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Research Article

Impact of Dental Caries on Oral Health-Related Quality of Life in Adults Demanding Dental Care in a Primary Care Center

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Abstract

The present study analyzes the impact of dental caries on oral health-related quality of life (QQoL) in adults over 18 years of age attending a primary dental care center in Resistencia, Chaco (Argentina). A cross-sectional study was conducted in which the DMFT index was applied to assess caries experience and the GOHAI questionnaire to measure BSQoL.

The results show a high DMFT index (mean = 17.5; SD = 6.9), with a predominance of the "missing teeth" component. A positive and significant correlation was observed between age and DMFT index ($r = 0.63$, $p = 0.01$), as well as a negative correlation between DMFT and bqQoL ($r = -0.36$, $p = 0.03$), indicating that a higher caries burden is associated with a worse perception of quality of life. The dimension of pain or discomfort was the most affected.

These findings highlight the need to strengthen preventive strategies and improve access to conservative treatments to reduce the burden of oral disease and improve the quality of life of the population. Further research into factors associated with HRQoL is recommended to develop more effective interventions.

Keywords: *Oral Health; Dental Caries; Quality of Life*

Introduction

The WHO defines oral health as the state of the mouth, teeth and orofacial structures that allows people to perform basic functions, such as eating, breathing and speaking, and affects psychosocial dimensions, such as self-confidence, well-being and the ability to socialize and work without pain, discomfort or embarrassment. Oral health varies throughout life, from early age to old age, is an integral part of overall health and helps people participate in society and reach their potential [1].

Dental caries is one of the most prevalent chronic diseases worldwide and constitutes a significant public health problem. Its impact is not limited to the biological sphere, but affects various dimensions of human well-being, including physical, psychological and social

aspects. Numerous studies have shown that the presence of caries and their consequences, such as dental pain, tooth loss, and functional limitations, can negatively influence eating, speech, and self-esteem, significantly compromising the quality of life of individuals [2-4]. These consequences reinforce the need to address dental caries not only from a clinical point of view, but also from a comprehensive perspective that considers its impact on patients' quality of life [5].

For decades, oral health assessment was based exclusively on clinical indicators, making it difficult to understand the true impact of oral pathologies on patients' daily lives. However, the development of instruments to measure oral health-related quality of life (QQoL) has made it possible to quantify the consequences of these conditions on the routine and well-being of individuals [5].

Currently, there are numerous questionnaires designed to assess quality of life related to oral health [6], although few have been subjected to a rigorous process of internal validation or cross-cultural adaptation. One of the most widely validated instruments at the international level is the Geriatric Oral Health Assessment Index (GOHAI), designed by Atchison and Dolan [7] and translated into multiple languages [8-17], which has been used in various populations to measure the impact of oral problems on the lives of people of different ages [18].

In the context of primary health care services, patients seeking dental care often have oral health-related alterations in their quality of life (BSQoL). Assessing these impacts is essential to understand the magnitude of the problem and design effective intervention strategies [19]. In this sense, the analysis of the dimensions of the HRQoL makes it possible to identify the main affected aspects and guide preventive and therapeutic actions aimed at improving the well-being of the population [20-22].

Objectives of the Study

The objective of this study is to analyze the impact of dental caries on the quality of life of adults over 18 years of age who attend a primary dental care center, addressing the different dimensions that make up the HRQoL. Understanding these effects will allow for the design of more effective prevention and intervention strategies, contributing to the improvement of the population's well-being and the promotion of oral health as an essential component of general health.

Methodology

A cross-sectional study was carried out in the months of April to June 2024 in patients over 18 years of age who attended a Primary Health Care Center (CAPS) for dental care in the city of Resistencia, Chaco (Argentina). The CAPS are part of the public health system, offering health and social assistance and health promotion, preventive, curative and rehabilitative care services.

All those people who voluntarily agreed to participate and signed the informed consent were included in the study. Individuals with physical or cognitive disabilities were excluded from answering the survey form that was used, and survey forms that were found to be incomplete.

The Oral Health Assessment Index in Geriatrics (GOHAI) adapted to the Spanish language was applied to assess the dimensions of the BSHRQoL: 1. Physical function, which includes aspects such as eating, speaking, and swallowing; 2. Psychosocial function, which includes aspects of concern about oral health, self-image, health awareness and limitation of social contacts due to oral problems; and, 3. Pain or discomfort associated with the oral condition.

Based on the data recorded in the odontogram of each patient's medical history, the DMFT caries index was calculated, adding the decayed, missing and filled teeth.

The statistical analysis was performed with the SPSS 26.0 program. Absolute and relative frequencies of qualitative variables and mean and standard deviation of quantitative variables were calculated. The internal consistency of the GOHAI and DMFT indices was evaluated

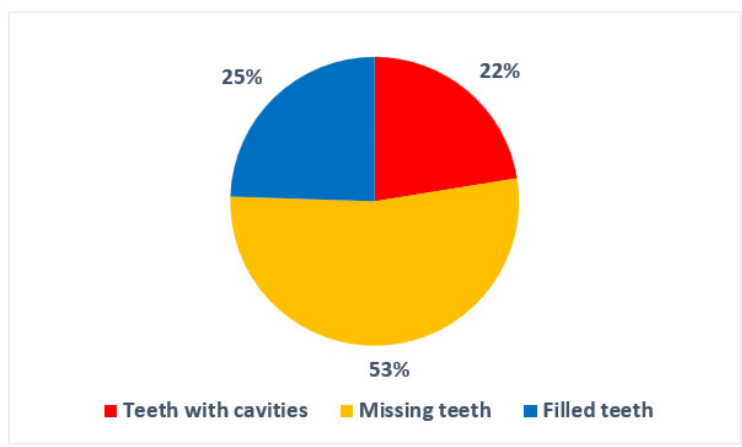
by applying Cronbach's alpha coefficient. To analyze the relationship between variables, Pearson's correlation coefficient was used. We worked with a confidence level of 95% and with a significance level less than and/or equal to 0.05

Results

The sample consisted of 35 adults, 29 (83%) were female. The mean age was 44.9 (SD = 13.3). The internal consistency of the DMFT caries index was 0.80. The mean value recorded was 17.5 (SD = 6.9), with a minimum value of 4 and a maximum of 30 teeth affected by dental caries. The analysis of each of the components of the index showed a predominance of "missing teeth" with a mean value of 9.1 (SD = 7.7); followed by the "filled teeth" component with a mean value of 14.2 (SD = 2.8); and "teeth with caries" mean value 3.8 (SD = 2.2) (Graph 1). Table 1 shows in detail the descriptive statistics of the study variables (Table 1).

	Minimum	Maximum	Medium	Standard Deviation
Age	20,00	72,00	44,9714	13,39114
Teeth in mouth	2,00	28,00	21,1212	6,85455
Teeth with cavities	,00	10,00	3,8824	2,29313
Missing teeth	1,00	30,00	9,1714	7,75919
Filled teeth	,00	15,00	4,2353	2,87158
CPOD	4,00	30,00	17,5294	6,99885
CVRSB	22,00	57,00	42,4571	9,05000

Table 1: *Descriptive statistics of the study variables (n = 35).*



Graph 1: *Components of the DMFT Index. n = 35 (In percentage). Adult patients. Public Health Center (Resistencia). Year 2024.*

The internal consistency of the GOHAI BQQoL Index was 0.81. 80% of the participants had low HRQoL, 17.1% moderate, and 2.9% high. The GOHAI registered a mean value of 42.4 (SD = 13.0). When analyzing the three dimensions of the BSQoL, the dimension related to pain or discomfort associated with oral status registered lower values with a mean of 3.2 (SD = 1.23), followed by the physical function

dimension with a mean of 3.87 (SD = 1.17). The psychosocial dimension registered higher values, with a mean of 3.48 (SD = 1.41). Table 2 shows in red the questions that had the greatest impact on the BSHRQoL.

N	Question: In the last three months ...	Mean	SD
1.	**¿How many times have you had to eat less or change your food because of your teeth or dentures?**	3,68	1,30
2.	¿How many times have you had trouble chewing foods like meat or apples?	3,05	1,58
3.	¿How many times have you swallowed well?	4,85	0,60
4.	¿How many times have you been unable to speak properly because of your teeth or dentures?	3,91	1,19
5.	¿How many times have you been unable to eat the foods you wanted without discomfort?	3,40	1,26
6.	¿How many times have you avoided going out or talking to people because of your teeth or dentures?	3.91	1,42
7.	¿When looking in the mirror, how many times have you been happy with how your teeth or dentures look?	3,60	1,51
8.	¿How many times have you had to use medication to relieve tooth pain or mouth discomfort?	3,05	1,13
9.	¿How many times have you been worried or noticed that your teeth or dentures are not in good condition?	2,51	1,40
10.	¿How many times have you felt nervous about problems with your teeth or dentures?	3,14	1,40
11.	¿How many times have you felt uncomfortable eating in front of others because of your teeth or dentures?	4,25	1,22
12.	¿How many times have you felt discomfort or pain in your teeth due to cold, heat, or sweet foods?	3,14	1,30

Table 2: *GOHAI index. Average value and standard deviation of each question.*

Pearson's correlation analysis showed a positive and significant correlation between age and DMFT caries index (r = 0.63, p = 0.01). Likewise, a negative and significant correlation was identified between the oral health-related quality of life index (BQQoL) and the DMFT caries index (r = -0.36, p = 0.03).

Discussion

The findings of the present study show a high rate of dental caries in the population analyzed, with values that exceed the maximums established by the WHO [1]. This result underscores the need to strengthen preventive and dental care strategies at primary health levels, in order to reduce the burden of oral disease in the adult population.

The positive and significant correlation between age and the DMFT index (r = 0.63, p = 0.01) confirms that the severity of dental caries increases with age, which is consistent with previous studies that have documented the cumulative nature of this pathology [1,23]. This finding reinforces the importance of prevention and timely treatment from an early age to minimize the progression of the disease and its long-term consequences.

Likewise, a negative and significant correlation was found between the DMFT index and the BSQoL ($r = -0.36$, $p = 0.03$), indicating that a higher caries burden is associated with a worse perception of quality of life. In this sense, the dimension related to pain or discomfort derived from the oral state was the one that had the greatest impact on the quality of life of the participants. This result is consistent with the literature, where it has been reported that dental diseases not only affect oral function, but also have an impact on the general and social well-being of individuals [20-22].

Analysis of the components of the DMFT index revealed a predominance of the "missing teeth" component. In this sense, it should be noted that multiple factors contribute to tooth loss, including oral hygiene habits, trauma, smoking, general health status, socioeconomic status and individual preferences. Tooth loss affects various aspects of quality of life, such as the ability to consume foods that require full chewing function. Previous studies have shown that the number of teeth in older adults can influence their longevity and life expectancy, suggesting that tooth loss could be a predictor of a shorter life span [4].

Although filled teeth were also recorded, indicating restorative treatments, the high number of pieces extracted raises questions about the factors influencing the choice of treatments. It would be pertinent to explore whether this situation responds to patient preferences, the high costs of conservative treatments such as root canals and fixed prostheses, or other causes.

The findings of this work highlight the need to implement public policies aimed at promoting oral health and preventing dental caries at all stages of life. In addition, they underscore the importance of considering the impact of oral health on patients' quality of life, promoting a comprehensive approach that includes health education, timely access to treatments, and oral rehabilitation strategies.

Conclusion

The results of this study show a high rate of dental caries in the adult population analyzed, with a negative impact on quality of life related to oral health. The positive correlation between age and the DMWC index confirms the cumulative nature of dental caries, while the negative correlation between this index and the BQQoL highlights the impact of oral disease on the general well-being of individuals.

The predominance of the "missing teeth" component in the DMFT index suggests that tooth extraction is a common dental practice, which raises the need to evaluate the factors that influence the choice of this treatment.

Considering that tooth loss not only affects oral functionality, but also other aspects related to the quality of life of individuals, it is essential to adopt preventive strategies from an early age in order to develop more effective interventions adapted to the needs of the population.

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