Oral health condition and access to dental services in older people attended at a municipal hospital in the rural area of Benguela, Angola

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Abstract

Objective: To analyze the oral health status of elderly people in the municipality of Bocoio, Benguela province, Angola, Africa. *Methods:* Epidemiological, cross-sectional and analytical study carried out with 213 elderly people in 2019. Through interviews and clinical examinations, the sociodemographic profile; oral health perception; oral hygiene; use of dental services; consumption of tobacco, alcohol, and sugar; functional and social impairments due to oral problems; dental caries index (DMFT); root caries; periodontal condition; use and need for prosthesis; and presence of oral lesions were analyzed. *Results:* Most of the elderly were female (69.01%), aged 60 to 70 years (77.46%), did not work (92.96%), did not attend school (82.63%), and classified their oral health status as moderate (75.59%). It was found that 52.58% performed oral hygiene twice a day, using toothbrush and fluoridated dentifrice (92.49%); no participant used dental floss; 47.89% had their last dental appointment more than two years ago; 20.66% smoked daily; consumption of alcohol and sugary foods was low; 89.67% reported difficulty chewing; and 7.04% were fully edentulous. There was an association (p<0.01) between the greater number of missing teeth, and older age group and low level of education. The mean DMFT was 20.8±5.3 and no filled teeth were found; the mean of decayed roots was 2.43±2.10; most teeth had periodontal pocket (50.32%) and attachment loss (51.00%); 99.53% of the elderly needed a prosthesis; and 0.94% had oral lesions. *Conclusion:* The oral health condition of the elderly in Bocoio is precarious and marked by the lack of access to dental services.

Keywords: Oral Health. Aged. Rural Population. Health Services Accessibility.

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INTRODUCTION

According to the World Health Organization (WHO), the oral health of the older population in the WHO African Region has severe deficiencies[1]. WHO data indicate that 80% of the population in this region has low socioeconomic status and is afflicted by various oral diseases that affect their general health and well-being, causing pain, discomfort, limitations, social and functional deficiencies, damage to the quality of life and negative economic impact on the population[1]. The health status of the Angolan population is characterized by low life expectancy at birth, high rates of maternal infant mortality, high prevalence of communicable, chronic and degenerative diseases[2]. Data from the Ministry of Health of Angola suggest that a large part of the population does not have access to quality health services, considering the provision of care offered by the public and private sectors and by traditional medicine, which can compromise the healthy aging process[2]. To promote healthy aging, health systems need integrated strategies and actions that encompass the different stages of the individual's life cycle, aiming at health promotion, disease prevention and equitable access to primary health care, with maintenance and improvement of long-term functional capacity[3].

Rural areas tend to have a higher proportion of older residents, as young individuals look for better education and work opportunities in large urban centers[4]. Thus, this older population raises concerns for health systems, as they sometimes have less ability to access health services due to limitations in their physical health condition and may be uninformed about the care and attention necessary for oral health[5].

Older people's oral health is directly related to the social context in which they are inserted and, in this sense, oral diseases are an important public health problem in the African region, considering the great burden of oral diseases and the repressed demand for dental services[1]. This may be due to the fact that these services are located, essentially, in large urban centers, in private clinics or in central hospitals, with infrastructure and equipment that may be insufficient to serve the entire population[6,7]. Evidence suggests that older people living in rural areas are more likely to suffer from the absence of treatment for oral diseases, indicating a deficiency in dental services available in these areas and highlighting the existing inequality in the country, to the detriment of rural areas, where the insufficient number of dentists and training courses for professionals in the dental field is noted[5,8].

The municipality of Bocoio, located in a rural area of the province of Benguela, is mostly composed of peasants and the local economy is based on agriculture, forestry and livestock. In this population, epidemiological studies on oral health are scarce due to transportation difficulties and limited human and economic resources. Health services do not offer regular follow-up for older people with chronic-degenerative diseases and there is no encouragement to prevent health and self-care measures[4]. In this sense, it is hypothesized that the older population in this region has poor oral health and a deficiency in meeting the demand for dental services. It is highlighted that untreated oral diseases and their health problems can promote other health problems, negatively influencing quality of life and mental health, becoming a social and economic burden for the individual, society and the state[9,10]. Thus, the aim of this study was to analyze the oral health condition and access to dental services in older people attended at a rural municipal hospital in Bocoio, Benguela province, Angola, Africa.

METHOD

The present study was conducted in accordance with the STROBE protocol guidelines for conducting observational studies. This is an epidemiological, cross-sectional and analytical study carried out with older people in the municipality of Bocoio, in the province of Benguela, Angola, Africa, in 2019. The municipality of Bocoio has a territorial area of 5,612 km^2 and is located 521 km away from Luanda, capital of Angola, and, in 2019, it had an estimated population of 155,446 inhabitants, with an aging rate of 4.4%. The human development index (HDI) for the province of Benguela is 0.526.

The study was carried out in accordance with the ethical principles and standards of Resolution No. 466/2012 of the National Health Council and approved by the Ethics and Research Committee of the Instituto Superior Politécnico de Benguela (process: Cep/ISPB 01102019), ensuring confidentiality, anonymity and non-use of information to the detriment of individuals. The Informed Consent Form was obtained from all older people participants and those who needed dental treatment were treated at the Hospital Municipal do Bocoio.

Older people aged 60 years and over, of both sexes, who sought health services at the Hospital Municipal do Bocoio, from October to December 2019, and who agreed to participate in the study, were included in the study. Six older people were excluded from the study who were hospitalized, had any physical limitations that prevented clinical examinations, or who did not have the cognitive ability to answer the questionnaire. The cognitive ability of the older people was verified by consulting the patients' medical records. For the composition of the sample, through a convenience sampling, all the older people who sought health services at the Hospital Municipal do Bocoio in that period were invited, making a total of 213 older people. The hospital provides health services that include, in addition to general medicine, different specialties, including pediatrics, nutrition, psychology, physiotherapy, orthopedics, obstetrics, gynecology and dental services, and is not a reference center for dental treatment in the region of Bocoio.

The variables analyzed were the sociodemographic profile; oral health perception; oral hygiene practices; use of dental services; tobacco and alcohol consumption; consumption of sweets and sugary drinks; perception of functional and social impairments due to oral health problems; dental condition, assessed using the dental caries index (DMFT); root caries; periodontal condition; periodontal attachment loss; use and need for prosthesis; presence and location of oral lesions.

The DMFT was obtained through the total quantification of the number of decayed, lost and filled dental elements, divided by the total number of examined older people[12]. The evaluation of periodontal condition was performed using the modified community periodontal index, using a periodontal probe with a 0.5mm spherical tip, with a black marking between 3.5 and 5.5 mm, and rings at 8.5 and 11.5 mm from the spherical tip. All teeth present in the mouth are examined for the absence or presence of gingival bleeding and the absence or presence of periodontal pockets; the depth of the pocket is measured with that periodontal probe[11].

Clinical oral examinations were performed individually, in an isolated room at the Hospital Municipal do Bocoio, with an adequately ventilated environment and only natural light, using the WHO millimeter periodontal probe and flat oral mirror, in accordance with the guidelines of the Manual for Surveys in Oral Health of the World Health Organization[12]. Data were collected by a single researcher, previously trained and calibrated. The calibration process, lasting 32 hours, was carried out according to the following steps: process preparation; theoretical discussion of the variables used, codes and examination criteria; practical discussion; calibration itself; and calculation of the degree of intra-examiner agreement. Agreement was analyzed from the repetition of the clinical examination of 10% of the patients in a sample of 40 older people, not included in the final study sample, with a subsequent comparison between each pair of examinations. Patients were examined in random order, with an interval of 7 days between assessments, without the examiner being informed that the patient was being re-examined. By calculating the Kappa coefficient, the degree of intra-examiner agreement was 0.92[11].

Data on sociodemographic profile, perception of oral health, oral hygiene practices, use of dental services, consumption of tobacco and alcohol, consumption of sweets and sugary drinks, and perception of functional and social impairments due to oral health problems were collected through individual interviews, with the application of a semi-structured questionnaire.

Statistical analysis was performed using descriptive statistical techniques and data presented in tables and graphs. The association between the

number of dental elements present in the oral cavity and sociodemographic characteristics was analyzed using the G test. Data processing and analysis were performed using the EpiInfo software version 7.2.2, adopting a significance level of 5%.

RESULTS

As shown in Table 1, of the total of 213 older people examined, most were female, aged between 60 and 70 years, with a mean age of 68.5±7.1. There was a predominance of older people who did not work and who did not attend school. Most of the older people classified their oral health condition as moderate. Regarding oral hygiene practices, it was found that most performed oral hygiene twice or more times a day, using a toothbrush and fluoride toothpaste, however, the use of dental floss was not reported by any of the participants.

Most older people had had their last dental appointment more than two years ago (47.89%) and, among those who had already consulted a dentist, all reported pain or problem with their teeth, gums or mouth as a reason for the appointment (Table 2). It was found that approximately 20% of the older people smoked cigarettes, cigars, pipes every day, while the consumption of alcoholic beverages, during the last 30 days, was low.

The frequency of ingesting sweets and sugary drinks was low, with only 1.41% of the older people reporting daily consumption of this type of food.

As seen in Table 2, the analysis of the perception of functional and social impairments due to oral health conditions revealed that most older people have already had difficulty chewing food (89.67%), dry mouth feeling (48.36%) and interrupted sleep due to teeth problems (90.61%).

Table 1. Sociodemographic profile of the older people (N=213). Bocoio Municipality, Benguela Province, Angola, 2019.

Variables	n (%)
Sex	
Female	147 (69.01)
Male	66 (30.99)
Age group (years)	
60 to 70	165 (77.46)
71 to 80	42 (19.72)
> 80	6 (2.82)
Occupation	
Unemployed/retired	198 (92.96)
Employed	15 (7.04)
Education level (years studied without failure)	
Never attended school	176 (82.63)
1 to 5	31 (14.55)
6 to 12	5 (2.35)
>12	1 (0.47)

Table 2. Perception of oral health and functional and social impairments due to oral problems, oral hygiene practices, use of dental services, tobacco and alcohol consumption among older people (N=213). Bocoio Municipality, Benguela Province, Angola, 2019.

Variables	n (%)
Oral health perception	
Good	2 (0.94)
Moderate	161 (75.59)
Bad	8 (3.75)
Very bad	14 (6.57)
I do not know	28 (13.15)
Toothbrush use	
Yes	197 (92.49)
No	16 (7.51)
Use of fluoridated toothpaste	
Yes	197 (92.49)
No	16 (7.51)
Tooth brushing frequency	
Once a day	86 (40.38)
2 or more times a day	112 (52.58)
Never	15 (7.04)
Time since last dental appointment	
Less than 6 months	12 (5.63)
6 to 12 months	12 (5.63)
12 to 24 months	86 (40.38)
More than 24 months	102 (47.89)
Never been to the dentist	1 (0.47)
Reason for the last dental appointment	
Pain or problem in teeth. gums or mouth	212 (99.53)
Never been to the dentist	1 (0.47)
Frequency of cigarette/cigar/pipe consumption	
Every day	44 (20.66)
A few times a month	4 (1.88)
Never	165 (77.46)
Alcohol consumption during the last 30 days	
Up to 2 times	24 (11.27)
Between 2 and 4 times	5 (2.35)
Did not consume alcohol during the 30 days	184 (86.38)
Had difficulty chewing food	
Often	58 (27.23)
Sometimes	133 (62.44)
Never	22 (10.33)
Had difficulty speaking	
Often	19 (8.92)
Sometimes	37 (17.37)
Never	157 (73.71)

to be continued

Continuation of Table 2

Variables	n (%)
Felt embarrassed because of the appearance of their teeth	
Often	6 (2.82)
Sometimes	19 (8.92)
Never	188 (88.26)
Felt tense because of problems with their teeth	
Often	1 (0.47)
Sometimes	23 (10.80)
Never	189 (88.73)
Dry mouth feeling	
Often	21 (9.86)
Sometimes	82 (38.50)
Never	110 (51.64)
Avoided smiling because of their teeth	
Often	6 (2.82)
Sometimes	26 (12.21)
Never	181 (84.98)
Had interrupted sleep because of teeth	
Often	2 (0.94)
Sometimes	191 (89.67)
Never	20 (9.39)
Had difficulty performing daily activities because of teeth	
Sometimes	1 (0.47)
Never	212 (99.53)

It was observed that 51.64% of the older people had less than 20 dental elements present in the oral cavity, being 7.04% total edentulous. There was a statistically significant association (p<0.01) between the smaller number of dental elements present in the oral cavity and conditions of older age group and lower level of education, but not with gender or occupation (Table 3).

The average DMFT of the older people was 20.8±5.3. As seen in Figure 1, no older person without dental caries experience was found. The minimum value of the DMFT was 3, while 8.92% of the participants had DMFT equal to 32. The analysis of the dental condition showed that of the total of 6815 dental elements examined, 2,356 (34.57%) were healthy, 1,350 (19, 81%) decayed, 3,086 (45.28%) lost due to tooth decay, and 23 (0.33%) lost for other reasons. No filled dental elements were found in the study.

The mean number of decayed roots per older person was 2.43±2.10. The analysis of the root condition showed that from a total of 3706 exposed roots examined, 3187 (86.00%) were healthy, 518 (13.98%) decayed, and 1 (0.02%) was filled.

Regarding periodontal condition, it was observed that less than half of the dental elements were healthy and that most had periodontal pockets (50.32%) and periodontal attachment loss (51.00%). As shown in Table 4, almost all older people needed some type of prosthesis, with a predominance of the need for prostheses with more than one element, both in the maxillary and mandibular arches. Regarding the use of dentures, only one upper removable partial denture was found in the study.

Two oral lesions were identified, one ulcerative lesion located in the anterior region of the inferior alveolar ridge and the other an abscess located in the posterior region of the inferior alveolar ridge.

Table 3. Relation between sociodemographic variables and the number of dental elements present in the oral cavity of the older people (N=213). Bocoio Municipality, Benguela Province, Angola, 2019.

	Dental elements present in the oral cavity				
Variables	0 a 9	10 a 19	> 19	total	*p*-value
Sex	n (%)	n (%)	n (%)	n (%)	
Female	24 (72.73)	49 (63.16)	74 (71.84)	147 (69.01)	0.4496
Male	9 (27.27)	28 (36.84)	29 (28.16)	66 (30.99)	
Total	33 (100.00)	77 (100.00)	103 (100.00)	213 (100.00)	
Age group (years)					
60 to 70	4 (12.12)	60 (77.92)	101 (98.06)	165 (77.46)	< 0.0001
71 to 80	23 (69.70)	17 (22.08)	2 (1.94)	42 (19.72)	
> 80	6 (18.18)	0 (0)	0 (0)	6 (2.82)	
Total	33 (100.00)	77 (100.00)	103 (100.00)	213 (100.00)	
Occupation					
Unemployed/retired	33 (100.00)	69 (89.47)	96 (93.2)	198 (92.96)	0.0589
Employed	0 (0)	8 (10.53)	7 (6.8)	15 (7.04)	
Total	33 (100.00)	77 (100.00)	103 (100.00)	213 (100.00)	
Education level (years studied without failure)					
Never attended school	33 (100.00)	67 (87.01)	75 (78.95)	175 (82.16)	0.0086
1 to 5	0 (0)	7 (9.09)	25 (26.32)	32 (15.02)	
6 to 12	0 (0)	2 (2.60)	3 (3.16)	5 (2.35)	
>12	0 (0)	1 (1.30)	0 (0)	1 (0.47)	
Total	33 (100.00)	77 (100.00)	103 (100.00)	213 (100.00)	

Association between variables analyzed using the G Test

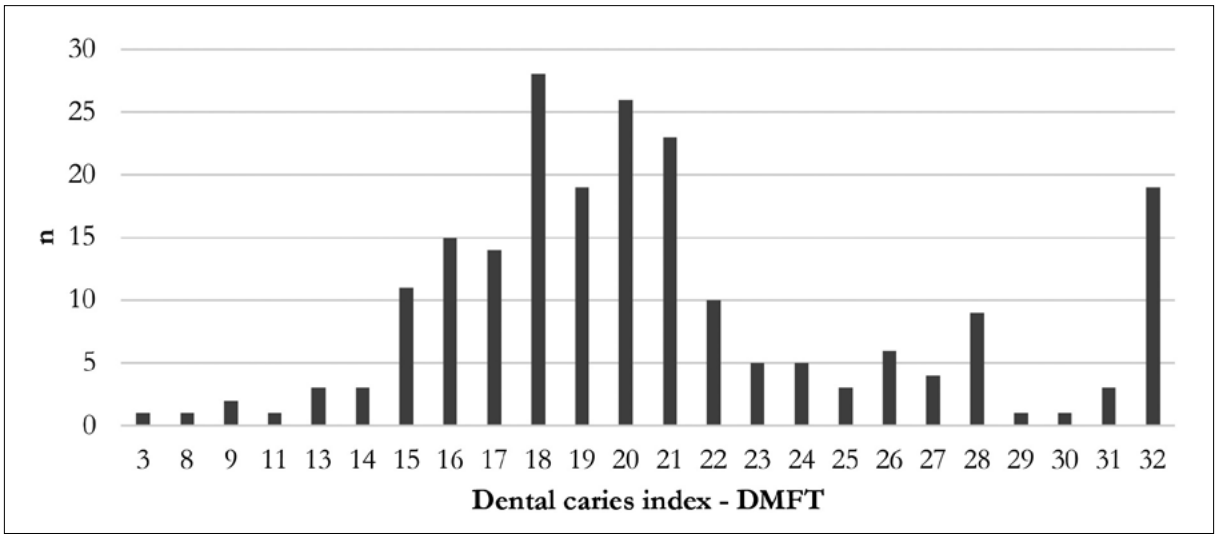

Figure 1. Absolute distribution of the older people in the municipality of Bocoio, according to the DMFT index. Benguela, Angola 2019.

Table 4. Periodontal condition and need for prosthesis in the older people in the municipality of Bocoio, Benguela, Angola, 2019.

Variables	n (%)
Periodontal condition*	
Healthy	1839 (49.62)
Gingival bleeding	1624 (43.82)
Periodontal pocket from 4 to 5mm	912 (24.61)
Periodontal pocket of 6mm or more	953 (25.72)
Total	3706 (100.00)
Periodontal attachment loss (mm)	
0 to 3	1816 (49.00)
4 to 5	915 (24.69)
6 to 8	869 (23.45)
9 to 11	98 (2.64)
12 or more	8 (0.22)
Total	3706 (100.00)
Need for superior prosthesis	
Doesn't need	7 (3.29)
Needs a fixed or removable partial denture of 1 element	3 (1.41)
Needs a fixed denture or removable partial denture of more than one element	102 (47.89)
Needs a combination of dentures and/or removable partial dentures of more than one element	73 (34.27)
Needs full denture	28 (13.15)
Total	213 (100.00)
Need for lower prosthesis	
Doesn't need	3 (1.41)
Needs a fixed or removable partial denture of 1 element	1 (0.47)
Needs a fixed denture or removable partial denture of more than one element	105 (49.30)
Needs a combination of dentures and/or removable partial dentures of more than one element	77 (36.15)
Needs full denture	27 (12.68)
Total	213 (100.00)

* A dental element may have more than one periodontal alteration

DISCUSSION

In the present study on the oral health condition of older people cared for at a rural municipal hospital in Bocoio, Angola, a worrying scenario of lack of access to dental services and a high burden of untreated oral diseases was identified. The findings of this study suggest that the large number of dental elements lost due to tooth decay, as well as the lack of curative and rehabilitative treatment for the disease, represent the main oral health problems in the studied population.

Oral health problems found in older people, on several occasions, do not only reflect the condition resulting from currently present diseases, as, in fact, they can express the result of the combination of complications from various pathological processes accumulated throughout the individual's life, which may be due to poor oral hygiene, lack of access to dental care services, and lack of health education actions and strategies that promote awareness of the importance of adopting measures to maintain oral health. In this context, it was found that the older people who sought health services at the Hospital

Municipal do Bocoio were predominantly female. This result is in line with findings from other studies that suggest that women pay more attention to their oral health condition, are more likely to seek dental treatment, and are more perceptive in relation to the damage caused by oral health problems, when compared to men[12,13].

It was also found that most of the older people did not work, which may be a reflection of the economic characteristics of the region, considering that it is a rural area, in which the majority of the population is fully dedicated to agricultural activities, so that the older people are retired or have never worked as employees in the public or private sectors[14]. Another important aspect is that most older people had never attended school. The low level of education can contribute to the onset of diseases, in addition to hindering the process of raising awareness of individuals in relation to the practice of health care throughout life[15]. People living in rural or remote regions may have a lower socioeconomic level, lower health literacy, not have health insurance coverage or financial resources to use with dental care[16]. In this sense, the findings of the present study showed that there was an association between the smaller number of dental elements present in the oral cavity and a low level of education, which is in accordance with evidence in the literature suggesting that the prevalence of oral diseases is inversely related to the level of education[17].

In this study, it was observed that practically no older people classified their oral health status as good or better, diverging from the results of other studies conducted in Brazil and Norway, which showed that most older people rated their oral health as good[18,19]. This can be explained by the high burden of oral diseases and lack of access to preventive, curative and rehabilitative dental services. The importance of valuing and maintaining oral health is highlighted, considering not only the functional aspects but also its influence on the older person's self-esteem, social relationships and quality of life[20].

The need for health education and oral health prevention actions and strategies is also present in the light of the findings related to oral hygiene practices, considering that the use of dental floss was not reported by any participant. In this context, advanced age can change the ability to perform oral hygiene, due to physical and motor deficiencies, lack of motivation, lack of interest or misinformation about the importance of self-care measures[21]. It is also possible to suggest that financial aspects influence oral hygiene practices, due to the lack of resources to purchase materials. It is noteworthy that, regardless of the presence of teeth, it is necessary to sanitize the oral cavity and dental prostheses, in addition to performing the self-examination to identify oral lesions, highlighting the role of the dentist as an advisor and encourager of the older person and caregivers for the hygiene practices and maintenance of the older person's oral health[21,22].

In the present study, it was found that the use of dental services by older people in the last 12 months was low, including approximately only 11% of the participants. This fact is in accordance with evidence found in a national epidemiological study on oral health conducted in Brazil, which demonstrated that adults living in rural areas used dental services less frequently than those living in urban areas[23]. Furthermore, dental appointments tend to gradually decrease with aging, resulting in a low demand among older people of more advanced age[24]. The findings of the present study reinforce the results of research that demonstrated that the human resources and infrastructure necessary for oral health services, in the West African region, are located mainly in large urban centers, close to the higher-income population, while the population in rural regions has few available resources[6,7]. This highlights the existing inequalities between rural and urban areas, considering the accessibility, distribution and use of oral health services.

Difficulty in chewing food was reported by the vast majority of the older people and can be explained by the large number of lost teeth and untreated carious lesions, which compromise the masticatory function and the feeding process. Thus, the improvement and increase in the longevity of the functional capacity of the older person is reinforced as an important health paradigm, highlighting the maintenance of independence and autonomy as goals to be achieved in the health care of the older person[25].

The prevalence of smoking among the older individuals studied proved to be worrying, with one in every five older individuals having the habit of smoking every day. It is a risk factor for highly serious non-communicable diseases, such as lung cancer and head and neck cancer, in addition to being related to greater colonization of the oral cavity by pathogenic microorganisms, highlighting that the harmful effects of the use of tobacco are cumulative and long-lasting[26]. Thus, the importance of developing health programs aimed at raising awareness among the population and smoking cessation is highlighted.

The findings of this study revealed that approximately half of the older people had more than twenty dental elements present in the oral cavity and that there was an association between the smaller number of teeth present and the older age group. This proportion is different from that found in a study carried out in Brazil, with non-institutionalized older people, which verified the presence of twenty teeth or more in only 7.69% of the individuals[27]. It is possible to suggest that this difference is related to cultural and socioeconomic differences between the populations studied, such as consumption of sweet foods and sugary drinks and access to dental services. Tooth loss is a serious public health problem, however, it is still erroneously accepted by society as something normal and naturally related to advancing age and not as a reflection of the deficiency of preventive oral health policies[27].

The average DMFT found in the present study was high, highlighting the large proportion of teeth lost due to tooth decay, similarly to what was observed in other studies conducted with non-institutionalized older people, living in urban areas in cities in the south and southeast of Brazil[27,28]. Evidence has shown that tooth extractions are more frequent in rural than urban areas, which may be related to restrictions on access to and use of quality specialized dental services, making tooth extraction an inevitable procedure when tooth decay is found in advanced stages with great tissue destruction[29,30]. Tooth loss is one of the most frequent oral problems in older people and is related to the progression of preventable diseases such as tooth decay and periodontal diseases and can affect the chewing efficiency, taste, speech and aesthetics of the older person, reducing their quality of life[20].

Regarding periodontal condition, it was observed that most of the dental elements examined had periodontal pockets and periodontal attachment loss. Similarly, a study conducted in a population of older people living in a rural area of India found that the prevalence of periodontal disease was high and that the periodontal condition deteriorated with aging[31]. It should be noted that periodontal diseases, by causing attachment loss and gingival recession, can cause root exposure, increasing the chance of developing root caries[32].

In this study, it was found that almost all older people needed some type of dental prosthesis, however, only one participant had the necessary prosthesis. In this context, it was found that the proportion of total edentulous patients was lower than that found in other studies, which may be related to the low consumption of sugary foods and beverages and the limited access to specialized dental services, perpetuating the permanence of dental elements with extensive carious lesions and advanced alveolar bone loss[33]. Also in this sense, it is possible to suggest that the high need for prostheses may also be related to deficiencies in access to human, material and infrastructure resources, such as prosthesis laboratories, located far from this rural region, such as Luanda, capital of Angola, located more than 500 km from the municipality of Bocoio. It should be noted that masticatory capacity, swallowing, speech and esthetics, which are affected by tooth loss and extraction, can be partially recovered through the use of adequate dentures, which contributes to improving the quality of life of older people. Furthermore, attention should be paid to health education measures and guidelines on the use, hygiene, maintenance and replacement of dental prostheses in order to reduce the risk of developing oral lesions[34].

In this research, older people from a rural municipality in Angola were examined, thus not allowing the extrapolation of the findings to a population of older people living in large urban

centers, which can be considered a limitation of the study. The convenience sampling technique can also be considered a limitation of the research.

There is a lack of research on oral health in the Angolan population and, consequently, a limited scientific production that does not allow for addressing all existing and emerging challenges in health care. It is noteworthy that, so far, there is no epidemiological study regarding the oral health conditions of the rural older population in Angola, so that this research can serve as a reference point for the planning of strategies and public policies on oral health aimed at this population.

CONCLUSION

The oral health condition of the older pople treated at a hospital in the rural municipality of Bocoio, Angola, Africa, is precarious and marked by a high proportion of missing teeth and a deficiency in the use of dentures. The lack of access to dental services, characterized by the great need for dentures and the absence of treatment for teeth affected by different oral diseases, highlight the need to implement strategies and public policies for the promotion, prevention and recovery of oral health.

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