



## Characterization of edentulousness in older adults treated at the Faculty of Dentistry in Havana

Caracterización del desdentamiento en adultos mayores atendidos en la Facultad de Estomatología de La Habana

Manuel Alejandro Ceballos Rojas<sup>1\*</sup> <https://orcid.org/0000-0002-0683-1599>

Karel Borroto Martínez<sup>2</sup> <https://orcid.org/0000-0002-3183-1312>

Yoanna Ramírez Fernández<sup>3</sup> <https://orcid.org/0000-0002-6343-3781>

<sup>1</sup>Hospital Clínico Quirúrgico “Hermanos Ameijeiras”. La Habana, Cuba.

<sup>2</sup>Centro de Investigaciones Clínicas. La Habana, Cuba.

<sup>3</sup>Instituto de Medicina Tropical Pedro Kourí. La Habana, Cuba.

\*Author for correspondence. Email: [mnu.ceballosr@gmail.com](mailto:mnu.ceballosr@gmail.com)

### ABSTRACT

**Introduction:** Partial or total edentulousness is a frequent condition in older adults that affects their quality of life by limiting physiological and psychological functions.

**Objective:** To characterize edentulousness in older adults.

**Methods:** Observational, descriptive, cross-sectional study carried out in older adults with edentulousness who attended prosthodontic consultation between January and December 2023. 79 patients were studied, selected non-probabilistically by convenience. The variables analyzed were: age, sex, type of edentulousness, Kennedy's topographic classification and location of the edentulousness to which absolute and relative frequencies and percentages were found.

**Results:** The age group 60-69 years predominated with 54.4% and the female sex with 55.7%. Total edentulousness was present in 59.5% of the sample. The most frequent Kennedy topographic

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classification of the older adults was class I with 38.0%. The most predominant location of edentulousness in the population studied was in the lower arch with 41.7%.

**Conclusions:** Edentulousness in older adult patients seen at the Dentistry School is characterized by being total, frequent in women; partial edentulousness affects more the mandible and is characterized by being bilateral posterior.

**Keywords:** aged; edentulous mouth; mouth diseases; oral health.

## RESUMEN

**Introducción:** El desdentamiento parcial o total es una afección frecuente en el adulto mayor que afecta su calidad de vida al limitar funciones fisiológicas y psicológicas.

**Objetivo:** Caracterizar el desdentamiento en adultos mayores.

**Métodos:** Estudio observacional, descriptivo, transversal realizado en los adultos mayores con desdentamiento que acudieron a consulta de prótesis, entre enero y diciembre del 2023. Se estudiaron 79 pacientes seleccionados de forma no probabilística por conveniencia. Las variables analizadas fueron: edad, sexo, tipo de desdentamiento, clasificación topográfica de Kennedy y localización del desdentamiento a las cuales se les hallaron frecuencias absolutas, relativas y por ciento.

**Resultados:** Predominó el grupo de edad de 60-69 años con el 54,4 % y el sexo femenino con el 55,7 %. El 59,5 % de la muestra presentó desdentamiento total. La clasificación topográfica de Kennedy de los adultos mayores más frecuente fue la clase I con el 38,0 %. La localización del desdentamiento que más predominó en la población estudiada fue en la arcada inferior con el 41,7 %.

**Conclusiones:** El desdentamiento en los pacientes adultos mayores atendidos en la facultad de estomatología se caracteriza por ser total y frecuentes en mujeres. Los desdentamientos parciales afectan más la mandíbula y están caracterizados por ser bilaterales posteriores.

**Palabras clave:** anciano; boca edéntula; enfermedades de la boca; salud bucal.

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## INTRODUCTION

Oral cavity diseases are among the most frequent worldwide and represent a high cost for the State, thus becoming a public health problem, considering that most of the adult population presents some type of edentulousness.<sup>(1)</sup>

Tooth loss is considered the third oral condition with the highest global incidence, which can be explained by the chronic and cumulative effect of the main oral diseases. Due to, the prevalence of edentulousness has become the most recommended index to evaluate oral health conditions in the elderly population.<sup>(1)</sup>

The World Health Organization defines an older adult or elderly person as anyone over 60 years of age. This stage of life can be considered as a special stage of life.<sup>(2,3)</sup>

Tooth loss is a complex outcome that reflects the history of dental disease in patients and constitutes one of the particularities of aging.<sup>(4)</sup>

Tooth loss is the total or partial loss of teeth; due to dental caries, chronic periodontitis, crown or root fractures, oral hygiene factors and sociodemographic factors. In the world the rate of edentulousness is 20% in patients over 60 years of age, in the first years of adulthood the rate of edentulousness rises by 4% and in patients over 70 years of age it increases by more than 10%. Similarly, it is reported that the rate of edentulism in people over 65 years of age in Europe ranges from 7% to 45%.<sup>(5)</sup>

Brazil<sup>(6)</sup> shows a high prevalence of edentulousness in 46.3% of its older adults. While in Holguín and Sancti Spíritus, Cuba, several studies<sup>(7,8)</sup> reveal that in this age group there is a high percentage of patients with total or partial edentulousness, which has consequences on the stomatognathic system, the oral and general health of the patient that affect their quality of life.

The problems associated with aging, besides the loss of teeth, are varied and with a wide compromise of the oral condition, which leaves several sequels, apart from the clinical ones, affecting self-esteem, self-value and affective relationships, resulting in an alteration of the elderly's quality of life.<sup>(9)</sup>

With the increase in life expectancy, a high degree of attention has been generated on the quality of life of the older adult population, but this has not optimized the aging process, as the world society, including



the elderly, continues to accept oral deterioration and tooth loss as an inevitable process that is linked to aging and, therefore, they adapt to it.<sup>(10)</sup>

On the basis of demographic aging and the growing recognition of the impact of oral health not only in the physical but also in the social and psychological life of the elderly, it is that served as motivation for the present work, which aims to characterize the edentulousness in older adults.

## METHODS

### Design

A cross-sectional descriptive observational study was carried out in older adults who attended prosthesis consultation at the Dentistry School of Havana from January 2023 to December 2023.

### Subjects

A total of 79 older adults of both sexes were selected non-probabilistically and by convenience. They met the following criteria:

Inclusion criteria: patients who gave their consent to participate, who were older than 59 years of age and in good physical and mental condition.

Exclusion criteria: patients with cognitive impairment.

### Variables

Age: (60 to 69), (70 to 79), (over 80); sex; type of edentulousness (total or partial), Kennedy's topographic classification<sup>(11)</sup> (Class I: Bilateral Posterior, Class II: Unilateral Posterior, Class III: Edentulous with posterior abutment, Class IV: Anterior edentulous); location of the edentulousness (maxillary arch, mandible, bimaxillary).

### Procedures

Each patient was questioned and a thorough clinical examination was carried out in a dental chair with direct light by means of observation, palpation and exploration, using gloves, mouth mirror, forceps and explorer. The Individual Clinical History of Stomatology was prepared according to the established



instructions. This document contained most of the epidemiological clinical information necessary for the investigation.

The data analysis was carried out by means of graphs made in Microsoft Excel, using descriptive statistical measures, absolute and relative frequency and percentage.

### Bioethical issues

This research was approved by the Medical Ethics Committee and the Scientific Council at the Dentistry School of Havana by agreement number 53 of December 2022. The principles of medical ethics and the aspects established in the Declaration of Helsinki were complied with. Patients and family members were informed of the purpose of the study and their acceptance was obtained through the informed consent form.

## RESULTS

It was observed that the most predominant age group in the population studied was 60-69 years of age with 54.4% (n= 43), of which 27.8% were female (n= 22) and 26.6% male (n= 21). In general, females were more representative with 55.7% (n= 44) compared to the opposite sex (Fig. 1).

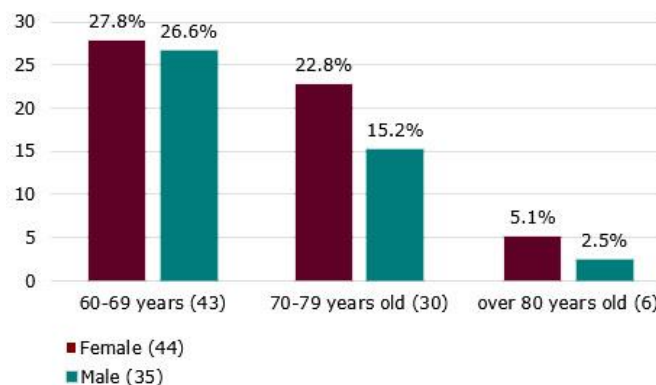


Fig. 1 - Older adults with edentulousness according to sex and age groups.



As for the type of edentulousness in the older adults, total edentulousness predominated with 59.5% (n= 47) in relation to partial edentulousness with 40.5% (n= 32). On the other hand, the female sex showed higher percentages of edentulousness with 32.9% of total edentulousness (n= 26) and 22.8% of partial edentulousness (n= 18) (Fig. 2).

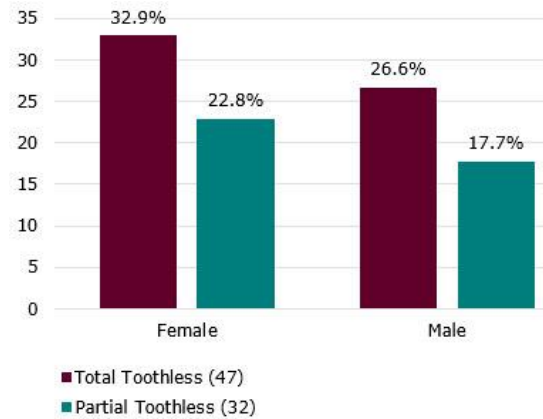


Fig. 2 - Older adults by sex and type of edentulousness.

It is shown that in terms of the type of edentulousness according to age groups, the 60-69 age group with partial edentulousness predominated with 29.1% (n= 23) followed by the 70-79 age group with total edentulousness with 27.9% (n= 22) (Fig. 3).

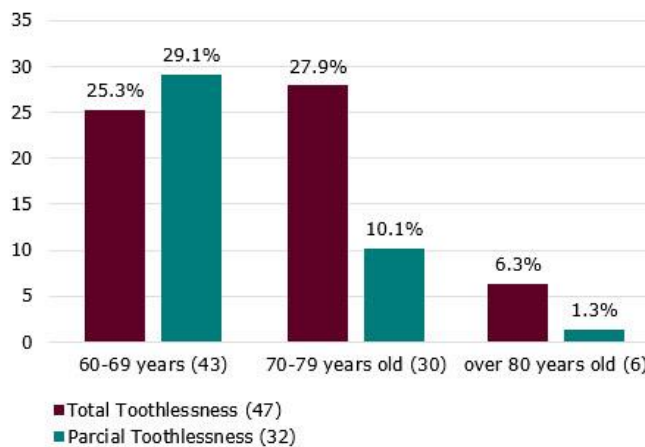
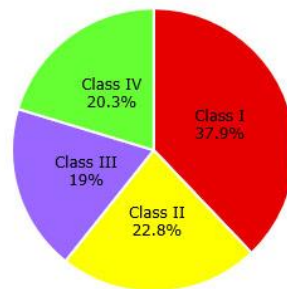


Fig. 3 - Older adults with edentulousness according to sex and age groups.

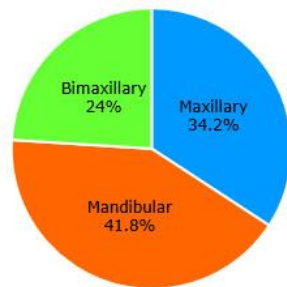


The most frequent Kennedy topographic classification was Class I with 37.9% (n= 30), followed by Class II with 22.7% (Fig. 4).



**Fig. 4** - Kennedy's classification.

The most predominant location in the population studied was in the lower arch with 41.7% (n= 33), the mandible being the most affected in comparison to the maxilla (Fig. 5).



**Fig. 5** - Location of edentulousness.

## DISCUSSION

The elderly themselves and the surrounding society continue to erroneously accept the deterioration of the masticatory apparatus as an inevitable process that is directly proportional to the advance of age. As for the predominance of women, it is coincident by other authors,<sup>(12)</sup> who research on gerontological care



and affirm that for generations women have lived in a cultural role that has demanded from them the responsibility of family care, which in turn has encouraged self-care and they have a longer life expectancy than men. Life expectancy at birth in Cuba is 78 years, with better prognoses for women who live longer than men due to the physiological differences between the two sexes and the role they assume in society.<sup>(13)</sup>

In the study<sup>(14)</sup> carried out in Cienfuegos, the female sex predominates (57.6%), similarly, the results of a study<sup>(15)</sup> in older adults in the municipality of Santiago de Cuba, where the female sex predominated with 68.0% and the group of 70-74 years, these results show similarity in the sex variable, and differ from the predominant age group. Regarding age, the results differ from those obtained in Sancti Spíritus, where the most represented age group was 60 to 64 years old with 38.9%.<sup>(16)</sup>

Regarding the presence of edentulousness, a study carried out in Chiapas, Mexico showed that 25.6% were edentulous due to edentulousness, and 38.1% of those older than 70 years of age were edentulous.<sup>(17)</sup>

The results of the present investigation are similar to an investigation carried out in older adults who attended the Health Center of Chao, Peru where 100% of them had some type of edentulousness.<sup>(18)</sup>

A study<sup>(5)</sup> carried out in Bejucal, Mayabeque coincides with what has been said about the presence of edentulousness in the population over 60 years of age, since it shows that a high percentage of the geriatric population has lost part or all of its teeth, which affects facial esthetics. In the past, the image of the elderly was related to that of the totally edentulous, but nowadays, the elderly person is associated with the one who wears a prosthesis. The dental image of the elderly should only be related to the darkening and wear of the teeth themselves.<sup>(19)</sup>

Similarly, in relation to the type of edentulousness, a study<sup>(20)</sup> carried out in Ecuador showed that the frequency of edentulousness was lower than the results obtained in the present study with only 8.9% of partial edentulous and 3.4% of total edentulous. This may be due to the fact that the study was carried out in a private dental care unit belonging to the Universidad Regional Autónoma de los Andes, where they not only analyzed the edentulousness of the older adults but also the rest of the oral diseases they presented.

The authors consider that the results shown in Fig. 2 are due to the chronic effects and the natural cumulative tendency of dental caries and periodontal disease, the main causes of tooth loss, which





increase with age and which have recently deteriorated due to the low coverage of restorative materials in the country. Similarly, some of the patients report that they are afraid to go out in the street, due to the consequences of the pandemic, and therefore avoid going to the stomatologist if they do not feel pain. In addition, they say that since they use face-masks they are almost not worried about using the prosthesis because they can no longer see their teeth when they speak.

An article on the nutritional status and oral health of older adults carried out in Guamá, Pinar del Río<sup>(21)</sup> revealed that partial edentulousness affected more the female sex with 29.2% and this was higher than the figures obtained with respect to total edentulousness where the male sex prevailed with 22%, which in the opinion of the researchers is important because tooth loss can interfere with the patient's diet and consequently affect their nutritional status.

In correspondence with sex, this coincides with the findings of an article on social inequality due to aging carried out in the municipality of Minas Gerais, Brazil, where it was found that 46.4% of the patients with total edentulousness had a higher prevalence in women, who had not sought dental services in the last six months, and a high prevalence of this condition associated with socioeconomic factors was found, demonstrating the inequity in oral health and the need for State protection.<sup>(22)</sup>

The authors of the present study suggest that this may be due to the fact that women are subjected to greater stress and hormonal changes that could influence their oral health, and that socioeconomic factors were not taken into account in the study in question, since in Cuba everyone has access to the prosthesis service regardless of personal income, complying with the guiding principles of the National Health System of accessibility and free services.

A study carried out in Brazil on edentulism and causes of mortality correlated variables such as: socioeconomic factors, dental care and general health in people between 60 and 102 years of age who underwent a clinical oral examination, obtaining that edentulism by age group was more frequent in the 60-69 age group with 35.8% which coincides with or reflected in Fig. 3.<sup>(23)</sup>

It is a fact that the world's population is aging, and aging rapidly. However, this does not necessarily mean that increased longevity guarantees that older adults will enjoy good health. This obliges States to plan public health strategies to accompany this process by guaranteeing quality of life conditions for this population group. In terms of oral health, one of the major problems caused by the aging of the population



is edentulism. In some populations, edentulism has even been reported to be close to 80% in people 65 years of age or older; however, there are countries where the prevalence of edentulism is less than 2%.<sup>(24)</sup> Regarding the classification of partial edentulousness, the results are similar to those found in Juliaca, Peru, in whose sample there was a predominance of Kennedy Class I (33.3%).<sup>(25)</sup> On the other hand, the study differs<sup>(26)</sup> whose authors found that the most frequent partial edentulousness was Kennedy Class III in the maxillary arch (50%) and in the mandibular arch (49%). The authors recall that historically the first teeth to be lost are the molars and premolars of both arches as the years go by, since there is a longer exposure to oral flora and habits linked to the effects of aging, which could be the cause of these results. Actions should be carried out within the framework of oral health education to prevent the main causes of dental loss such as untreated caries and periodontal disease. Aging should not be synonymous with edentulism, in any of its presentations, total or partial. However, the participation of medical and nursing personnel as part of the basic work team is also required due to the bidirectional relationship between some chronic diseases such as diabetes and periodontal disease, so that they participate in the actions taken to mitigate edentulism and its derivations in nutrition, and decrease in life expectancy.

Among the limitations of the present study, it can be pointed out that the consequences of edentulousness on the general state of health of the elderly were not taken into account, its repercussions on the quality of life such as: difficulty in feeding, decrease in the functional capacity of speech, esthetic and psychological damage, reduction of self-esteem and social integration. In the authors opinion, these results are due to the belief that it is better to extract a tooth with discomfort than to treat it, since according to the elderly, it is easier to add it later to the prosthesis or to make a new one, and preferable to going to the dentist continuously. Similarly, when older adults notice tooth mobility, most of them refuse to go to the periodontist for periodontopathies and ask to have their teeth extracted because it bothers them to eat the "loose tooth".

Not seeking dental services for oral problems may be associated with a need to increase preventive work as part of the dental specialist, his field activities and comprehensive guidance to the family. In this regard, it is important to highlight the very individual perception of each patient of the need to seek these services, as well as whether or not he/she perceives him/herself to be affected, either esthetically or functionally.



Tooth loss requires constant care to prevent diseases such as candidiasis or even premalignant or cancerous lesions. In this sense, oral health care does not depend on having or not having natural teeth. It is concluded that edentulousness in older adult patients seen at the Dentistry School is characterized by being total, frequent in women; partial edentulousness affects more the mandible and is characterized by being bilateral posterior.

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## Conflicts of Interest

The authors declare no conflicts of interest in relation to this research.

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### **Declaration of Authorship**

Conceptualization: *Manuel Alejandro Ceballos Rojas, Karel Borroto Martínez, Yoanna Ramírez Fernández.*

Data Curation: *Manuel Alejandro Ceballos Rojas, Karel Borroto Martínez, Yoanna Ramírez Fernández.*

Formal Analysis: *Manuel Alejandro Ceballos Rojas, Karel Borroto Martínez, Yoanna Ramírez Fernández.*

Research: *Manuel Alejandro Ceballos Rojas, Karel Borroto Martínez, Yoanna Ramírez Fernández.*

Methodology: *Manuel Alejandro Ceballos Rojas, Karel Borroto Martínez, Yoanna Ramírez Fernández.*

Project Administration: *Manuel Alejandro Ceballos Rojas, Karel Borroto Martínez, Yoanna Ramírez Fernández.*

Writing - Preparation of the original draft: *Manuel Alejandro Ceballos Rojas, Karel Borroto Martínez, Yoanna Ramírez Fernández.*

Writing - Proofreading and editing: *Manuel Alejandro Ceballos Rojas, Karel Borroto Martínez, Yoanna Ramírez Fernández.*

### **Data Availability**

The data of the study are confidential; therefore, they cannot be publicly exposed or shared. They are stored in the archives of the Department of Medical Records of the Faculty of Stomatology of Havana, and access to them requires authorization from the aforementioned institution.