the food has gotten worse ...	
3. Did you feel severe pain in your mouth?	
4. You have felt uncomfortable to eat some food ...	
5. You've been uneasy ...	
6. Did you feel stressed ...	
7. His power has been undermined ...	
8. you had to stop your meals ...	
9. Do you have found it difficult to relax ...	
10. Do you ever feel a little embarrassed ...	
11. Do you have angry state with others ...	
12. Have you had difficulty in performing daily activities ...	
13. Have you ever felt that life in general was worse ...	
14. You have been unable to do your daily activities ..	

Table 1: Brazilian OHIP-14 index and response options to the total individual score calculation purposes version.

Domain	Questions
Functional limitation	1-2
Physical pain	3-4
Psychological distress	5-6
Disability	7-8
Psychological disability	9-10
Social disability	11-12
Social disadvantage	13-14

Table 2: Index domains OHIP second presented problems.

NORTE), MG 39404-549, Brazil.

RESULTS

Questionnaire for Internal Consistency of OHIP-14

The internal consistency of the OHIP-14 index given in Tables 1 and 2. Cronbach’s alpha will generally increase as the intercorrelations among test items increase, and is thus known as an internal consistency estimate of reliability of test scores. Our results showed that the internal consistency, estimated through Cronbach standardized alpha coefficient, was considered adequate (Cronbach alpha-0.781). Additionally, alpha-Cronbach values for the different subscales ranged from 0.699 (physical pain) to 0.742 (social limitation). The values of the intraclass correlation show the stability of their items (Table 3).

OHIP-14: Additive Method

The items were prioritized according to the level of impact that

caused the QoL of patients and can be viewed in Figure 1. There was a predominance of physical pain: discomfort to eat and pain; and psychological disability. Considering the frequencies of occurrence, the results showed that elderly people “feel ashamed” and “feel severe pain in the mouth” frequently. On the other hand, “a speech impediment” was observed in 25 patients (Table 4). In addition, Table 4 shows that it has a value of 20.31 for the OHIP-14 index, which can be classified as relatively high impact of oral health on QoL of elderly.

DISCUSSION

The term oral health related to QoL in the field of dentistry is used to describe the impact that oral problems can produce in people’s lives and is determined by a variety of conditions that affect the perception of the individual, his senses and behaviors in exercise of their daily activities.^{2,3}

In Brazil, the demographic and epidemiological transition is a result of declining birth rates, increasing the economi-

Question: ... because of problems with your teeth, your mouth or your dentures?	Average correlation inter item	Alpha-Cronbach
1. Have you had trouble speaking a word ...	0.227	0.735
2. Did you feel that the taste of the food has gotten worse ...	0.223	0.736
3. Did you feel severe pain in your mouth?	0.350	0.723
4. You have felt uncomfortable to eat some food ...	0.540	0.699
5. You’ve been uneasy ...	0.391	0.719
6. Did you feel stressed ...	0.251	0.733
7. His power has been undermined ...	0.493	0.707
8. you had to stop your meals ...	0.472	0.711
9. Do you have found it difficult to relax ...	0.280	0.731
10. Do you ever feel a little embarrassed ...	0.500	0.708
11. Do you have angry state with others ...	0.288	0.730
12. Have you had difficulty in performing daily activities ...	0.308	0.728
13. Have you ever felt that life in general was worse ...	0.364	0.722
14. You have been unable to do your daily activities ...	0.187	0.742

Table 3: Internal consistency of the OHIP-14 second index correlation average inter item and alpha-Cronbach coefficient.

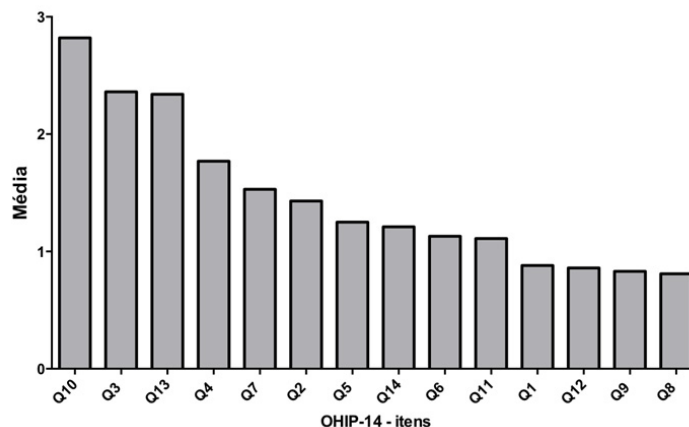


Figure 1: Distribution of ordered items that make up the OHIP-14 index.

Question: ... because of problems with your teeth, your mouth or your dentures?	Never 0	Rarely (1)	Sometimes (2)	Repeatedly (3)	Always (4)
1. Have you had trouble speaking a word ...	54	33	17	0	8
2. Did you feel that the taste of the food has gotten worse ...	31	29	32	13	7
3. Did you feel severe pain in your mouth?	15	13	28	29	27
4. You have felt uncomfortable to eat some food ...	37	12	25	16	22
5. You've been uneasy ...	48	25	18	5	16
6. Did you feel stressed ...	48	24	25	8	7
7. His power has been undermined ...	38	19	27	14	14
8. you had to stop your meals ...	68	16	16	5	7
9. Do you have found it difficult to relax ...	67	20	13	1	11
10. Do you ever feel a little embarrassed ...	11	2	27	28	44
11. Do you have angry state with others ...	55	15	24	11	7
12. Have you had difficulty in performing daily activities ...	67	20	9	6	10
13. Have you ever felt that life in general was worse ...	24	8	22	22	36
14. You have been unable to do your daily activities ...	54	14	23	9	12

Table 4: Frequency and average occurrence of the items that make up the OHIP-14 index.

cally active population, reduction of infectious diseases and increased chronic diseases such as arthritis, diabetes, cardiovascular disorders and rheumatism.^{4,5,12,13} A person to be considered elderly must be 65 years or older, for developed countries, and emerging countries 60 years or more.

The aging process has several aspects, aging is characterized by the declining ability to respond to stress, increased homeostatic imbalance, and increased risk of aging-associated diseases. Also, senility is the age with the development of a pathological condition by emotional stress, injury or illness. Becoming old is a reality experienced by all people. Being old is to live a life cycle where several changes are evidenced throughout life, the need for this social and family interventions. According to the World Health Organization (WHO) in 1948, it defines health not as “absence of disease” but as “a state of complete physical, mental and social well-being”, requiring it to multiple interventions. The elderly people need to be included in the family with care and love, must live in a society in which their constitutional right is guaranteed to have a decent home, enjoy a public health quality and above all be well psychologically within the society in which lives.^{4,5,12,13}

One of the factors that interfere negatively with QoL of older people is, both in the social sphere and in health, is the loss of dental elements whose main factors periodontal disease and caries related to lack of access to oral health. An elderly edentulous is an individual who gets sick psychologically, the loss of self-esteem and can also sicken by the deficiency of chewing and swallowing, contributing to the worsening of diseases of lack of adequate protein to your body.³

Some authors suggest that are very frequently in the oral cavity of the elderly changes that interfere with the taste sensation, such as coated tongue that may be associated with poor oral hygiene, often hampered by diseases such as arthritis. One can also meet certain frequency lingual varicosities, characterized by bubbles that are located on the tongue side, it is most often asymptomatic.^{1,3}

In addition to systemic diseases affected at this age, the oral health of the elderly is still precarious, the number of teeth in the oral cavity is small, the incidence of periodontal disease and caries is high, most make use of partial dentures and/or total, causing the social, physical and psychological problems affecting their QoL.^{1,12}

Although this is not an epidemiological study, the data provide interesting information on the social and oral health conditions of the study group, which, however, can not be generalized, because there was not any attempt to make it a random sampling. In practice, the difficulties to obtain elderly sampling lead researchers to use samples from seniors groups or nursing homes. Still, the study may have limitations on the external validity of the adoption of non-probabilistic methodology in selecting the sampling units but widely used in clinical studies for ease of access to patients. Reliability was assessed by examining internal consistency and reproducibility. For the OHIP-14 instrument, the alpha-Cronbach was 0.78, showing good consistency, similar to those found in other studies. In addition to the OHIP-14 be homogeneous, it is stable, reflecting the effective contribution of each of the issues for the internal consistency of this index.

There was a predominance of physical pain, which comprises “feel bothered by eating some food” and “feeling severe pain in the mouth”. Once pain is the main reason that adults seeking dental care, usually these individuals use sporadically dental service, only when they have symptoms. The difficulty in chewing was associated with QoL in previous studies, where the deterioration of oral health conditions is focused on attention to school children, pregnant women, and babies, focusing on individual and curative care. This study observed high impact of oral health on QoL of patients, where positive responses were found in several other survey questions used by OHIP-14 index; however, having negative impact on oral health, either in functional limitations, psychological discomfort, physical disability or mental disability.

The results of this study suggest that even people with good access to routine dental services may have relatively high OHIP scores, which indicates that there is no good life quality levels related to oral health. Starting from an assumption that the oral health of the elderly is essential to good health in all aspects, it is essential that the professional dentist, along with government agencies, through social to health care policies, review the general concept of oral health for that particular group. Due to the high population growth and survival of the elderly population, become necessary investments in conservative treatment and rehabilitation for preservation or maintenance of oral health of the elderly.^{3,8,11,13}

Thus, it is suggested that subjective issues and psychological aspects are considered as essential as the normative requirements. The use of the OHIP-14 can be useful for planning programs and actions for the health of the elderly, prioritizing those with higher psychosocial impacts produced by dental problems. Thus, actions for health education, with emphasis on self-awareness, self-protection and self-care should be explored, as would enable a greater empowerment of older persons to act with more autonomy in the pursuit of improving the QoL and health.⁶⁻¹¹

CONCLUSION

The OHIP-14 index was consistent and proved to be relatively high impact of oral health on QoL of patients, with a predominance of physical pain in its components “feel bothered to feed” and “feel pain in the mouth” and the components of the psychological impairment. Health authorities must address all these factors when planning interventions on oral health for this population.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

REFERENCES

1. Belon AP, Lima MG, Barros MB. Gender differences in health

life expectancy among Brazilian elderly. *Health Qual Life Outcomes*. 2014; 12: 88. doi: [10.1186/1477-7525-12-88](https://doi.org/10.1186/1477-7525-12-88)

2. Joaquim AM, Wyatt CC, Aleksejūnienė J, Gregghi SL, Pegoraro LF, Kiyak HA. A comparison of the dental health of Brazilian and Canadian independently living elderly. *Gerodontology*. 2010; 27(4): 258-265. doi: [10.1111/j.1741-2358.2009.00340.x](https://doi.org/10.1111/j.1741-2358.2009.00340.x)

3. Silva AE, Demarco FF, Feldens CA. Oral health-related quality of life and associated factors in Southern Brazilian elderly. *Gerodontology*. 2015; 32(1): 35-45. doi: [10.1111/ger.12050](https://doi.org/10.1111/ger.12050)

4. Roriz-Cruz M, Rosset I, Wada T, et al. Stroke-independent association between metabolic syndrome and functional dependence, depression, and low quality of life in elderly community-dwelling Brazilian people. *J Am Geriatr Soc*. 2007; 55(3): 374-382. doi: [10.1111/j.1532-5415.2007.01068.x](https://doi.org/10.1111/j.1532-5415.2007.01068.x)

5. Sewo Sampaio PY, Sampaio RA, Coelho Júnior HJ, et al. Differences in lifestyle, physical performance and quality of life between frail and robust Brazilian community-dwelling elderly women. *Geriatr Gerontol Int*. 2016; 16(7): 829-835. doi: [10.1111/ggi.12562](https://doi.org/10.1111/ggi.12562)

6. El Osta N, Tubert-Jeannin S, Hennequin M, Bou Abboud Naaman N, El Osta L, Geahchan N. Comparison of the OHIP-14 and GOHAI as measures of oral health among elderly in Lebanon. *Health Qual Life Outcomes*. 2012; 10: 131. doi: [10.1186/1477-7525-10-131](https://doi.org/10.1186/1477-7525-10-131)

7. Hassel AJ, Steuker B, Rolko C, Keller L, Rammelsberg P, Nitschke I. Oral health-related quality of life of elderly Germans--comparison of GOHAI and OHIP-14. *Community Dent Health*. 2010; 27(4): 242-247. Web site: <http://europepmc.org/abstract/med/21473361>. Accessed June 28, 2016

8. Ikebe K, Hazeyama T, Enoki K, et al. Comparison of GOHAI and OHIP-14 measures in relation to objective values of oral function in elderly Japanese. *Community Dent Oral Epidemiol*. 2012; 40(5): 406-414. doi: [10.1111/j.1600-0528.2012.00683.x](https://doi.org/10.1111/j.1600-0528.2012.00683.x)

9. Locker D, Matear D, Stephens M, Lawrence H, Payne B. Comparison of the GOHAI and OHIP-14 as measures of the oral health-related quality of life of the elderly. *Community Dent Oral Epidemiol*. 2001; 29(5): 373-381. doi: [10.1111/j.1600-0528.2001.290507.x](https://doi.org/10.1111/j.1600-0528.2001.290507.x)

10. Rodakowska E, Mierzyńska K, Bagińska J, Jamiołkowski J. Quality of life measured by OHIP-14 and GOHAI in elderly people from Białystok, North-east Poland. *BMC Oral Health*. 2014; 14: 106. doi: [10.1186/1472-6831-14-106](https://doi.org/10.1186/1472-6831-14-106)

11. Stancic I, Sojic LT, Jelenkovic A. Adaptation of oral health impact profile (OHIP-14) index for measuring impact of oral health on quality of life in elderly to Serbian language [In Ser-

bian]. *Vojnosanit Pregl.* 2009; 66(7): 511-515.

12. Miotto MH, Barcellos LA, Velten DB. Evaluation of the impact on quality of life caused by oral health problems in adults and the elderly in a Southeastern Brazilian city. *Cien Saude Colet.* 2012; 17(2): 397-406. doi: [10.1590/S1413-81232012000200014](https://doi.org/10.1590/S1413-81232012000200014)

13. Ulinski KG, do Nascimento MA, Lima AMC, et al. Factors related to oral health-related quality of life of independent brazilian elderly. *Int J Dent.* 2013; 2013: 705047. doi: [10.1155/2013/705047](https://doi.org/10.1155/2013/705047)