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Oral Health Impact Profile in elderly Chileans in southern Chile.

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Abstract: Aim: To evaluate the impact of oral health on the quality of life of elderly patients (EP) in the public health system of Valdivia, Chile in 2015. Methods: A descriptive study was conducted using the "Oral Health Impact Profile Spanish version" (*OHIP-14Sp*), in a population of 387 EP (71.8±7.5 years old; 53% women). The impact of oral health on the quality of life was determined by the mean scale score that ranged beween 0 points (good quality of life) and 56 points (poor quality of life). In addition, oral health problems reported by EP population as having a greater influence on their quality of life were also included in this study. Results: The mean score of *OHIP-14Sp* was 20.1±7.6 points. Items showing problems more frequently associated with quality of life were: "toothache" (32.8%), "appearance of the teeth" (32.8%), "sensitive teeth" (32.3%) and "difficulty for chewing food" (25.8%). Conclusion: The impact of oral health on the quality of life of the EP population was considered low when compared to the median score of *OHIP-14Sp*. Functional and aesthetic aspects showed the highest impact on the quality of life of EP in the city of Valdivia.

Keywords: *Quality of life, Oral health, OHIP-14, Elderly.*

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INTRODUCTION.

The elderly population (EP) over 60 years of age has shown a progressive and rapid change in its population pyramid. Globally, data from the United Nations predict that by 2050 one in five people will be over 60 years, estimating a rate higher than 24.1% in Chile, with a life expectancy of up to 80 years[1]. However, these figures are associated with dramatic oral health problems caused by the loss of teeth in EP due to the lack of appropriate measures to prevent and treat oral health problems throughout their life[2].

In 2003 less than 1% of the Chilean population over 65 years old had all their teeth and a third of them was totally toothless, demonstrating a perceived need for dental prosthesis use in 55.3% of the EP, affecting various aspects of their quality of life[3].

The interest in evaluating diseases that affect quality of life has been increasing gradually. To quantify quality of life in relation to oral health, scales such as *Oral Health Impact Profile- 49* (OHIP-49), *Oral Health Impact Profile-14* (OHIP-14), *Oral Impact of Daily Performance* (OIDP), *Geriatric/General Oral Health Assessment Index* (GOHAI), among others[4], have been used and validated.

In Chile, a group of researchers at Universidad de Talca validated the *OHIP-14Sp* scale in a group of Chilean elders obtaining a high internal consistency (α=0.91)[5]. As a result, this instrument allows to quantify quality of life in relation to the perceived state of oral health in EP from different regions of Chile. Local evidence suggests that EP usually consider poor oral health condition as a normal consequence of the aging process[6]. Thus, the analysis of quality of life associated with oral health yield epidemiological data that can be compared with data from other Latin American regions, facilitating the implementation of public health policies to improve the quality of life of EP[1].

The aim of this study was to evaluate the impact of oral health on the quality of life of EP according to the *OHIP-14Sp* scale in the public health system of the city of Valdivia in southern Chile, 2015.

MATERIALS AND METHODS.

Study design

A descriptive study of EP patients treated in the public health system of the city of Valdivia was performed in 2015. The research protocol was approved by the Research Ethics Committee of the Health Service of Valdivia (No. 073/2015).

Population and sample size

The target population was EP patients over 60 years old who were regularly treated at the General Hospital of Valdivia and at the Dr. Jorge Sabbath Family Health Centre in the same city. A convenience sample was selected according to the number of EP patients who received dental treatment at each health centre according to their scheduled appointments between March and June 2015.

The number of EP was established according to the score of the *OHIP-14Sp* scale presented by Leon *et al.*[5], considering a standard deviation of 31.4 points, a confidence interval of 95% and a desired precision of 3.5 points; an approximate number of 310 EP patients participated in the study ("EpiTools Epidemiological Calculators". Australian Biosecurity Cooperative Research Centre).

EP patients selected were those who, after a verbal explanation of the purpose of the study, accepted and approved their participation by reading and signing the informed consent. EP suffering from alcoholism, cognitive impairment, illiterate or those who were dependent on others were excluded from the study.

"Oral Health Impact Profile" in Spanish (OHIP-14Sp)

The *OHIP-14Sp* scale validated in Chile[5] was used in this study. This scale has 7 domains (Functional limitation, Physical pain, Psychological discomfort, Physical disability, Psychological disability, Social disability, and Handicap) distributed in 14 items. Each item corresponds to oral health problems associated with quality of life and valued by frequency in a Likert scale of four points: "Never" (0 points), "Almost never" (1 point), "Sometimes" (2 points), "Frequently" (3 points) and "Always" (4 points). The sum score of the *OHIP-14Sp* scale ranges between 0 points (good quality of life) and 56 points (poor quality of life). Before using the scale, a validation face test was conducted with a pilot study of 30 patients at the General Hospital of Valdivia. As a result, font size was increased because most EP had difficulty reading the questionnaire. These participants were not included in the study sample.

Two researchers (J.V.H; M.Y.H) applied the scale to patients in the waiting rooms of the services already mentioned. The questionnaire was printed on a letter-size paper using size 12 "Century Gothic". Patients were briefly explained the purpose of the questionnaire and asked to read and sign the informed consent. Then patients received the document along with an ink pen. They were given a maximum of 20 minutes to answer the instrument. Once completed, researchers gave the participating patients their contact information.

For each patient, the following independent variables were registered: age (age range every 5 years), sex (male, female), area of residence (urban, rural), smoking (yes, no) and frequency of visits to the dentist for check-ups (one or more visits per year, less than one visit per year). The sum score of the *OHIP-14Sp* scale was registered as the dependent variable.

Data analysis

Surveys were coded in a Google Drive spreadsheet (Google Inc. Mountain View, CA, USA). The impact of oral health on quality of life was assessed according to the average of the sum of scores obtained from each EP participant. It was considered a low impact if the mean score was lower than the median of the *OHIP-14Sp* scale (28 points). In addition, those problems in which over 25% of the EP selected the options "Frequently" and "Always"

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were highlighted.

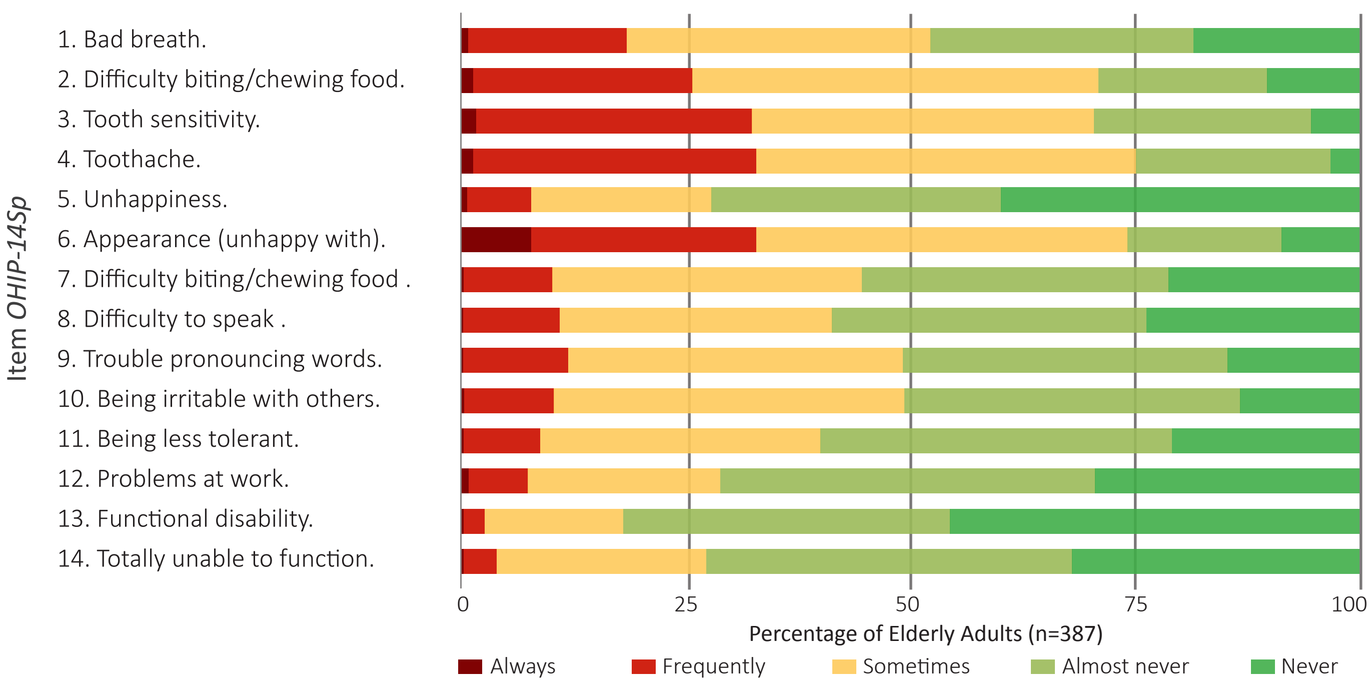
All values were calculated using descriptive statistics, showing the mean score of the *OHIP-14Sp* scale. In addition, for each independent variable the proportion of EP participants and the mean score of the *OHIP-14Sp* scale by chi square test and Student's t test, respectively ($p<0.05$), was calculated. Figures and tables were made in Microsoft Excel 2011 (Microsoft Corporation, Washington, USA) and the analytical statistical analysis in STATA 10.0 (StataCorp, WA, USA).

Table 1. Variables of patients and mean score of the *OHIP-14Sp* scale in elderly adults of the city of Valdivia, Chile. 2015.

Variable	Item	Number of participants	%	p[1]	Mean score± SD *OHIP-14Sp*	p[2]
Sex	Female	205	52.9	.1	20.3±7.8	.18
	Male	182	47.1		19.7±7.5	
Age range (years)	60-64	67	17.3	.06	18.4±7.9	.1
	65-69	91	23.5		20.3±7.7	
	70-74	89	23		20.9±7.6	
	75-79	66	17.1		20.3±7.1	
	≥80	74	19.1		20.1±7.8	
Area of residence	Urban	316	81.6	<.001	20.3±7.4	.16
	Rural	71	18.4		19.3±8.2	
Smoker	Yes	144	37.3	<.001	21.6±7.8	<.001
	No	243	62.7		19.2±7.5	
Frequency of visits to the dentist	One or more per year	102	26.4	<.001	17.2±7.6	<.001
	Less than once a year	285	73.6		21.1±7.7	

1. Chi square test ($p<0.05$) , 2. Student's t test ($p<0.05$)

Figure 1. Percentage of elderly adults who classified the frequency of the problem in the *OHIP-14Sp* scale. Problems chosen as "Frequently" and "Always" are highlighted in red.



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RESULTS.

Three hundred eighty-seven EP participated in the study between April and June, 2015. They had an average age of 71.8±7.5 years. Of these, 53% were women, mostly residents of urban areas (p<.001). The mean score of the *OHIP-14Sp* scale was 20.1±7.6 points (minimum=3, maximum=47). There were no significant differences in relation to sex (p=.18), age range (p=.1) and area of residence (p=.16). The variables "smoker EP" and "visits less than once a year to the dentist" showed statistically higher scores on the *OHIP-14Sp* scale (p<.001).

The distribution of sociodemographic variables and the mean score of the *OHIP-14Sp* scale in each one of them is shown in Table 1.

Items showing a higher frequency of oral health problems associated with quality of life were: "toothache" (32.8%), "appearance of teeth" (32.8%), "tooth sensitivity" (32.3 %) and "difficulty for chewing food" (25.8%) (Fig.1).

DISCUSSION.

The impact of oral health on quality of life in a sample of EP over 60 years in Valdivia proved to be low in relation to the median of the *OHIP-14Sp* instrument. However, it was observed that conditions such as being a smoker and visiting the dentist less than once a year showed significantly higher scores. It was also noted that the problems associated with food, tooth sensitivity, toothache and cosmetic appearance were the most frequently observed.

These findings are consistent with results from seven other countries including Canada, Mexico[8], Colombia[9] and Japan[10], whose mean score in the OHIP-14 scale was lower than the median of the instrument (28 points) and where the domains "Physical pain" and "Psychological discomfort" showed more problems in relation to oral health condition. In turn, the use of the instrument GOHAI in EP from Latin American countries such as Colombia[11], Peru[12] and Chile[13] complements these results, showing that a high percentage of respondents (74.1%, 77% and 76%, respectively) perceived a high impact of oral health on their quality of life.

Regarding socio-demographic variables, "frequency of visits to the dentist" stands out over the rest, as most of the participants in the study visit the dentist less than once a year (73.6%), having an mean *OHIP-14Sp* higher than those who do it more than once a year. These results are consistent with those described by Quinteros *et al.*[6] showing an association between the number of dental visits and higher rates of cavities and missing teeth due to the lack of dental care provided by the Chilean public health system and to the fact that the EP population over 60 years does not have any type of private dental health insurance and is restricted to only one dental care program. Private dental care is unaffordable for most people, whose retirement pensions are usually very low[6].

Our results showed that the domains "Functional Limitation", "Physical pain", and "Psychological discomfort" were chosen by 25% of EP respondents as a problem affecting their quality of life frequently or always. These results are similar to previous reports[5,6,7,10,14] mainly conditioned by the lack of access to and maintenance of oral health care during the life of the EP patient[2,6].

With respect to age, the mean scores of *OHIP-14Sp* obtained were similar in all age ranges. This finding differs from the results presented by Leon *et al.*[5], in which older people had a lower impact on the *OHIP-14Sp* scale, indicating a greater acceptance by this age group to deteriorating health and lower life expectancy. One of the effects seen in this data is the increased loss in the number of teeth in older ages, even with one third of the population over 65 years[3] being edentulous due to lack of dental care during childhood, and poor oral health promotion and prevention actions, which are currently available[6]

However, this limiting condition can be significantly improved by using implant prosthetics. Reports by Jofre *et al.*[15] have shown through the OHIP-14 scale a significant improvement in the quality of life in those elderly patients with mandibular implants and implant-retained, muco-supported implants, sggesting a basic or preliminary rehabilitation approach for this group of patients.

One of the limitations concerning convenience sampling and patient recruitment aimed specifically at a health centre is the fact that they could cause information bias associated with a chronic illness, which may condition the outcome of this instrument. Furthermore, the use of scales with multiple-choice items may cause response bias induced by random answers or the effect of overestimating the real health condition of the participating patients. Despite these limitations, we believe that these results could be relevant and have an influence on decision-making regarding public health policies, considering the current state of demographic transition towards an aging population in Chile, which is directly related to the availability of intellectual, social, biological and material resources required by the elderly population[2].

In conclusion, it was shown that the impact of oral health on the quality of life of a group of EP over 60 years of the city of Valdivia was low in relation to the median score of the *OHIP-14Sp* instrument. However, the conditions of being a smoker and visiting the dentist less than once a year obtained significantly higher scores; showing a higher frequency of EP with impaired quality of life caused by feeding problems, tooth sensitivity, dental pain and aesthetic appearance.

We suggest conducting new studies that could establish the influence of various inherent risk and causal factors on the quality of life indices through case-control or prospective cohort studies, including results of previous studies[2] and those obtained with the use of the *OHIP-14Sp* instrument for measuring the effectiveness of therapies and interventions in community geriatrics and related medical specialties[1].

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Impacto de la salud oral en la calidad de vida de adultos mayores en el sur de Chile.

Resumen: Evaluar el impacto de la salud oral en la calidad de vida de los adultos mayores (AM) sobre 60 años del sistema público de salud de la ciudad de Valdivia, Chile en el año 2015. Metodología: Se realizó un estudio descriptivo usando el cuestionario “Oral Health Impact Profile spanish version” (*OHIP-14Sp*) en una población de 387 AM (71,8±7,5 años; 53% mujeres). Se determinó el impacto de la salud oral en la calidad de vida según el promedio de puntaje de la escala entre un rango de 0 puntos (mejor calidad de vida) y 56 puntos (menor calidad de vida). Además, se destacaron aquellos problemas de la salud oral en que los AM seleccionaron como mayor influencia sobre la calidad de vida. Resultados: El puntaje promedio de *OHIP-14Sp* fue de 20,1±7,6 puntos. Los ítems que demostraron más frecuencia de problema asociados a la calidad de vida fueron: “dolor dental” (32,8%), “apariencia de dientes” (32,8%), “sensibilidad dental” (32,3%) y “problemas de digestión” (25,8%). Conclusión: El impacto de la condición de salud oral sobre la calidad de un grupo de AM fue baja en relación a la mediana del instrumento *OHIP-14Sp*. El componente funcional y estético fueron los problemas de salud oral con mayor frecuencia en el impacto de la calidad de vida en los AM de la ciudad de Valdivia.

Palabras clave: *Calidad de vida, Salud Oral, OHIP-14, Adulto Mayor.*

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