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ORAL LESIONS IN ELDERLY DENTAL PROSTHESIS WEARERS: A SCOPING REVIEW

LESÕES BUCAIS EM IDOSOS USUÁRIOS DE PRÓTESE DENTÁRIA: UMA REVISÃO DE ESCOPO

LESIONES ORALES EN USUARIOS DE PRÓTESIS DENTALES DE EDAD AVANZADA: UNA REVISIÓN DE ALCANCE

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ABSTRACT
Objective: To identify the scientific evidence available on the prevalent oral lesions in the elderly who use dental prostheses. **Methods:** This is a scoping review in which studies were selected in April 2022, from searches in Cochrane, Lilacs, PubMed, Scopus and Web of Science databases. Studies published from 1997 to 2021 were included, and there was no language restriction. **Results:** Eighteen articles were included, of which sixteen (88.9%) were cross-sectional studies and two (11.1%) were cohort studies, from different countries. Prosthetic stomatitis was the most prevalent lesion in the elderly in most findings, followed by ulcers, angular cheilitis, hyperplasia and erythematous candidiasis. **Conclusions:** The studies analyzed point to a higher occurrence of prosthetic stomatitis in women, with the use of removable prostheses being more prone to lesions. It is suggested that other research protocols be developed in order to highlight new findings on the subject in different regions.
Descriptors: Aged; Oral manifestation; Dental prosthesis; Review.

RESUMO
Objetivo: Mapear as evidências científicas disponíveis acerca das lesões bucais prevalentes em idosos que fazem uso de próteses dentárias. **Métodos**: Trata-se de uma revisão de escopo na qual os estudos foram selecionados em abril de 2022, a partir de buscas nas bases Cochrane, Lilacs, PubMed, Scopus e Web of Science. Incluíram-se estudos publicados de 1997 a 2021 e não houve restrição de idioma. **Resultados**: Foram incluídos 18 artigos, sendo dezesseis (88,9%) estudos transversais e dois (11,1%) estudos de coorte, de diferentes países. A estomatite protética foi a lesão mais prevalente nos idosos na maior parte dos achados, seguida por úlceras, queilite angular, hiperplasias e candidíase eritematosa. **Conclusões**: Os estudos analisados apontam uma maior ocorrência da estomatite protética em mulheres, sendo o uso de próteses removíveis mais propício a lesões. Sugere-se que outros protocolos de pesquisa sejam desenvolvidos a fim de evidenciar novos achados sobre a temática, em diferentes regiões.
Descritores: Idoso; Manifestações bucais; Prótese dentária; Revisão.

RESUMEN
Objetivo: Mapear la evidencia científica disponible sobre las lesiones orales prevalentes en los ancianos que utilizan prótesis dentales. **Métodos:** Se trata de una revisión de la investigación en la que los estudios fueron seleccionados en abril de 2022, a partir de búsquedas en las bases Cochrane, Lilacs, PubMed, Scopus y Web of Science. Se incluyeron los estudios publicados entre 1997 y 2021 y no hubo restricción de idioma. **Resultados:** Se incluyeron dieciocho artículos, de los cuales dieciséis (88,9%) eran estudios transversales y dos (11,1%) eran estudios de cohortes, procedentes de diferentes países. La estomatitis fue la lesión más prevalente en los ancianos en la mayoría de los hallazgos, seguida de las úlceras, la queilitis angular, la hiperplasia y la candidiasis eritematosa. **Conclusiones:** Los estudios analizados señalan una mayor ocurrencia de estomatitis protésica en las mujeres, siendo el uso de prótesis removibles más propenso a las lesiones. Se sugiere que se desarrollen otros protocolos de investigación con el fin de evidenciar nuevos hallazgos sobre el tema, en diferentes regiones.
Descriptores: Ancianos; Manifestaciones bucales; Prótesis dental; Revisión.

INTRODUCTION

Faced with laboratory advances and technological development associated with health, longevity has become, in addition to being possible, common; however, the

increase in life span exposes new obstacles to be faced.1 In order to guarantee physical and mental integrity during aging, it is required that the knowledge of the diseases that affect these individuals be updated with research that defines which diseases are more symptoms, their causes, their prophylaxis and their treatment.

In this regard, one of the primary conditions that weaken the older population is edentulism, a term that defines the partial or total absence of dental elements.[2,3] This characteristic is present in most elderly individuals in Brazil, and its occurrence directly implies chewing difficulty – which, in turn, leads to nutritional and digestive problems, changes in phonation and low self-esteem. Such factors make tooth loss a serious event in the patient's life, which can alter their metabolism and interpersonal relationships, compromising their overall well-being.[4]

Contrary to the problem in question, the rehabilitation of the oral cavity of elderly people can be carried out through a good evaluation, followed by an adequate manufacture and adaptation of dental prostheses. Dental prostheses, in turn, can be partial or total, removable or fixed, and their quality depends on previous factors, such as efficient planning and attention to the patient's individualities by the dentist, or later, such as frequent cleaning. of the material and the buccal region.[5] If this care is not effective, the inadequate adaptation of the prosthesis is favored, leading to the appearance of lesions on the oral mucosa, highlighting angular queilitis, prosthetic stomatitis, fibrous hyperplasia, gingival necrosis, verrucous carcinoma, and ulcers caused by trauma.[6-11]

In this context, the present study aims to map the scientific evidence on the most prevalent oral lesions in elderly people who use dentures. Therefore, the study presents, through a literature review in the databases, the prevalence and demographic characteristics of this type of lesion in the oral mucosa of the elderly population.

METHOD

This work is a scope review guided by the instructions of the Joanna Briggs Institute Manual.[12] In order to carry out a search on scientific bases, a research method registered in the Open Science Framework (OSF), numbered DOI: 10.17605/OSF.IO/MC8E5, thus achieving the transparency of this study. The guiding question of the research was developed based on the central problem and brought together the participating components, concept and context (PCC), being defined as follows: “What is the prevalence and demographic characteristics of elderly people who have oral lesions and use dental prostheses?”

The aforementioned components lead to the characterization of the inclusion and exclusion criteria of the articles. In this sense, regarding the participants, open access clinical studies were considered, carried out with patients aged 60 years or over, with no ethnicity and/or gender differentiation, users of dental prostheses with a diagnosis of oral injury related to the use of same. Regarding the concept, we considered the presence of scientific evidence correlating the presence of oral lesions with the use of dental prostheses in elderly people; thus, the studies that verified the predominance of these oral manifestations were used to integrate this study. Finally, the context encompassed the evidence available in the national and international literature, and no specific character was determined to narrow the scope of this review.

The present article had its search strategy developed in order to find evidence published in the following databases: Cochrane, Lilacs, PubMed via Medline, Scopus and Web of Science. To this end, the main elements of the guiding question were listed, as well as the descriptors that characterize them and, for each of them, synonyms and linguistic varieties were chosen.

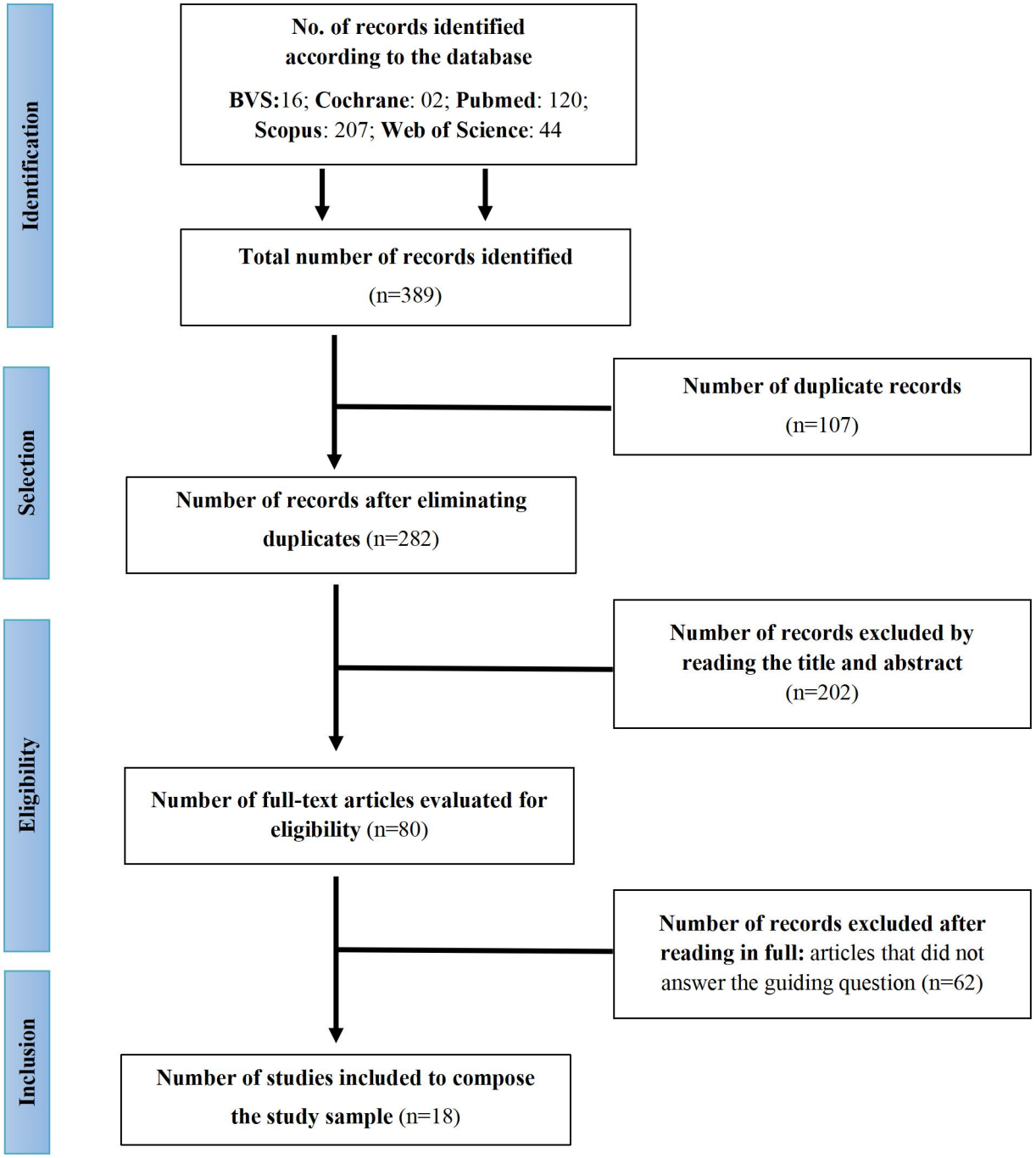
Therefore, to expand the capture of publications, descriptors in English and Portuguese were accepted, as well as their synonyms in the health area according to the Descriptors in Health Sciences (DeCS) and the Medical Subject Headings (MeSH), respectively, in Portuguese and English, for the databases described. Once the search strategy was established based on the guiding question, searches were carried out to find publications on the subject addressed, as well as the selection of articles that served as basis for the review.

After completing the research in the aforementioned scientific bases, the works were added to the Rayyan program[13] and submitted to the Mendeley[14] reference manager. Through these tools, the publications were parameterized in order to automatically eliminate duplicate files, following two steps for choosing the articles, namely: step 1) filtering, in which the studies were chosen according to the reading and examination of their titles and summaries; stage 2) rigorous selection, in which the full reading of the incorporated studies was carried out, taking into account the precepts of inclusion previously established in the protocol. The steps were governed by two independent, double-blind reviewers, in which disagreements that arose were resolved by adjustment or through the intermediation of a third reviewer.

The flowchart below (Figure 1) addresses the results in each database, the removal of duplicates, filtering and selection of articles. In addition, the PRISMA-Scr

checklist was used in the construction of the scope review on screen.[15]

Figure 1: Flowchart for selection of studies for inclusion in the review. Brazil, 2022.



Source: Adapted from PRISMA-Scr (2018). Authors (2022).

The data were obtained through the articles chosen to integrate the present scope review, so that the last step was also carried out autonomously by two reviewers, in which they used a data extraction form.[16] The information obtained included specific data about of evidence sources, such as: title, place/year, type of publication, population

and sample, objective of study, place and method. Furthermore, there are also the most important results associated with the guiding question.

Finally, the present review was structured on references from the public domain literature and, in view of this, did not require prior approval from the Research Ethics Committee. Furthermore, it is necessary to inform that the authors involved in the study did not have ties with funding institutions, therefore, there are no conflicts of interest.

RESULTS

The search on oral lesions associated with the use of dental prostheses in elderly people initially resulted in 389 articles, of which 107 were duplicates and were therefore excluded. The remaining 282 had their titles and abstracts analyzed by three reviewers in total, who excluded 202 articles, leaving 80. After full reading of the articles, 72 were excluded for not contributing to the answer to the guiding question, leaving 18 articles to be analyzed (Table 1).

Table 1: Distribution of articles according to country and year of publication; goals; method; population and sample; main results. Brazil, 2022.

Original title (Country, year of publication)	Goal(s)	Method	Population and sample (n)	Main results
Oral mucosal lesions and oral hygiene habits in the home-living elderly. (Finlândia, 1997)[17]	To report the prevalence of lesions on the oral mucosa in elderly people living in long-term care homes.	cohort study	338 seniors aged 76, 81 and 86 completed the oral health investigation at the Institute of Dentistry at the University of Helsinki.	Inflammation under dentures was the most frequent alteration of the denture-related mucosa, mainly related to maxillary prostheses (247 users): inflammation (19.4%), ulcers (2.4%), papillary hyperplasia (5.2%), fibrous hyperplasia (1.2%). Among mandibular prosthesis users (204 individuals), the results were: inflammation (8.3%), ulcers (4.9%), papillary hyperplasia (1.9%), fibrous hyperplasia (2.4%).
Prevalence of oral soft tissue lesions in an elderly venezuelan population. (Venezuela, 2008)[18]	To determine the prevalence of oral soft tissue lesions in patients referred to a geriatric unit of the National Institute of Gerontology of Venezuela.	Cross-sectional study	340 seniors aged 60 to 104 years.	Inflammatory pathologies associated with problems with prostheses were the most prevalent, as 67% of patients with injuries were using them. The most observed alterations were: prosthetic stomatitis (PE) (18%), angular cheilitis (5%), erythematous candidiasis (4%), papillary hyperplasia (1%).
Oral mucosal alterations among the institutionalized elderly in Brazil. (Brasil, 2010)[19]	To determine the prevalence of oral mucosa alterations and associated factors in institutionalized elderly in Brazil.	Cross-sectional study	335 seniors over 60 years old.	The most frequent alterations were: PE (15.2%), hyperplasia (12.8%), angular cheilitis (5.7%). The use of removable dentures was significantly associated with a higher prevalence of oral mucosal lesions.
A Study to evaluate the Frequency and Association of Various Mucosal Conditions among Geriatric Patients. (Índia, 2013)[20]	Evaluate the state of the oral mucosa in the elderly and discover the association between age, sex and prosthesis with disturbances in this site.	Cross-sectional study	570 seniors aged over 60 years.	48% had one or more oral mucosa lesions, the most common being: lingual varicose veins (13.68%), prosthesis-induced inflammatory fibrous hyperplasia (4.21%), squamous cell carcinoma (4.21%).
Prevalence of Oral Mucosal Lesions in a Group of Iranian Dependent Elderly Complete Denture Wearers. (Irã, 2013)[21]	To determine the prevalence of fissuretum epulis and denture stomatitis in dependent elderly users of complete dentures.	Cross-sectional study	201 elderly, with 18 (11%) aged between 65 and 75 years and 183 (89%) aged 75 years or more.	The prevalence of PE was 36%, in which 15.4% had inflammatory papillary hyperplasia (type III) and 20.6% had denture stomatitis types I and II; the prevalence of fissuretum epulis was 16.4%.
Risk factors for denture-related oral mucosal lesions in a geriatric population. (Espanha, 2014)[22]	To determine the relationship between systemic, local and denture factors on the risk of oral mucosal lesions associated with dentures in an elderly population.	Cross-sectional study	84 elderly users of dental prostheses recruited from geriatric homes.	The prevalence of at least 1 prosthesis-related mucosal lesion was 54%; the most common were: angular cheilitis (34%), traumatic ulcers (15%), denture stomatitis (14%).

Prevalence and Distribution of Oral Mucosal Lesions in a Geriatric Indian Population. (Índia, 2015)[23]	To determine the prevalence of oral lesions in a geriatric Indian population.	Cross-sectional study	5,100 patients aged 60 to 98 years.	Of the 5,100 elderly, 3,264 (64%) had oral lesions, the most common being: denture stomatitis (34%), angular cheilitis (18%), inflammatory papillary hyperplasia (16%), erythematous candidiasis (15%).
Prevalence of Oral Lesions in the Elderly. (Sérvia, 2016)[24]	To examine the types and frequency of oral lesions in the elderly.	Cross-sectional study	75 patients aged over 60 years.	Of the 75 patients, 80% had oral lesions, most observed among patients aged 60 to 74 years. The most prevalent pathologies were: PE (33.3%), erythematous candidiasis (10%), angular cheilitis (3.3%).
Prevalence and possible predictors of the occurrence of denture stomatitis in patients older than 60 years. (Sérvia, 2017)[25]	To determine the prevalence and risk factors for the development of SD (Stomatitis Under Prosthesis).	Cohort Study	159 patients aged 60-85 years and 30 patients using a prosthesis (mean age 65.3 years).	Patients who use prostheses at night are 26 times more likely to manifest PE, which is confirmed in 26.5% of patients. Nocturnal use or continuous use of prostheses was observed in more than 80% of patients with PE.
Predictors of oral mucosal lesions among removable prosthesis wearers. (Croácia, 2017)[26]	To analyze the prevalence of lesions in the oral mucosa, with an emphasis on the oral region, and possible predictive factors for their occurrence in patients who use removable prostheses.	Cross-sectional study	125 patients with a mean age of 69.7 ± 8.8. The group using complete dentures consisted of 86 participants, and the group using partial dentures consisted of 39.	Oral mucosa lesions were present in 74.40% of those examined, and PE was the most common oral lesion. Patients who use dentures at night are twice as likely to develop denture-related lesions of the oral mucosa. Most lesions were present on the tongue (50.40%) and palate (43.20%), with less occurrence on the floor of the oral cavity (2.40%).
Oral health of older people: tracking soft tissue injuries for the prevention of oral cancer. (Brasil, 2018)[27]	Detect soft tissue injuries in the elderly.	Cross-sectional study	821 seniors (60-100 years old).	33.1% had soft tissue lesions in the mouth. Regarding the types of lesions, red spots were the most common (55.9%), followed by blisters (21.3%), lesions and/or wounds (14.3%) and white spots (11.0%).
Prevalence of oral mucosal lesions in young seniors in the Wrocław region. (Polônia, 2018)[28]	Assess the prevalence of oral mucosa pathologies, in particular, potentially malignant and cancerous diseases.	Cross-sectional study	387 seniors (136 men and 149 women from Wroclaw; 50 men and 52 women from Olawa)	The most common clinical lesions in the oral mucosa are: PE (6.7%), hemangiomas (5.9%) and fibromas (4.1%). 15.2% had potentially malignant disorders and cancerous lesions.
Prevalence of oral lesions and chronic non-communicable diseases in a sample of Chilean institutionalized versus non-institutionalized elderly. (Chile, 2018)[29]	To compare the epidemiological profile of oral pathologies and non-communicable chronic diseases (NCDs) prevalent in institutionalized versus non-institutionalized elderly.	Cross-sectional study	76 institutionalized and 43 non-institutionalized elderly were examined.	The most common oral lesions were: PE (45.5%), fibrous hyperplasia (11%), traumatic ulcer (10%) in institutionalized elderly; fibrous hyperplasia (2%), traumatic ulcer (2%), erythroplasia (2%) in non-institutionalized patients.

Prevalence of oral mucosal status in resident and non-resident nursing home in Isfahan city, Iran: a comparative cross-sectional study. (Irã, 2019)[30]	To assess the status of the oral mucosa of nursing home residents and non-residents in Isfahan (Iran) and compare them with each other.	Cross-sectional study	281 seniors, of which: 141 residents of nursing homes and 140 non-residents; mean age of 71.9 ± 5.70 and 67.91 ±7.15, respectively	The most frequent oral lesions in both residents and non-residents were: white and red lesions (35.9%). The most prevalent oral lesions are: Epulis fissuretum (12.1%) and PE (11.7%). There is a higher incidence of PE in nursing home residents (15.6%) than non-residents (7.9%).
Prevalence of Oral Mucosal Lesions Among the Institutionalized Elderly Population in Lebanon. (Líbano, 2020)[9]	To determine the prevalence of oral mucosal lesions and risk factors among the institutionalized elderly Lebanese population.	Cross-sectional study	526 elderly residents of nursing homes in Lebanon.	Among users of complete removable maxillary prostheses, 53 (27.2%) had localized lesions and 22 (11.3%) individuals had generalized lesions; among users of removable mandibular prostheses, 46 (28.4%) had localized lesions and 19 (11.7%) generalized.
High prevalence of oral mucosal lesions in elderly: Call for revolutionizing geriatric dental care strategies. (Índia, 2020)[31]	To determine the prevalence, pattern and distribution of oral mucosal lesions in geriatric patients and explore their association with different study variables.	Cross-sectional study	750 geriatric patients (60 years or older).	Oral lesions had a prevalence of 59.6%. The most common were: red and white (73.2%), pigmented lesion (15.5%), ulcerative lesions (6%), oral cancer (3.3%) and benign tumors (2%). The presence of lesions in the oral mucosa was associated with variables such as male gender, over 65 years, presence of deleterious oral habits and use of prosthesis.
The prevalence of denture related mucosa lesions among patients managed in a Nigerian teaching hospital (Nigéria, 2020)[32]	To determine the prevalence of oral mucosal lesions related to the use of dentures and factors related to the occurrence of lesions in patients treated with removable dentures.	Cross-sectional study	104 individuals, in which 48 (46.2%) were over 60 years old.	Mucosal ulceration and fissuretum epulis occurred more commonly among removable partial dentures and complete denture wearers, respectively. 13.5% had injuries related to the use of prostheses and the main cause was the extension of the prosthesis flange.
Lesiones paraprotésicas en pacientes geriátricos portadores de prótesis removibles. (Cuba, 2021)[33]	To identify the types of paraprosthetic injuries in geriatric patients with removable prostheses.	Cross-sectional study	97 elderly people of both sexes, over 60 years old, with removable prostheses.	The most frequent paraprosthetic injuries were stomatitis under prosthesis (PE) (55.6%) and traumatic ulcers (31.9%).

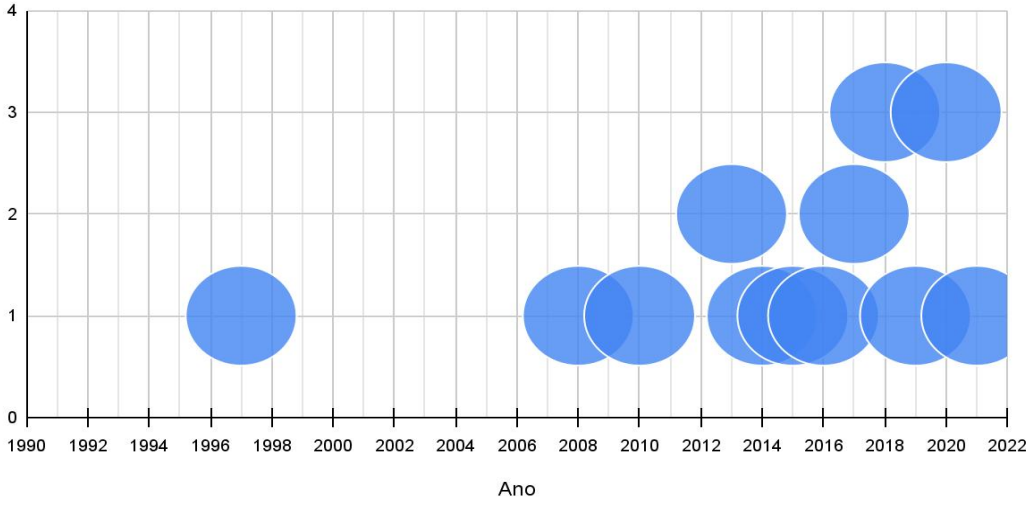
Source: Research Data (2022).

The selected works show several methods, including 16 cross-sectional studies9,18-24,26-33 and 2 cohort studies17,25. The study samples include from 75 to 5,100 patients aged 60 years or older, users of fixed and/or removable partial dentures. The countries of origin of the studies were diverse: Brazil, Chile, Croatia, Cuba, Spain, Finland, India, Iran, Lebanon, Nigeria, Poland, Serbia and Venezuela.

Regarding the participants' age: twelve studies[18-19,22-27,29-31,33] included participants over 60 years old; one study[17] included patients aged 76, 81 and 86 years; three studies9,21,28 included patients aged 65 years or older; one study20 included people over 61 years of age; in another study32, ages ranged from 12 to 84 years, with a mean age of 53.9 ± 17.76 years.

According to the study design and JBI Levels of Evidence guidelines, 16 studies9,18-24,26-33 were classified as 4b (Cross-sectional study) and 2 studies17,25 classified as 3e (observational studies without a control group). As for the year of publication, a more uniform distribution of these publications was verified after the year 2010, with only two works prior to it.

Figure 2: Year of publication of the selected studies. Brazil, 2021.



Source: Research Data (2022).

DISCUSSION

Denture stomatitis (PE) was the most prevalent pathology among inflammatory lesions in denture wearers.[18,19,21,23,24,26,29,33] Angular cheilitis had a higher prevalence (34%) than denture stomatitis (14%).22 However, the most common oral mucosal lesions were: lingual varicose veins (13.68%), followed by prosthesis-induced inflammatory fibrous hyperplasia (4.21%) and squamous cell carcinoma (4.21%). 20 Red and white

lesions were the most common among geriatric patients studied in India.[31]

Inflammation associated with the use of removable prostheses was the most frequent alteration of the mucosa[17], with complete maxillary dentures being among the main types of causative agent. The most prevalent pathologies were inflammatory and were related to the prolonged use of prostheses or poorly adapted prostheses.[24]

Still, removable dentures are significantly more associated with pathologies in users than fixed ones.[19] Complete denture users had a higher prevalence of lesions in the oral mucosa when compared to partial denture users.[9] Other studies did not find associations between the type of prosthesis and the prevalence of mucosal lesions.[25-26]

Patients who used dentures at night were more likely to have denture stomatitis (OR = 26.16)[25], in agreement with a study[22] whose patients who used dentures at night had a higher incidence of PE (25%) than those who did not. did so (10%). In this sense, some findings showed that patients who used dentures at night are twice as likely to develop lesions in the oral mucosa, related to the use of dentures.[26] On the other hand, no significant association was found between daily removal of the prosthesis before going to sleep and the presence of lesions in the oral mucosa.[32]

Candidiasis was also a common pathology found among the elderly studied, with the species C. albicans predominating in men and C. glabrata in women. Colonization by these fungi was higher in users of prosthetic devices compared to non-users.[34] The length of use of the prosthesis and oral Candida infection are important secondary factors for the development of denture stomatitis.[25]

There is an association between the presence of oral lesions and gender, in which women were more affected by oral lesions than men.[17,18,22,24,27,33] In this regard, there was disagreement with the findings of a study[31] in which men showed a greater number of mucosal lesions. Men were more affected than women; however, this difference was not statistically significant.[23]

This fact was also confirmed by other studies that did not find a statistically significant difference between sex (male and female) and the development of oral lesions.[25,30] Some differences were found in the distribution of the condition of the mouth. oral mucosa between genders: leukoplakia and dysplasia were associated with men; while fibroma to women.[20] Women were 2.4 times more affected by fibromas than men.

Institutionalized patients had a higher incidence of soft tissue lesions than non-institutionalized ones.[18,24] According to age distribution, oral lesions are more prevalent between the 6th and 7th decade

of life.[18,23,24,27,31,33] Also, elderly aged 80 years or older were the ones who most presented oral lesions (86%); the groups aged 60 to 70 years and 70 to 80 years accounted for 64% and 66%, respectively.30 However, some researchers found no association between the development of oral lesions and age.9

CONCLUSIONS

Following the previously defined protocol, the present scope review demonstrated that the prevalence of oral lesions in elderly individuals using dentures, especially in removable type prostheses. The main findings concern denture stomatitis as the main occurrence, with women being more affected than men. Finally, it is suggested that other protocols be developed in order to contribute to the theme, since this type of oral lesion affects people in different locations around the world.

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