Accepted: 5 December 2017

DOI: 10.1111/ger.12318

REVIEW ARTICLE

WILEY Gerodontology

Oral health of the Latin American elders: What we know and what we should do—Position paper of the Latin American Oral Geriatric Group of the International Association for Dental Research

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Funding information
International Association for Dental Research (IADR); IADR Regional Development Program (RDP); Federal University of Rio Grande do Sul (UFRGS), Porto Alegre, Brazil

Objective: The purpose of this review was to gather information and discuss oral health status of older people in the Latin American and Caribbean region (LAC).

Background: Scarce data are available to portrait the oral situation of older people in the region.

Material and methods: This review paper is the result of a meeting of the IADR's Latin American Geriatric Oral Research Group held in Porto Alegre, Brazil, in November of 2016, part of the activities of an IADR Regional Development Programme (RDP). A group of researchers from 8 countries of LAC held a discussion using 5 questions related to the oral health situation of older Latin Americans, the most appropriate strategies to face the problem and the challenges for the future, with an open discussion format. In a second step, a group of 6 experts refined the answers and reviewed the existent literature.

Results: The review of the evidence revealed that only a few LAC countries have information, which suggests the need for multinational efforts to understand the oral health status and programmes in place. Of the few studies available, it is possible to observe poor oral health as a common feature of older adults in the region.

Conclusion: There is a need for the development of national surveys and standardised tools for the assessment of oral health in older adults. Also, intense advocacy to modify and influence public health policies in the different countries of the LAC is strongly recommended.

KEYWORDS
ageing, dental caries, edentulous, Latin America, older adults, oral health

1 | INTRODUCTION

This review paper is the result of a meeting of the IADR's (International Association for Dental Research) Latin American Geriatric Oral Research Group (LA-GORG) held in Porto Alegre at the Federal University of Rio Grande do Sul (UFRGS) in November of 2016. The meeting was carried out as part of the activities of an IADR Regional Development Programme (RDP): "Multi-country Training Program on Clinical and Epidemiological Research Methods on Geriatric Research for the Latin American Region of the IADR," awarded to a group of

researchers from Latin America, led by Dr. Soraya León from the University of Talca, Chile. The initial proposal was to discuss oral health status of older persons in the region based on the answer of the 5 questions.

From the answers to these questions, we intend to start the analysis of the oral health situation of the older persons in LAC, which will later translate into concrete actions to improve quality of life of this segment of the population. The methodology comprised an initial discussion with a group of researchers and clinicians held at UFRGS during a clinical training on a standardised protocol to evaluate and diagnose the oral health of older adults in Latin America. Each Division/Section of the IADR was invited to participate in this initiative. The IADR President in each country designated the participant in the activity. After the invitation/designation process, 8 countries accepted to participate. Participants attending the meeting discussed the questions with an open discussion format. Later, a group of experts worked on each of the answers through a thorough literature review and also using the information that was requested prior to the meeting to the participants of the different countries involved in this project. In the following sections, each question will be answered.

2 | IS IT POSSIBLE TO IDENTIFY A DEMOGRAPHIC AGEING PROCESS IN LAC, DIFFERENT TO THAT OF OTHER PARTS OF THE WORLD?

Recent demographic trends in the LAC will shape the growth and age composition of its populations for decades to come. The rapid mortality decline that began during the 1950s, and the more recent and even sharper reduction in fertility, will produce unusually high growth rates of the older population, a large change in the overall population age composition and significant increases in the ratio of older to younger population.[1]

According to the most recent projections of the United Nations, the number of people aged 60 and older in LAC is expected to increase from 59 million in 2010 to 196 million in 2050, and the number of people aged 80 and older will increase from 8.6 million to more than 44 million during the same period. The proportion of the population aged 60 and older is projected to increase from about 10% in 2010 to about 25% in 2050[2,3] Figure 1. The growth rate of the population aged 60 and older is accelerating. Growth rates of this magnitude will generate unprecedented population dynamics in human history. Life expectancy has increased in the LAC, with differences among and within countries, regardless of the level of social development.[4] For instance, Chile has a life expectancy of 80 years, whereas Haiti only 66.8 years.[5]

It is important to recognise the characteristics that have made the ageing process in LAC different to that experienced in developed countries. Thus, there are 4 features that may provide an explanation to the demographic phenomena in the LAC.[6]

In average, a LAC country will take about two-fifths the length of time it took to the United States, and between one-fifth and two-fifths the time it took to Western European countries, to shift from 8% to 15% its population above age 60.[7,8] Based on the existent expectations, LAC should maintain this demographic trend over the next 30-50 years.

LAC countries have not had the chance to reach higher living standards, either due to insufficient time or inappropriate policies. Hence, this rapid demographic expansion will be accompanied by precarious living conditions.

After having passed through dictatorial regimes in the region, most LAC countries adopted an industrial capitalist of monopolist nature, based on the substitution of importations and on the intensification of industrial manufacturing production. It would be fair to say that no country in the LAC has institutional contexts designed to cope with the new demands from older adults. From a pay-as-you go system in place since the first years of the 20th century, LAC health services were largely privatised. The combination of older population growth and a higher burden of disease among older people led to higher pressure and demand for health services. Moreover, due to the private nature of the providers and the elevated costs, access to health care became more restrictive.

It is likely that cohorts that reached 60 years old or more after 1990 did so due to timely medical interventions during early childhood, without better living standards. Indeed, healthcare access and technology advancements may be held responsible for mortality decline. Further improvements on living standards, better health education and other more ill-defined variables can explain a further decline

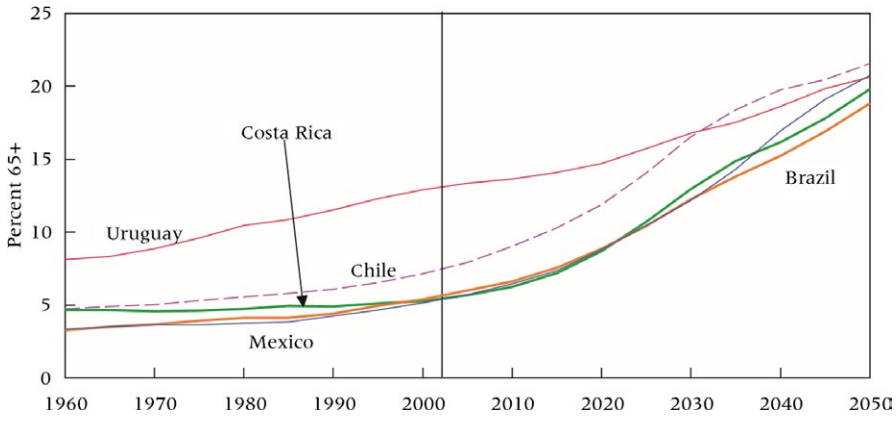

FIGURE 1 Percentage of population aged 65 and older in 5 Latin American and Caribbean region countries, past, current and projected between 1960 and 2050 [Colour figure can be viewed at wileyonlinelibrary.com]

in mortality. Regarding disease and health conditions, the survey on health and well-being of elders (SABE), conducted in 7 major cities in LAC, allows a panoramic view of the health situation in the region. Among participant countries, remarkable similarities were observed in functional limitations. As expected, chronic conditions increase with age, mainly among females. The rate of self-reported diabetes and obesity was higher than that reported for the United States. Data gathered from the study suggest that older adults in the LAC have deteriorated health and functional status. From a social standpoint, the study evidenced strong inequalities in education and income, which translate into large differences on health outcomes.[6]

In summary, the ageing process in LAC was and will not be similar to that experienced by developed countries. Rapid growth has meant lack of time for countries to adapt to the new demographic structure and implement the required economic, social and health-related transformations. Older populations in the LAC have a high burden of disease, aggravated by a restrictive healthcare access. Health profile of the future older population is not easy to predict. While current cohorts of older adults carry factors associated with their demographic past, which can linger for years, new generations may see improved health in a less unequal society.

3 | WHAT LOCAL OR GLOBAL VARIABLES ARE DIFFERENT IN LAC FROM WHAT HAPPENS ELSEWHERE? DO THESE DIFFERENCES CONDITION THE STATUS OF ORAL HEALTH OF THE OLDER PEOPLE?

Dental health resources cost developed countries 5%-10% of healthcare expenditure per year, and oral disease is the fourth most expensive disease to treat.[9] In addition to socio-economic factors, issues of limited availability and access to oral care make older adults more vulnerable to developing oral diseases. One of the most important variables conditioning oral health status of older people in LAC is the restrictive access to health care or the lack of it. Regarding health policies, 7 of the 12 South American countries consider health as a universal right in their constitutions. While oral healthcare services are available in developed countries, utilisation is low among older adults.[10] In low-income countries, like the majority of those in the LAC, the situation worsens, due to a poor access to health care. Rurality can also restrict access to oral care in the region.[11] Distance to the healthcare providers and the lack of dental personnel are some of the main barriers to care in rural LAC countries.[12] Other key factor to explain the poor oral status in the aged population is nutrition and diet. High-sugar diets tend to be predominant, conditioning dental caries, either coronal and root caries.

In most LAC countries, the only treatment is tooth extraction due to pain. As a result, millions of older people will suffer tooth loss. The belief that tooth loss is inevitable during ageing is widely spread in the LAC.[13] This belief may interfere with oral health, as people are reluctant to act upon the first signs of the diseases. With few well-established national oral health programmes in place, public health dentistry in LAC has historically focused on schoolchildren, depriving attention and coverage for older adults. As preventive and therapeutic measures in older adults are not priority or do not even exist in LAC, oral health during adulthood rapidly deteriorates. Edentulism leads to nutritional problems derived from masticatory dysfunctions, limiting diet to softer and processed foods. Changes in dietary patterns also predispose to coronal and root caries. Even further, compromised oral health negatively impacts quality of life,[14] leading to psychological and social problems.[15-18]

Older people's health is the result of their lifelong trajectories, and not only of situations occurred during the most recent years. In this context, measures taken during early childhood will preserve the "biological asset," represented by their sound teeth, until the older years. Thus, oral health must be understood as a continuum, whereby inappropriate decision making at all ages will impact the outcome in the future. The highly diverse reality of the LAC means that while some countries have long benefited from water fluoridation and other preventive strategies, others have not even started such programmes. Some of these measures implemented early in life will benefit the older population. Improving older people's lives in LAC, reducing health inequalities and producing health policies, which can enhance oral health and quality of life of older people, is a matter of social responsibility. Ageing populations in the region, therefore, pose an important task to healthcare systems, as described in question 1. Appropriate oral health policies and strategies are needed to address these challenges.

4 | ARE THERE REPRESENTATIVE DATA ON OLDER PEOPLE'S ORAL HEALTH STATUS FOR ALL THE LAC COUNTRIES? IS IT POSSIBLE TO MAKE COMPARISONS ACROSS COUNTRIES?

There is a major data gap in many countries of the LAC with regard to older populations. While population censuses and some surveys have provided good estimates about the participation of older adults in the labour force, there is little available on oral health. Epidemiological surveillance of oral health has focused on acquiring data in children. Conversely, knowledge on the oral health status of the aged population is scarce or non-existent in many countries. Some of the few regional studies[19] revealed that 97.5% reported missing teeth, and of those with missing teeth, an average of 70.1% reported having bridges or dentures. Further, 94.5% had unmet dental needs, expressing difficulties with chewing, oral pain, speech and appearance, among other issues.

A relevant source of information on oral health status is obtained from national epidemiological surveys. However, many LAC countries have not carried out surveys with representative samples at the national level. Colombia, Brazil and Cuba have already performed several national oral health surveys, including dental examinations in adults and older adults. Other countries have carried out studies at the national level, but without all the age groups, such as Chile, Mexico,

TABLE 1 Percentage of edentulism and mean of DMFT, decayed, missing and filling in elderly in the last national surveys in Latin American and Caribbean region

Year publication	Country	National survey name	Sample size	Age group	DMFT (95% CI)	Average decayed	Average filling	Average missing	Edentulism %
2010	Panamá	Diagnóstico de Salud Bucal Panamá 2008	972	59-69	21.33 (20.84-21.82)				35 (male)
					24.54 (23.87-25.22)				75 (female)
			472	70-75					40 (male)
									60 (female)
2011	Brazil	IV Pesquisa Nacional de Saúde Bucal 2010 Brasil	7509	65-74	27.53 (27.03-28.04)	0.52	1.62	25.29	53.7
2012	Chile	1° Examen Dental Nacional, Chile 2007-2008	465	65-74	21.57 (20.86-22.29)	1.44	2.66	17.46	11.4
2013	Uruguay	1° Relevamiento Nacional de Salud Bucal Uruguay 2010	275	65-74	24.12 (23.16-25.08)	0.66	2.59	20.87	28.2
2014	Colombia	Encuesta Nacional de Salud Bucal ENSAB IV	1189	65-79	22.62 (22.33-22.92)	1.16	1.71	17.67	32.9

Panama and Uruguay. A summary of the DMFT index data and the percentage of edentulism reported in national epidemiological surveys carried out in LAC is shown in Table 1.

Although several dental indexes have been used to describe oral health, information on the prevalence of root caries is typically not described in most of the studies. Given the increasing tooth retention in older adults, screening for root caries should be incorporated in future surveys, as increased prevalence is expected.[20] Recently, a revision conducted to determine the prevalence of chronic periodontitis in Latin America including studies with national representativeness and convenience samples showed that only Argentina, Brazil, Chile, Colombia, Dominican Republic and Guatemala had available data. Yet, diagnostic criteria used were heterogeneous, impairing comparative analyses or meta-analysis throughout the LAC.[21] The prevalence of oral mucosal lesions or anomalies has been described in the national surveys from Colombia,[22] Chile and Panama.[23]

An additional difficulty to compare data within the region is the age group selected for the studies. As the group of 80 and older population in some rapidly ageing Asian and Latin American countries is expected to maintain a fast growth, 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. Old people of LAC countries tend to have few teeth and untreated caries. Despite a trend for more retention, tooth loss remains as the common consequence of dental diseases affecting older persons. Hence, edentulism affects approximately one-third or more of the population in most countries of the region.[10] The latter supposed a rather contrasting situation, as on the one hand there is an increasing number teeth retained, but at the same time this implies a higher need and demand for tooth replacement. Reaching consensus about the age range, establishing diagnostic criteria, simplifying dental indicators and deciding which are the essential variables that need to be collected are an important task for geriatric oral health researchers of LAC.

The universities and research centres must also contribute with specialised professionals at both, the undergraduate and graduate levels.[24] In summary, data on oral health of older adults are still insufficient in most LAC and among those that do have information; heterogeneity precludes making comparisons that allow a broader picture of the oral health status of older persons in the subcontinent.

5 | WHAT IS THE EFFECTIVENESS OF CONVENTIONAL THERAPIES ON ORAL HEALTH OF OLDER PERSONS? ARE THEY EFFECTIVE TO PREVENT AND TREAT THE MOST PREVALENT CONDITIONS? DOES THIS APPROACH ALLOW ACCESS TO ORAL HEALTHCARE FOR THE AGED POPULATION?

Oral health status of older adults described above implies a lack of effectiveness in approaching the most prevalent oral diseases.[25-27]

Current approaches for the management of the most prevalent oral pathologies, dental caries and periodontal diseases usually involve removing healthy dental tissues. The conventional restoration of cavitated caries lesions has led to a cycle of restorations that ends with tooth extractions at an early age and with the need of complex and expensive oral rehabilitation.[28] The burden of disease is so high that the available human and financial resources are not sufficient to resolve the demands for dental care, considering that the governments have targeted resources in restorative therapies, leaving aside preventive measures.[10] In this sense, prevention has been systematically excluded in this age group in most of the LAC countries, not being identified as an important and constituent part of the solution to oral problems that afflict people of this age.

The advancement of knowledge on the aetiology and pathogenesis of oral diseases that has resulted in innovative, effective and conservative therapies[29] has not been effectively transferred to the academic community that forms the new generations of professionals, or to the professional staff that work in public or private health services. There is a need for innovative oral health intervention programmes and community initiatives for oral health promotion or alternative therapies for older people. This is an area where there is a need of extensive research. Policymakers and healthcare providers often give low priority to care for this population group and are not sufficiently aware of the advances in prevention and treatment of prevalent oral conditions, which prevents their transfer to the general population.[10] Non-invasive approaches to treat prevalent dental problems would expand coverage, optimising resources and improving access to dental care.

6 | HOW SHOULD THE ACTIONS NECESSARY TO IMPROVE THE ORAL HEALTH OF THE ELDERS BE PRIORITISED?

Oral health policies and clinical procedures must consider the life-course approach to achieve good oral health and function. The development of a long-term care plan remains key to cope with oral health issues.[30] Morbidity compression approach must be taken,[31] that is, to delay surgical or operative interventions, maximising preservation of the "biological asset." Restorations must not be the first treatment to implement. Evidence has shown that non-invasive or minimally invasive techniques to treat carious lesions are effective and must be preferred over surgical approaches, to avoid complex and expensive restorative therapies, increasing tooth function for longer years.[32-35]

Latin American and Caribbean region countries should develop national public health programmes that include older people and that are based on systematic information on oral health needs and on effective interventions for achieving defined measurable goals.[15,36] Such public health programmes must not be confined to the treatment of the symptoms of the disease only, but must be appropriately designed to attain better oral health and quality of life for older people, including cultural adaptation. Among the measures to be taken, the implementation of mobile dental units and portable equipment to be used at home can facilitate outreach to older people and ensure effective service, as transportation is a serious barrier to oral health care of older people.[12]

An interdisciplinary approach needs to be considered. Simple interventions may be delivered by non-dental professional or technical personnel, so the curriculum of non-dental health professions should incorporate general concepts of oral health in older adults. Furthermore, it is important to actively involve the dentist in geriatric teams.[37] To fulfil these objectives, it is necessary to develop professional competences on new dentists for the care of the geriatric patient and train specialists with abilities to evaluate and treat more complex oral health problems, focused mainly on fragile and dependent populations.[24,38]

Despite having listed some of the most important measures to be considered—in our opinion—perhaps the answer to how to prioritise actions necessary to improve the oral health of the older adult requires much more thought and analysis to design more comprehensive policies, procedures and regulations to ensure the well-being of this growing population in the LAC.

7 | CONCLUSIONS

LAC countries experience marked inequalities with consequences that affect older persons. This is aggravated by the unparalleled ageing of its populations. The results of demographic and epidemiologic transitions are expected to severely impact health systems throughout the continent. Planning of oral health programmes is hampered by the lack of epidemiologic information on the oral health status of older persons in the continent. The development of a continental initiative to foster abilities in oral epidemiologic surveys is an urgent task. Dental schools should include geriatric dentistry in the curricula, and policymakers should consider including older persons in oral health programmes based on promotion, prevention and non-invasive or minimally invasive therapies to preserve the biological asset through the life course. Although we start out with a conjecture about the health status of older adults in the region and we use it to guide us in the analysis of information, our most important goal is not one of theory-building, but a critical description to identify the main areas of interest that could warrant further research.

ACKNOWLEDGEMENTS

This study was funded by an IADR Regional Development Programme (RDP): "Multi-country Training Programme on Clinical and Epidemiological Research Methods on Geriatric Research for the Latin American Region of the IADR," awarded to Dr. Soraya León (University of Talca, Chile) and internal funds from the Federal University of Rio Grande do Sul (UFRGS), Porto Alegre, Brazil. The authors appreciate the initial discussions held with all the participants during the activities of the IADR-RDP in Brazil.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTION

SL, RJDM, LHT, FNH, IE and RAG contributed different sections for the initial manuscript. RAG and SL compiled the first complete manuscript. All the authors contributed discussions to the final text. RAG edited the final version.

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How to cite this article: León S, De Marchi RJ, Tôrres LH, Hugo FN, Espinoza I, Giacaman RA. Oral health of the Latin American elders: What we know and what we should do—Position paper of the Latin American Oral Geriatric Group of the International Association for Dental Research. *Gerodontology*. 2018;35:71–77. https://doi.org/10.1111/ger.12318