SPECIAL COMMUNICATION

The Challenge of Evaluating the Oral Health Status of Older Persons in Latin America

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Knowledge Transfer Statement: *This article provides an overview of the oral health status of older people from Latin American countries and the emergence of recent gerodontology research initiatives within the region.*

Keywords: geriatric dentistry, epidemiology, aged, research methodology, dental health surveys, older adults

This Special Communication is the result of a consensus meeting of the Latin American Geriatric Oral Research Group of the International Association for Dental Research (IADR), held in November 2016, in Porto Alegre, Brazil, with researchers from 8 countries of the region. The overall goal was to discuss the challenges and the current evidence available on the oral health status of older persons in Latin America, as part of the activities of the IADR Regional Development Program: "Multicountry Training Program on Clinical and Epidemiological Research Methods on Geriatric Research for the Latin American Region of the IADR." The discussions centered on the most relevant aspects of the aging process and its implications for the oral health of Latin Americans, whose main outcomes are summarized here.

Life Expectancy, Socioeconomics, and Cultural Factors Affecting Oral Health in Latin America and the Caribbean Region

According to the most recent projections of the United Nations, the number of people aged ≥60 y in Latin America and the Caribbean (LAC) region is expected to increase from 59 million in 2010 to 196 million in 2050, and the number of people aged ≥80 y will increase from 8.6 million to >44 million during the same period. The proportion of the population aged ≥60 y is projected to increase from about 10% in 2010 to 25% by 2050. The growth rate of the population aged ≥60 y is accelerating, which will generate unprecedented changes and the dynamics of the population. Indeed, while many high-income countries in Western Europe and North America experienced population aging gradually over a period of 50 to 100 y, many LAC countries will navigate through an equivalent demographic landscape in a short interval of 20 to 30 y (Kinsella and He 2009). While the average life expectancy in the American continent was 29 y, 110 y later the parameter had greatly increased to 74 y, according to a special report published by the Pan-American Health Organization. Differences between the northern and southern hemispheres are reducing, but the differences among countries in LAC persist, regardless of the level of social development. For instance, Chile has a life expectancy >80 y, whereas it reaches only about 63.5 y in Haiti.

One of the determining variables that condition the oral health status of the older population in LAC is access to health care or the lack of it. Regarding health policies, 7 of the 12 South American countries consider health a universal right in their constitutions: Bolivia, Brazil, Chile, Cuba, Paraguay, Suriname, and Venezuela. In practice, however, the countries have approached the issue differently, with varying results.

Oral conditions are the fourth most expensive disease to treat (Braine 2005). From a global perspective, industrialized countries spend an estimated 5% to 10% of their national public health resources

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on dental care per year, whereas most developing countries allocate no funds in oral health promotion, prevention and treatment. In many developing countries, dental care is merely understood as tooth extraction to alleviate pain. As a result and without decided policies, no improvement can be envisioned on the oral health situation of older populations, which will continue experiencing severe tooth loss and, eventually, edentulousness.

From a political, economic, and social perspective, the LAC region is in a disadvantage in comparison with more developed regions. For example, studies revealed a rooted belief in the LAC region that tooth loss is inevitable and a natural consequence of aging (De Marchi et al. 2012). Furthermore, older people have restricted access to long-term dental care, even if they went to the dentist on a regular basis during adulthood. Hence, the oral health of older adults usually worsens after retirement due to a series of factors: limited financial resources to pay for dental care and prosthetic rehabilitation, loss of mobility that impairs reaching formal dental care, lack of education on the importance of oral health, poor access to services, and a low dentist-to-population ratio. Despite the existence of oral health care services in most countries of the LAC region, utilization is low among the elderly and even lower in poor and rural areas (Quinteros et al. 2014). Besides the socioeconomic factors, restricted availability and access to oral care make older people more vulnerable to developing oral diseases. Furthermore and perhaps underestimated, socially and economically deprived older persons in the LAC region become more susceptible to coronal and root caries and nutritional conditions, as they usually have access only to diets predominantly rich in refined and fermentable carbohydrates—the latter also derived from the lack of a functional masticatory capacity.

Oral Health Data on the Elderly Population in the LAC Region

Only a handful of LAC countries have well-established national oral health programs in place. Likewise, dental public health in LAC has historically focused on schoolchildren, depriving the older population from attention and coverage. Older people's health is the result of lifelong trajectories—not just current complications with health and the social and individual problems that occur during aging. In this context, measures taken during early childhood will preserve the "biological asset," as represented by their sound teeth, until older years. Thus, oral health must be understood as a continuum, whereby inappropriate decision making at all ages will affect the outcome in the future. The highly diverse reality of the LAC region means that while some countries have long benefited from water fluoridation and other preventive strategies, others have not even started such programs. In many cases, social and political issues, such as military occupations, guerrillas, and the lack of welfare systems and programs aiming to protect people's health, portray a challenging scenario that demands research and action. Improving older people's lives in the LAC region, reducing health inequalities, and producing health policies that can enhance the oral health and quality of life of older people is a matter of social responsibility.

However, there is a major data gap about the elderly population in many countries of the LAC region. While population censuses and some surveys have provided good estimates on the participation of older adults in the labor force, there is little available information about chronic conditions and health benefits or reliable data on the types of health programs in place or their use. Moreover, available data on the oral health status of the increasingly aging population are scarce or nonexistent in many countries of the LAC region. A relevant source of information on oral health may be obtained from national epidemiologic surveys. Yet, many LAC countries have not carried out surveys with representative samples at the national level. Colombia, Brazil, Chile, and Cuba have already performed several studies of this type, including dental examinations in adults and older adults. Indeed, Colombia and Brazil have conducted 4 national oral health surveys.

Dental indexes selected to describe the level of caries and tooth loss in older people have included the percentage of the population with untreated dental caries, the DMFT index and its components (decayed, missing, filled teeth), functional dentition, edentulism, root caries, and remaining teeth. Some of the few regional studies (Singh et al. 2015) revealed that 97.5% of participants reported missing teeth, and of those, 70.1% reported having bridges or dentures. Furthermore, 94.5% had unmet dental needs, expressing difficulties with chewing, oral pain, speech, and appearance, among other issues. Information on the prevalence of root caries is typically not described in LAC countries. Given the increasing tooth retention in older adults, screening for root caries should be incorporated in future surveys, as increased prevalence is expected (Griffin et al. 2004).

Periodontal diseases have been measured with clinical probing depth, clinical attachment level, and bleeding on probing, but different protocols (e.g., Community Periodontal Index, full mouth–6 sites, partial mouth–6 sites, Ramfjord teeth) and diagnostic criteria have been used. An additional difficulty to compare data within the region is the age group selected for the studies. The majority used 65 to 74 y—the recommended age interval for older adults according to the World Health Organization. As mentioned, the ≥80-y population in some rapidly aging LAC countries is expected to exhibit a remarkable growth. Specifically, this age group is expected to quadruple from 2015 to 2050. It is reasonable to speculate that the oral health status of this age group will be different from the rest of the older population. As a consequence, the oldest population is assumed to require much more resources, thereby becoming a heavier burden for the health systems and for the families. Therefore, future oral health surveys should incorporate this age group.

The results of the dental indicators of caries and tooth loss show that the oral health of older people is extremely poor.

When compared with older people of developed countries, those of the LAC region tend to have fewer teeth and more untreated caries. Despite a trend for an increase in retention, tooth loss remains the most common consequence of oral diseases affecting older persons. In fact, edentulism affects approximately one-third or more of the population in most countries of the region (prevalence between 75% and 28%), with the exception of a study from Chile, where edentulism was lower (11.4%; Urzua et al. 2012), at a level comparable to that of developed countries. Cultural factors that promote treatment decision, as well as the way in which health systems are organized to offer access to care, could explain those differences. However, in a study where Chile was compared with developed countries, including Australia, Canada, New Zealand, and United States, it showed the highest prevalence and the most pronounced inequalities in 2 indicators of tooth loss: the presence of a functional dentition (proportion of <21 teeth) and the mean number of teeth (Elani et al. 2017).

IADR Regional Development Program in LAC

Due to the heterogeneity among the few existing national surveys, it is difficult to have a complete overview of the oral health situation of older adults in the LAC region. For this reason, a group of faculty members from Chile and Brazil decided to create the IADR's Latin American Geriatric Oral Research Group in 2012 during the 90th IADR General Session in Brazil. In 2015, the group applied to the IADR Regional Development Program to conduct research in the LAC region: "Multicountry Training Program on Clinical and Epidemiological Research Methods on Geriatric Research for the Latin American Region of the IADR." This Regional Development Program had 3 major objectives:

- To create and develop a Latin American Oral Geriatric Assessment Protocol for clinical and epidemiologic use
- To train 11 researchers, 1 from each country of the Latin American IADR region, on the surveys and clinical examination methodologies included in the protocol to expand its application in each country
- To increase the number of and strengthen the capabilities of Latin American researchers in conducting epidemiologic research on the topic of geriatric dentistry

Currently, scholars from Argentina, Brazil, Chile, Colombia, Panamá, Peru, Uruguay, and Venezuela participate in the IADR's Latin American Geriatric Oral Research Group. One of the key elements of the group's strategic plan for 2016 to 2021 is the development of international collaborations throughout the continent to foster abilities in geriatric oral health research. Furthermore, the group intends to make strong advocacy for the development of oral health programs in the LAC region, specifically for the elderly population, including crucial strategies for oral health promotion over the life course and the use of minimally invasive treatment approaches. Another central effort of the group is to advocate for the inclusion of geriatric dentistry in the curricula of dental schools. Collaboration and exchange of experiences among research groups, aiming at the production of studies and publications of international and local interest, are also an important focus of the IADR's Latin American Geriatric Oral Research Group.

Author Contributions

S. León, contributed to conception, design, and data acquisition, drafted and critically revised the manuscript; R.J. De Marchi, contributed to conception, data analysis, and interpretation, drafted and critically revised the manuscript; R.A. Giacaman, contributed to conception, design, data acquisition, analysis, and interpretation, drafted and critically revised the manuscript; L.H.N. Tôrres, contributed to design, data acquisition, and analysis, drafted and critically revised the manuscript; I. Espinoza, contributed to design, data analysis, and interpretation, drafted and critically revised the manuscript; F.N. Hugo, contributed to conception, design, and data interpretation, drafted and critically revised the manuscript. All authors gave final approval and agree to be accountable for all aspects of the work.

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