ARQUIVOS EM ODONTOLOGIA

Stomatological profile of elderly patients who received dental care at a reference Hospital of Belo Horizonte, Minas Gerais – Brazil: a cross-sectional study

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Aim: The aim of this study was to draw a stomatological profile of elderly patients treated at the Stomatology Service of a referral hospital in the city of Belo Horizonte, Minas Gerais – Brazil.

Methods: Information was collected on the diagnostic hypotheses and definitive diagnoses of the elderly (aged 60 to 98 years) treated at the service, from September 2014 to December 2017.

Results: Medical records of 1388 patients were evaluated, and 281 different diagnostic hypotheses were found. For males, there was a higher prevalence in both diagnostic and definitive diagnoses for benign and malignant epithelial neoplasms; In females, there was a higher prevalence, also in the hypotheses and diagnostic definitions, of inflammatory fibrous hyperplasia, related to the use of removable prostheses.

Conclusion: Thus, this study evidenced the importance of knowledge about the main alterations that affect the oral cavity of elderly patients, which allows better attention to this population, besides being a pioneering stomatological study in hospital units.

Uniterms: oral medicine; geriatric dentistry; health of the elderly; public health; aged; pathology, oral; dentistry.

INTRODUCTION

The aging of the population is a worldwide in reality the present day. A significant demographic shift has occurred due to marked declines in fertility rates and significant increases in life expectancy, situations observed mainly from the mid-20th century[1-4]. Thus, the elderly population is increasing. This growth is likely due to several factors, including improved living conditions, advancements in medicine, and the implementation of public health measures[6,7].

Population aging poses a significant challenge to public health. The aging trend, initially observed in developed countries where the elderly constitute 11-18% of the population, has recently accelerated in developing nations. If this trend persists, the elderly could comprise up to 20% of the population in some countries[8,9,10].

Since this process of increasing the elderly, population is a reality that will increase in the coming decades, there is a need to provide higher quality of life to the elderly segment of the population, focusing on the physical, social and psychological aspects[11]. The change in the population age structure requires, based on public health policies and specialized services, attitudes adjusted despite interdisciplinary approaches among different health professionals. Pathological aging (senility) brings greater

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difficulties due to common diseases in this age group[12,13].

Within this context and in the reasoning of the multidisciplinary approach, the area of expertise of the dentist (DC) stands out. The fact that there is a growing elderly population brings with it numerous repercussions for dentistry, making health professionals and services able to meet this age group[13]. Oral pathologies can also affect the ability to eat, talk and socialize, negatively influencing the patient's quality of life and aggravating malnutrition and increased physical fragility of the elderly[4].

Within the specialties of dentistry, stomatology is responsible for studying the etiology and natural history of diseases affecting the bucomaxilofacial complex[14,15]. From the perspective of oral pathology and stomatology, oral and maxillofacial examination is important for assessing the oral health status of the elderly[16].

Within public policies related to the care of this age group, there should be guaranteed access to outpatient and hospital clinics with specialists in oral pathology and stomatology, to diagnose, control, care, and repair possible damages consistent with the specialty. Quantitative knowledge of oral lesions is of utmost importance for better diagnosis accuracy, control planning and specific treatments, as well as better quality referrals to other levels of health care.

Thus, the objective of this study was to draw the epidemiological profile of oral lesions of elderly patients treated at the Hospital Metropolitano Odilon Behrens (HMOB), which has a reference service in stomatology, located in Belo Horizonte, Minas Gerais.
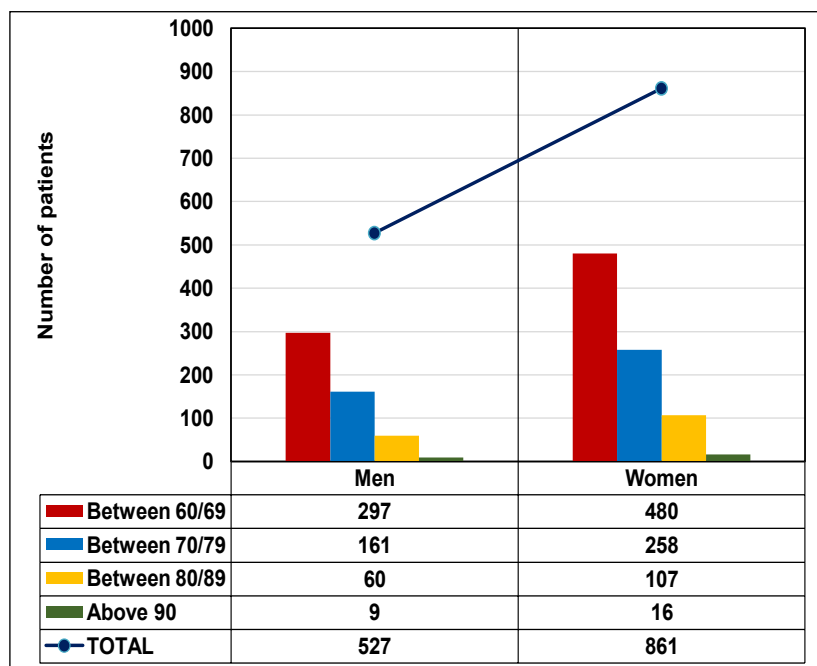
METHODS

This study was submitted to the Research Ethics Committee of the Hospital Metropolitano Odilon Behrens (HMOB) and was approved under the number 2.617.433. Retrospective research was performed by analyzing the HMOB medical records of the Stomatology specialty, from September 2014 to December 2017. Records with incomplete information or only with clinical diagnosis were excluded from the sample.

The data collected were age, gender, initial and final diagnoses, as all as the number of consultations, all extracted from patient records. Data were entered in Microsoft Excel 2016 and Microsoft Word 2016 spreadsheets and tables. Statistical analysis was performed using the Statistical Packag for the Social Sciences (SPSS), version 23.0 (SPSS Inc., USA). The results obtained in the study were expressed as mean, minimum value, maximum value, or by frequencies and percentages.

RESULTS

Data were collected from 1388 elderly, within the presupposed period. With this amount, these patients were divided by decade according to age, both male and female, with a mean age of 69.5 and 69.9 years, respectively (Figure 1).

Figure 1. Number of patients by Age Group.

	Men	Women
Between 60/69	297	480
Between 70/79	161	258
Between 80/89	60	107
Above 90	9	16
TOTAL	527	861

Patients were also described according to the diagnostic hypotheses (HD) raised by the Stomatology service (Table 1). The hypotheses were divided according to the characteristics of the lesions and etiologies of the diseases observed and recorded in the medical records. Absence of changes also occurred in some patients.

Fibrous hyperplasias related to chronic oral mucosa trauma (14.34%), candidiasis (9.01%), malignant neoplasms (8.86%), leukoplakia (7.71%) and lichen planus (5.26%) were the most observed changes within the quantity of HDs. Approximately 5% of patients had no noteworthy changes. In total, 281 different diagnostic hypotheses were collected.

Tables 2 and 3 show the prevalence of HD and definitive diagnoses (DD) based on gender. Despite depite diagnostic hypotheses, the definitive diagnoses are recorded after discharge, either from outpatient treatment or inpatient treatment. In males, squamous cell carcinoma (SCC) was found in greater quantity; In females, inflammatory fibrous hyperplasias were most found.

Table 1. Quantitative of diagnostic hypotheses subdivided by characteristics of oral lesions and injury etiologies (n = 1388).

(continues)

HYPHOTESES	n	(%)
Proliferative Soft Tissue Injuries		
Pyogenic Granuloma	14	1,00
Fibromas, fibroblastoma	14	1,00
Wart / Papillary Injuries	15	1,08
Nodules or Tumors		
Nonspecific nodules	3	0,21
Non-specific Tumors	2	0,14
Malignant Neoplasms (lining epithelial and mesenchymal)	123	8,86
Benign Neoplasms (epithelial and mesenchymal)	5	0,36
Salivary Gland Malignant Neoplasm	4	0,28
Ulcers, white and / or red spots more than 15 days old		
Leukoedema	2	0,14
Hyperkeratosis	53	3,82
Orofacial Granulomatosis	2	0,14
Secondary syphilis	2	0,14
Candidiasis	125	9,01
Middle rhomboid glossitis	1	0,07
Leukoplakia	107	7,71
Flat Lichen	73	5,26
Erythroplasia	2	0,14
Actinic cheilitis	29	2,09
Mucositis	3	0,21
Ulcerations	6	0,43
Radiolucent Injuries to Inaccurate Boundaries		
Fibrous dysplasias and bone cement	6	0,43
Osteomyelitis	16	1,15
Pigmented Injuries with Recent Growth History		
Smoker's Melanosis	3	0,21
Exogenous Pigmentation	11	0,79
Nevus	1	0,07
Soft tissue cysts		
Lymphoepithelial cyst	3	0,21
Mucocele	7	0,50
Radiographic Injuries with Precise Limits		
Keratocyst	10	0,72
Clarifying Cystic Injuries	1	0,07
Osteoma	2	0,14
Ameloblastoma	4	0,28
Reaction Hyperplasias		
Trauma-related fibrous hyperplasia	199	14,34
Xerostomies		
Xerostomia	4	0,28
SAT*	31	2,23
Sjögren's Syndrome	5	0,36
Ulcers with evolution period less than 15 days		
Traumatic ulcers and prosthetic trauma	60	4,32
Erythema multiforme, allergic reactions	2	0,14
Pemphigus / pemphigoid, lupus and other autoimmune diseases	9	0,64
Non-specific stomatitis	4	0,28
Recurrent aphthous ulcers	6	0,43
Angular cheilitis	6	0,43
Pigmented Injuries Compatible With Amalgam Tattoo		
Amalgam Tattoo	12	0,86

(conclusion)

HYPHOTESES	n	(%)
Normality Variations		
Geographic language		
Mandibular and / or Palatine Torus	8	0,57
Exostoses	6	0,43
Varicose veins	4	0,28
Bite Injuries / Alba Line	68	4,90
Non-specific macules	2	0,14
Physiological Melanosis and Mucosal Pigmentation	4	0,28
Papillary Hyperplasia	11	0,79
Fordyce Beads	1	0,07
Orofacial Pains	4	0,28
Neuralgias / Neuralgias		
TMD **	18	1,29
No Changes	8	0,57
Without changes		
	75	5,40
TOTAL	**1388**	

* Oral Burning Syndrome
** Temporomandibular Disorder

Table 2. Diagnostic hypotheses and definitive diagnoses most prevalent in elderly female patients.

HYPOTHESES	Quantity by sex (Female)
HFI	109
No changes	48
Candidiasis	44
Flat Lichen	44
Leukoplakia	41
Varicose Mucosa	38
ECC	31
Traumatic ulcer	29
Hyperkeratosis	27
Irritation Fibroma	19
SAB	17
Actinic Cheilitis	13
Sialoadenitis	13
Osteomyelitis	9
Keratocyst	8
TMD	8
Neuralgia	8
DCO	7
Fibroma	7
Definitive Diagnoses	**Quantity by sex (Female)**
HFI * 103	103
No changes	50
Candidiasis	48
Mucosa Varicose	33
CCE **	23
Traumatic ulcer	23
Hyperkeratosis	17
Lichen Plan	17
Irritation Fibroma	14
Leukoplakia	10
Actinic Cheilitis	8
SAB ***	8
TMD ****	7
Sialoadenitis	6
Osteomyelitis	6
Odontogenic abscess	6
Neuralgia	4
Hemangioma	4

* Inflammatory Fibrous Hyperplasia
** Squamous cell carcinoma
*** Burning mouth syndrome
**** Temporomandibular Disorder

Table 3: Diagnostic hypotheses and definitive diagnoses most prevalent in elderly male patients.

Hyphoteses	Quantity by sex (Male)
CCE *	74
HFI **	42
Leukoplakia	38
No changes	27
Varicose Mucosa	20
Traumatic ulcer	17
Candidiasis	16
Hyperkeratosis	15
Actinic Cheilitis	14
Irritation Fibroma	12
Sialoadenitis	11
Pyogenic Granuloma	10
Lichen Plan	10
Osteomyelitis	6
Sialolithiasis	6
Root Cyst	5
SAB ***	5
Hyperplasia	4
Definitive Diagnoses	**Quantity by sex (Male)**
CCE	55
HFI	40
No changes	33
Candidiasis	16
Mucosa Varix	16
Traumatic ulcer	12
Hyperkeratosis	11
Sialoadenitis	11
Actinic Cheilitis	9
Leukoplakia	7
Sialolithiasis	7
Irritation Fibroma	6
Pyogenic Granuloma	6
Prosthetic trauma	4
Odontogenic abscess	3
Melanotic Macula	3
Mucositis	3
Neuralgia	3

* Squamous Cell Carcinoma
** Inflammatory Fibrous Hyperplasia
*** Oral Burning Syndrome

DISCUSSION

The Dentist needs to be aware of the oral health conditions of the elderly, as well as how they may affect their systemic condition. Therefore, an integral view of the human body is extremely important[3]. Oral factors may aggravate the evolution of systemic diseases and thus compromise the quality of life of individuals. According to this reasoning, Castrejón-Pérez et al[17] clarify that poor oral quality and oral cavity-related pathologies are directly related to increased mortality and quality of life among the elderly, as it affects their general health status.

As we get older, there is a decrease in the protective function of the oral mucosa, the oral epithelium dilutes and the synthesis of collagen in connective tissues decreases. As a result, we can expect a decrease in tissue regeneration and lower resistance to disease. Overall, poor oral health of elderly patients is evidenced by high levels of tooth loss, dental caries, and periodontal disease, accompanied by other conditions such as xerostomia, premalignant lesions and oral cancer[18].

The prevalence of lesions affecting the oral mucosa is an important parameter in the oral health assessment of the elderly[19], and its determination is important for government decisions regarding public health programs[20]. The analysis of research aimed at the discovery of oral lesions shows that these had as main objective to inform the prevalence of these lesions and to correlate with systemic comorbidities, socioeconomic and demographic characteristics, life habits, genetic differences, as well as the research of the antecedent history of oral health. of individuals[21-24]. Most of these studies collected data from the elderly attended at referral outpatient clinics or long-term care institutes and often with limited numbers of patients.

Our study was based on information from over a thousand patients were referred to the HMOB Stomatology Outpatient Clinic and these patients usually come from referrals of the Primary Health Care of the Unified Health System (SUS) in the city of Belo Horizonte and the metropolitan region. In the studied sample, 281 different diagnostic hypotheses were observed. Similar epidemiological studies have been carried out in various parts of the world, but they cover a smaller population with fewer HDs. Mujica and colleagues[21] evaluated 340 patients from a Venezuelan reference institute, ranging in age from 60 to 104 years, 212 female and 128 male patients. After investigation based on clinical examination and previous clinical history related to lifestyle, there was a higher prevalence of stomatitis related to the use of removable prostheses (18%), leukoplakia (13%) and hemangioma (11%). Similar to our study, which observed a higher presence of males aged between 60 and 98 years old. However, friction-related inflammatory hyperplasias were the most frequently observed group of lesions, together with candidiasis and malignant neoplasms.

Another study by Espinoza et al.[25], obtained a sample of 889 individuals, where the prevalence of one or more mucosal lesions was 53%. The use of full dentures increased the likelihood of mucosal lesions by three times. The most common lesions were prosthetic stomatitis (22.3%), friction hyperplasia (9.4%), mucosal varicose veins (9%), traumatic ulcers (3.5%) and angular cheilitis (2.9%). Only one case of cancer was observed, unlike the sample of this study, which showed 123 cases over a period of four years and two months. Another similar study was conducted in a community in Northeastern Brazil, seeking a complete epidemiological profile of the elderly patient, aiming at the presence of prosthesis use, the need for rehabilitation and correct hygiene and the presence of dental calculus. With a representative sample of 262 elderly, a larger number of females (64.1%) and a prevalence of 38.4% of soft tissue injuries were detected. These lesions were statistically associated with the use of prostheses, poor oral hygiene, presence of calculi and drug therapies[26].

Oral cancer, globally ranked as the eighth most common type of cancer, poses a significant health threat, particularly among the elderly population. The most frequently affected areas are the lips, the floor of the oral cavity, and the pharynx[27]. Squamous cell carcinoma, originating from the lining of the oral mucosa, is the most prevalent form of oral cancer[10]. Dhanuthai et al. (2018)[28] also demonstrated in their study a high prevalence of squamous cell carcinoma in elderly patients, constituting 80.77% of the cases in this group. These findings corroborate by the present study, which found that most elderly male patients were diagnosed with this neoplasm.

In relation to the treatment of oral cancer in the elderly, Malik et al. (2018)[29] conducted a retrospective analysis of prospectively collected data to examine the impact of age on various clinical-pathological parameters. The focus was on the treatment and subsequent survival of 140 elderly patients (>65 years old) with squamous cell carcinoma who received treatment between January 2012 and December 2013 at a tertiary oncology center. The study concluded that although a significant proportion of patients over 70 years old were unable to receive or complete adequate adjuvant therapy, the majority of evaluated elderly patients were able to complete the recommended adjuvant therapy. Therefore, treatment in older patients should not be determined solely by age. It is necessary to adapt the treatment on a case-by-case basis, taking into account the individual's performance status and existing comorbidities.

According to the National Cancer Institute (INCA), cancer is one of the leading causes of death in Brazil. According to a 2018 survey of the institute, for Brazil, an estimated 11,200 cases of oral cavity cancer in men and 3,500 in women for each year of the 2018-2019 biennium, values that correspond to an estimated risk of 10.86 new cases per 100,000 men, occupying the fifth position of the most incident cancers; and 3.28 per 100,000 women, the 12th most frequent[30].

Tobacco, when in direct contact with the oral mucosa, poses a significant threat to oral health, potentially leading to oral cancer[31]. According to a study by Rhoini et al (2020)[32], leukoplakia, a common pre-cancerous lesion, was the third most observed lesion, accounting for 14.66% of cases. It was surpassed only by inflammatory fibrous hyperplasia and nicotinic stomatitis, which represented 21.33% and 20% of reported conditions, respectively. In our study, among the most prevalent definitive diagnoses, leukoplakia was the tenth most common lesion, tied with sialolithiasis, each with seven cases (see Table 3).

In Brazil, the Unified Health System (SUS) implements prevention strategies and health programs aimed at tobacco users, guided by the Clinical Protocol and Therapeutic Guidelines (PCDT), adopted by the State, Municipal, and Federal District Health Secretariats. The

National Cancer Institute (INCA), an institution of the Ministry of Health, oversees the National Tobacco Control Program (PNCT) and the tobacco treatment network within the SUS[33].

Another strategy, which must be meticulously conducted by the Dentist, is the examination of the oral cavity for precancerous lesions and asymptomatic tumors. The prognosis of oral cancer depends directly on its detection[34,35].

A systematic review conducted by Lima et al. (2021)[36] explored the causes of delayed oral cancer diagnosis, with a special focus on the elderly population in both developed and developing countries. The primary cause identified for the diagnostic delay was the population's lack of knowledge about the disease. Therefore, it is imperative to promote widespread dissemination of information about oral cancer, emphasizing its initial signs and symptoms, especially among the elderly.

The presence of outpatient and hospital Stomatology services can contribute to combating the disease, providing the population with access to specialized treatment.[37,38]. In this sense, this work shows that health care models should be in tune for better results despite the treatment of oral cancer, especially in the elderly population.

According to data from the Ministry of Health's National Oral Health Survey[39], more than 3 million elderly people need full dentures, and another 4 million need partial denture rehabilitation. Conditions for this treatment become unfavorable in various areas of the country due to the lack of specialized service. Our study demonstrated the high prevalence of friction-related hyperplasia lesions and inflammatory reactions, usually caused by prostheses in conditions that contraindicate their use for patients. Approximately 9% of patients in this study sample were diagnosed with candidiasis, which can occur when factors such as poor hygiene and chronic trauma occur in the patients' prostheses[40].

Thus, this study exposed relevant data on oral health of the elderly within the context of public health. The worldwide epidemiological data leave no doubt that the elderly population increases each year, and all this longevity points to new life perspectives and many challenges. The city of Belo Horizonte and its metropolitan region, also often received by the Stomatology service of the Hospital Metropolitano Odilon Behrens, showed an interesting number of patients of this age group attended, given even enso unknown in this population, whether due to lack of targeted studies or even lack of interest in this population profile. The results are a warning for prevention and treatment of comorbidities that affect the oral cavity of patients over 60 years. Therefore, it deserves attention from the Denstist professional, and the community composed by health professionals, drawing an important parallel with the guarantee of rights related to healthy aging and dignity of this part of the population, as well demonstrated by specific public policies, such as the Elderly Statute[41], decreed in 2003, which guarantees fundamental rights governing freedom, respect, and general health.

CONCLUSION

The study showed a stomatological profile with plural characteristics, involving several different diagnoses. Male patients had a higher prevalence of squamous cell carcinomas and female patients showed greater clinical involvement with inflammatory fibrous hyperplasia, especially those of reaction etiology and related to removable prostheses. The DC with the specialty of Stomatology should be present in outpatient clinics and the knowledge of the area should be more widespread among other professionals, for a better understanding of clinical conditions and, within the reasoning of SUS, better forms of communication between levels health care, strengthening care networks and increasing resoluteness for the elderly population.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORS' CONTRIBUTION

Bruno Moreira Silva: Conceptualization, Data curation, Investigation, Methodology, Formal analysis, Visualization and Writing – original draft.
Pedro Henrique G. Ferreira: Visualization and Writing – review & editing.
Fernando Sartori Rocha Campos: Resources and Writing – review & editing.
Marco Tulio Ribeiro Freitas: Supervision and Writing – review & editing.
Júlio Cesar Tanos de Lacerda: Supervision and Writing – review & editing.
Renata Gonçalves Resende: Conceptualization, Methodology, Resources, Formal analysis, Supervision, Project administration and Writing – review & editing.

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REFERENCES

1. Alves JED. A transição demográfica e a janela de oportunidade. São Paulo: Instituto Fernand Braudel de Economia Mundial; 2008.

2. Lima-Costa MF. The Bambuí cohort study of aging: methodology and health profile of participants at baseline [editorial]. Cad Saude Publica. 2011;27(3):S324-5.

3. Barbosa KGN. Status of oral health in elderly: a review of brazilian reality. Odontol Clin-Cient. 2011;10(3):227-31.

4. Pimenta TL, Gomes MJ. Patologia oral e AVDs em idosos diabéticos. In: Primeiras Jornadas de Enfermagem da Escola Superior de Saúde do IPB. Bragança: Escola Superior de Saúde do Instituto Politécnico de Bragança; 2013. p. 380-8.

5. Skoskiewicz-Malinowska K, Noack B, Kaderali L, Malicka B, Lorenz K, Walczak K, et al. Oral health and quality life in old age: a cross-sectional pilot project in Germany and Poland. Adv Clin Exp Med. 2016;25(5):951-9.

6. Côrte-Real IS, Figueiral MH, Campos JCR. As doenças orais no idoso - considerações gerais. Rev Port Estomatol Med Dent Cir Maxilofac. 2011;52(3): 175-80.

7. Chan AKY, Tamrakar M, Jiang CM, Lo ECM, Leung KCM, Chu CH. Common medical and dental problems of older adults: a narrative review. Geriatrics. 2021;6(3):76.

8. Al-Maweri SA, Al-Jamaei AA, Al-Sufyani GA, Tarakji B, Shugaa-Addin B. Oral mucosal lesions in elderly dental patients in Sana'a, Yemen. J Int Soc Prev Community Dent. 2015;5(1):S12-9.

9. Silva LP, Leite RB, Sobral APV, Arruda JA, Oliveira LV, Noronha MS, et al. Oral and maxillofacial lesions diagnosed in older people of a Brazilian population: a multicentric study. J Am Geriatr Soc. 2017;65(7):1586-90.

10. Lima-Costa MF, Veras R. Saúde pública e envelhecimento [editorial]. Cad Saude Publica. 2003;19(3):700-1.

11. Rosa LB, Zuccolotto MCC, Bataglion C, Coronatto EAS. Geriatric dentistry - oral health in the third age. RFO. 2008;13(2):82-6.

12. Leite RA, Vespúcio MVO, Azenha MR, Campos AA, Lacerda SA. Avaliação das condições sistêmicas e bucais de um grupo de idosos não institucionalizados de Franca, São Paulo: realidade e necessidade de reabilitação oral. RPG Rev Pos-Grad. 2012;19(2):57-63.

13. Monti LM, Justi MM, Farjado RS, Zavanelli AC. Compared analysis of elderly's oral health in Araçatuba-SP city, Brazil. Rev Bras Geriatr Gerontol. 2006; 9(2):35-47.

14. Silva GR, Martelli DRB, Júnior HM, Paranaiba LMR. Oral lesions diagnosed at the stomatology clinic of the state University of Montes Claros/Unimontes. Unimontes Cient. 2015;17(1):18-27.

15. Lei F, Chen J, Wang W, Lin L, Huang H, Ho K, et al. Retrospective study of oral and maxillofacial lesions in older Taiwanese patients. Gerodontology. 2015; 32(4):281-7.

16. Pereira TTM, Gaetti-Jardim EC, Castillo KA, Paes GB, Barros RMG. Epidemiological survey of mouth diseases: a ten-year casuistry. Arch Health Invest. 2013;2(3):15-20.

17. Castrejón-Pérez RC, Borges-Yáñez SA, Gutiérrez-Robledo LM, Ávila-Funes JA. Oral health conditions and frailty in Mexican community-dwelling elderly: a cross sectional analysis. BMC Public Health. 2012;12:773.

18. Petersen PE, Yamamoto T. Improving the oral health of older people: the approach of the WHO Global Oral Health Programme. Community Dent Oral Epidemiol. 2005;33(2):81-92.

19. Jainkittivong A, Aneksuk V, Langlais RP. Oral mucosal conditions in elderly dental patients. Oral Dis. 2002;8(4):218-23.

20. Cueto A, Martínez R, Niklander S, Deichler J, Barraza A, Esguep A. Prevalence of oral mucosal lesions in an elderly population in the city of Valparaiso, Chile. Gerodontology. 2013;30(3):201-6.

21. Mujica V, Rivera H, Carrero M. Prevalence of oral soft tissue lesions in an elderly venezuelan population. Med Oral Patol Oral Cir Bucal. 2008;13(5):270-4.

22. Mozafari PM, Dalirsani Z, Delavarian Z, Amirchaghmaghi M, Shakeri MT, Esfandyari A, et al. Prevalence of oral mucosal lesions in institutionalized elderly people in Mashhad, Northeast Iran. Gerodontology. 2012;29:e930-4.

23. Pedersen AML, Nauntofte B, Smidt D, Torpet LA. Oral mucosal lesions in older people: relation to salivary secretion, systemic diseases and medications. Oral Dis. 2015;21(6):721-9.

24. Oliveira MB, Lopes FF, Rodrigues VP, Alves CMC, Hugo FN. Association between socioeconomic factors, behavioral, general health and oral mucosa status in elderly. Cienc Saude Colet. 2016;23(11):3663-74.

25. Espinoza I, Rojas R, Aranda W, Gamonal J. Prevalence of oral mucosal lesions in elderly people in Santiago, Chile. J Oral Pathol Med. 2003;32(10):571-5.

26. Saintrain MVL, Almeida CB, Naruse TMO, Gonçalves VP. Oral lesions in elderly patients of a community in Brazilian Northeast. Gerodontology. 2013;30(4):283-7.

27. Khanagar SB, Al-Ehaideb A, Shivanna MM, Ul Haq I, Al Kheraif AA, Naik S, et al. Age-related oral changes and their impact on oral health-related quality of life among frail elderly population: a review. J Contemp Dent Pract. 2020;21(11):1298-303.

28. Dhanuthai K, Rojanawatsirivej S, Thosaporn W, Kintarak S, Subarnbhesaj A, Darling M, et al. Oral cancer: a multicenter study. Med Oral Patol Oral Cir Bucal. 2018;23(1):e23-9.

29. Malik A, Mishra A, Chopda P, Singhvi H, Nair S, Nair D, et al. Impact of age on elderly patients with oral cancer. Eur Arch Otorhinolaryngol. 2019;276(1):223-31.

30. Brasil. Instituto Nacional do Câncer. Estimativa 2018: incidência de câncer no Brasil. Rio de Janeiro: Instituto Nacional de Câncer José Alencar Gomes da Silva - Coordenação de Prevenção e Vigilância; 2017.

31. Bhandari A, Bhatta N. Tobacco and its relationship with oral health. J Nepal Med Assoc. 2021;59(243):1204-6.

32. Rohini S, Sherlin HJ, Jayaraj G. Prevalence of oral mucosal lesions among elderly population in Chennai: a survey. J Oral Med Oral Surg. 2020;26(1):10.

33. Brasil. Ministério da Saúde. Portaria GM/MS nº 908, de 20 de abril de 2022. Dispõe sobre as diretrizes para a organização dos serviços e do cuidado à pessoa tabagista no âmbito do Sistema Único de Saúde (SUS). Diário Oficial da União 25 abr 2022; Seção 1.

34. Almeida FCS, Cazal C, Nunes FD, Araújo ME, Dias RB, Silva DP. Prognostic factors in oral cancer. Rev Bras Cienc Saude. 2011;15(4):471-8.

35. Petersen PE. Oral cancer prevention and control - the approach of the World Health Organization. Oral Oncol. 2009;45:454-60.

36. Lima AM, Meira IA, Soares MS, Bonan PR, Mélo CB, Piagge CS. Delay in diagnosis of oral cancer: a systematic review. Med Oral Patol Oral Cir Bucal. 2021;26(6):e815-24.

37. Brasil. Ministério da Saúde. Saúde da Família: uma estratégia para a reorientação do modelo assistencial. Brasília: Ministério da Saúde; 1997. 36 p.

38. Martins AMEBL, Barreto SM, Santos-Neto PE, Sá MAB, Souza JGS, Haikal DS, et al. Greater access to information on how to prevent oral cancer among elderly using primary health care. Cienc Saude Colet. 2015;20(7):2239-53.

39. Brasil. Ministério da Saúde. SB Brasil 2010: Pesquisa Nacional de Saúde Bucal: resultados principais. Brasília: Ministério da Saúde; 2012. 116 p.

40. Medeiros FCD, Araújo-Silva TF, Ferreira KA, Oliveira-Moura JMB, Cavalcanti-Lima IP, Guerra-Seabra EJ. Use of dental prostheses and their relationship with oral lesions. Rev Salud Publica. 2015;17(4):603-11.

41. Brasil. Legislação sobre o idoso: Lei n° 10.741. de 1° de outubro de 2003 (Estatuto do idoso) e legislação correlata [recurso eletrônico]. 3. ed. Brasília: Câmara dos Deputados - Coordenação Edições Câmara; 2013. 124 p.