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Prevalence of oral diseases and their correlations with systemic diseases in patients attending the family medicine and specialties clinic Q12 of ISSSTE

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Abstract

The main oral diseases are dental caries and periodontal disease, which can worsen in the presence of systemic diseases such as diabetes mellitus and arterial hypertension.

Objective: To determine the relationship between the prevalence of oral diseases and systemic diseases in patients attending the Q12 Clinic of the ISSSTE.

Methods: A total of 105 patients were studied, 68.2% female and 31.7% male, ranging in age from 18 to 85 years with an average age of 51.5 years. After providing informed consent, a 20-question survey was administered to patients attending dental consultations and those attending follow-up appointments with their family physician.

Results: Ninety-eight percent of the surveyed individuals owned a toothbrush, 61% changed their toothbrush every 3 months, 53% reported brushing their teeth 1-2 times a day, and 71% used the correct brushing technique. Twenty-five percent reported dental mobility. The main cause of tooth loss among respondents was dental caries (50%), followed by periodontal disease (18%). Fifty-eight percent of respondents visited a dentist only when they experienced pain.

Conclusion: Dental loss occurs similarly in both healthy patients and patients with systemic diseases. Among the surveyed individuals, dental loss was attributed to poor oral health habits.

Keywords: Dental caries, periodontal disease, systemic diseases, dental hygiene

Introduction

Systemic diseases such as diabetes mellitus and arterial hypertension significantly impact oral health. These conditions can exacerbate oral diseases such as periodontal disease, which affects the gums and damages the soft and hard tissues surrounding the teeth, leading to significant loss of tooth support [1]. Dental caries is another major cause of tooth loss and are closely related to patients' dietary habits. Therefore, the survey emphasized daily dietary habits.

Oral hygiene plays a crucial role in overall patient health. Disruptions in oral hygiene can lead to infectious processes that affect systemic health. Thus, preventing oral diseases through proper dental brushing techniques and encouraging the use of oral hygiene adjuncts such as mouthwash, dental floss, or interdental brushes is of utmost importance [2].

In systemically compromised elderly adults, poor oral hygiene is a significant factor increasing infection risk. Dental hygiene methods such as brushing, denture care, flossing, rinsing, and regular dental visits are the same for older adults as for the general population but must be adapted to their physical and cognitive limitations due to age [3].

The objective of this research was to determine the correlation between the prevalence of oral diseases and systemic diseases in patients attending the Q12 Family Medicine and Specialties Clinic at ISSSTE. In 2010, Balderas F.A.R. *et al.* conducted a similar study in a family medicine unit of the IMSS aiming to identify the most common causes of tooth extraction

among their beneficiaries. They found that of 168 extracted teeth, 50% had dental caries, 21.4% had periodontitis, 12.5% had deciduous teeth, 8.3% had various causes such as crowding, malocclusion, and pericoronitis, and 7.8% had both caries and periodontal disease [4]. The World Health Organization (WHO) defines dental caries as a "localized, multifactorial disease process that begins after tooth eruption, resulting in the demineralization of the hard tissues of the tooth and progressing to the formation of a cavity" [5]. There are risk factors that accelerate the onset of dental caries, including inadequate diets rich in sugary foods and drinks, smoking, alcohol consumption, parental education level, socioeconomic status, and systemic diseases such as diabetes mellitus or arterial hypertension. These factors, combined with poor oral hygiene, contribute to the development of dental caries [6].

Certain foods, such as whole grains, require prolonged chewing time, promoting saliva secretion. Additionally, foods that stimulate saliva production, such as chewing gum, peanuts, and hard cheeses, can help prevent dental caries [7,8]. On the other hand, periodontal disease, also known as periodontitis, is the second leading cause of tooth extraction. This disease directly affects the gums, bone, tooth roots, and ligaments, which provide tooth support. Common symptoms include gum inflammation, bleeding, the presence of periodontal pockets with pus, and tooth mobility [9]. The loss of periodontal tissue is closely related to metabolic control and is exacerbated in patients with uncontrolled

diabetes mellitus and hyperglycemia. Advanced diabetes mellitus with plaque presence can lead to gingival enlargement, a risk factor due to the accumulation of aerobic and anaerobic bacteria surrounded by a microbial matrix from saliva adhering to tooth roots. The survival of these bacteria depends on oral hygiene [10, 11].

A study by Alina López *et al.*, conducted on 149 patients, demonstrated that those with periodontal disease often suffer from arterial hypertension, with hypertensive patients showing moderate to severe periodontitis at even higher rates than non-hypertensive individuals, highlighting hypertension's exacerbating effect on periodontitis [12].

Brushing teeth is the most common method for maintaining oral health, and at least twice daily using a soft to medium bristle brush with all bristles at the same level is recommended. Different brushing techniques are indicated based on the patient's oral health status, age, and habits [13].

Materials and Methods

This cross-sectional and descriptive study included 105 patients who attended dental consultations at the Family Medicine and Specialties Clinic Q12 of ISSSTE. The patients, both men and women aged 18 to 85 years old, included 72 females and 33 males. With their prior informed consent, patients attending the dental department and their family doctor were interviewed with a 20-question survey about daily dental hygiene and systemic health from May 24th to July 30th, 2021. (Table 1)

Prevalence of Oral Diseases and Their Correlation with Systemic Diseases in Patients Visiting CMFQ 12 of ISSSTE. Name _____ Age: _____ Date: _____
 Occupation: _____ Education level: _____
 Instructions: Read each question carefully and choose your answer; please do not leave any questions unanswered.

Question	Answer Options
1. Do you have a toothbrush?	a) Yes b) No
2. How often do you change your toothbrush?	a) Every year b) Approximately every 6 months c) Approximately every 3 months d) Never
3. Do you Know how to select the right toothbrush for you?	a) Yes b) No
4. How often do you brush your teeth?	a) 1-2 times a day b) 3 times or more a day c) 1-2 times a week d) Never
5. Do you know the correct brushing technique?	a) Yes b) No
6) Do you use oral hygiene aids such as dental floss, mouthwash, interdental brush?	a) Yes, specify which: b) No
7) How often do you use dental floss, mouthwash, interdental brush?	a) 1 or 2 times a day. b) 3 times a day. c) I don't use it.
8) When brushing, have you noticed your gums bleeding?	a) Always. b) Sometimes. c) Never bleed.
9) Recently, have you noticed any of your teeth becoming loose?	a) Yes b) No
10) How often do you visit the dentist for a cleaning?	a) I have never gone. b) Only when I have pain. c) Every 3-6 months.
11) Have you lost any of your teeth?	a) Yes b) No
12) If the previous answer was "yes," what was the reason for the loss?	a) They had loose / bothered me while chewing. b) I had intense pain when sleeping and/or eating sweets or drinking hot or cold. c) Other, specify:
13) Do you know what Periodontal Disease or Periodontitis is?	a) Yes b) No
14) Do you know what a cavity is?	a) Yes b) No
15) Do you know the "Healthy Eating Plate"?	a) Yes b) No
16) Do you include vegetables in your daily diet?	a) Always b) Sometimes c) Never
17) Do you currently have Hypertension?	a) Yes b) No
18) Do you currently have Diabetes Mellitus?	a) Yes b) No
19) Is your condition under control?	a) Yes b) No c) I do not have Hypertension and/or diabetes
20) How often do you attend your control appointments with your Family Doctor?	a) Every 6 months b) Every year c) I do not attend control appointments.

Results

From the surveyed sample, 50% were healthy patients, 21.59% reported having diabetes mellitus, while 78.41% did not. Additionally, 28.41% of respondents reported having arterial hypertension, while 71.59% did not. (Fig. 1).

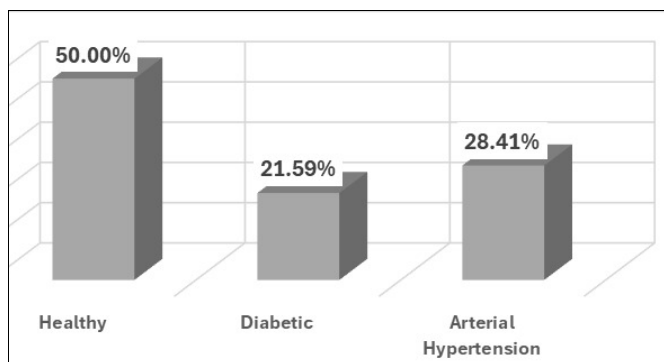


Fig 1: Representation of the population sample which were healthy, diabetic or had arterial hypertension.

Among patients with diabetes mellitus or arterial hypertension, 32% indicated that their condition was under control, 5% stated that it was not controlled, and 64% did not have either condition.

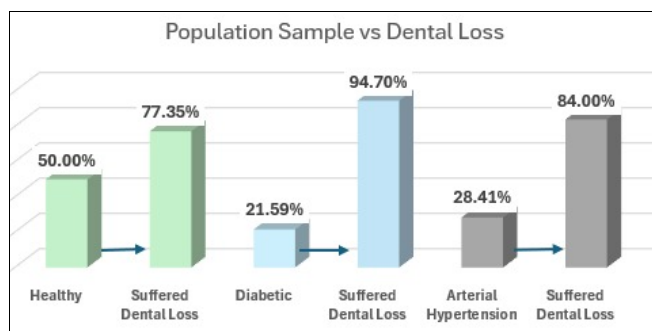


Fig 2: Representation of the health condition for the population sample and the percentage that has suffered dental loss.

From the surveyed sample, 50% were healthy patients, of whom 77.35% reported previous tooth loss. Among the 21.59% who reported having diabetes mellitus, 94.7% had experienced previous tooth loss. Among the 28.41% who had arterial hypertension, 84% reported not having all their teeth. (Fig 2)

Notably, 80% of patients reported previous tooth loss, with 49% attributing it to intense pain and temperature sensitivity associated with dental caries, 19% to dental mobility and discomfort while chewing (signs associated with periodontitis), and 32% to other causes such as trauma, impacted third molar extraction, or premolar extraction for orthodontic treatment. (Fig 3)

Within the study, 98% of the surveyed individuals owned a toothbrush, while 2% did not. Regarding toothbrush replacement frequency, 61% of respondents changed their toothbrush every approximately 3 months, 33% every 6 months, 5% never changed it, and 1% changed it yearly. Concerning the selection of an appropriate toothbrush, 45% of respondents knew how to choose one, while 55% did not. Additionally, 53% of respondents brushed their teeth 1-2 times a day, 41% brushed their teeth 3 times or more daily, 4% brushed their teeth 1-2 times weekly, and 2% never brushed their teeth. Regarding knowledge of the correct dental brushing technique, 71% were familiar with it, while

25% were not.

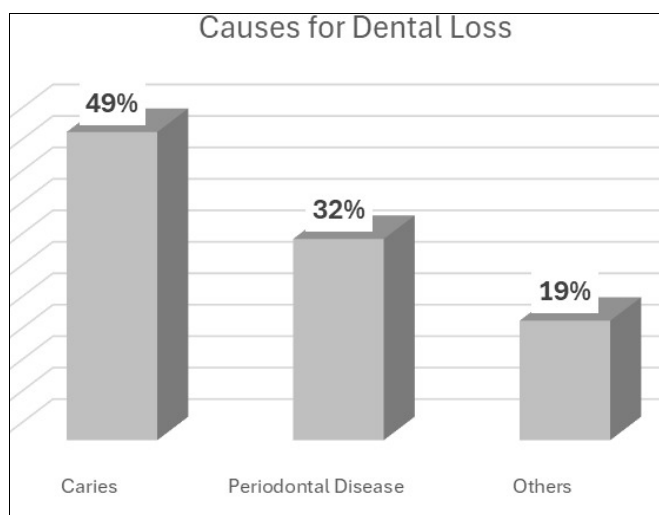


Fig 3: Representation of the causes mentioned by 80% of the patients that had dental loss.

Moreover, 62% of respondents reported using oral hygiene adjuncts, while the remaining 38% did not use dental floss, mouthwash, or interdental brushes. Specifically, only 21% used dental floss 1-2 times daily, 6% used it 3 times daily, and 73% never used dental floss. Concerning gum bleeding during brushing, 59% of respondents did not experience bleeding, 35% experienced occasional bleeding, and 6% experienced bleeding consistently.

Regarding dental mobility, 25% of surveyed patients reported recent dental mobility, while 75% indicated no mobility. Additionally, 58% of respondents stated that they visited the dentist only when experiencing pain, 14% had never visited a dentist, and only 28% visited the dentist every 3-6 months. Of all respondents, 85% reported unfamiliarity with periodontal disease or periodontitis, while only 15% were familiar with the condition. Similarly, only 5% were unfamiliar with dental caries, while 95% were familiar with it. Furthermore, 68% of surveyed patients indicated awareness of the "Healthy Eating Plate," while 32% were unaware. Regarding vegetable consumption, 55% reported always including vegetables in their daily diet, while 45% included them only occasionally.

Discussion

The results obtained in this study, which were obtained at the Q12 Family Medicine and Specialties Clinic of ISSSTE align with the findings of Balderas *et al.* (2010) from a social security clinic, indicating that the primary causes of dental extraction are dental caries followed by periodontal disease. Similarly, arterial hypertension and diabetes mellitus are the most prevalent systemic diseases [2].

Medina Solis *et al.* studied a sample of 331 Mexican adults attending dental consultations for dental extraction and confirmed that dental caries is the main reason for tooth extraction [14].

In her study, Agueda Burrut differed from this one in that only 13% of respondents reported brushing their teeth three times a day, whereas in this study, 41% of the respondents brushed three times daily. However, both studies agree that a minority of respondents do not use any oral hygiene techniques. Additionally, they coincided in noting a greater percentage of patients who lost their teeth than did those who did not. Burrut reported that 67% of patients no longer have

all their teeth, while 37% do. In this study, 80% of respondents reported tooth loss, with only 20% indicating that they had not lost any teeth ^[7].

Conclusions

Tooth loss occurs similarly in both healthy patients and those with systemic diseases, and it is attributed to poor oral health habits among the respondents. There is a need to increase awareness about periodontal disease and encourage dental colleagues to promote prevention and early detection using periodontal probing.

It is essential to raise awareness among general physicians and implement a system in which patients are encouraged to attend at least two dental check-ups per year. Furthermore, comprehensive health campaigns should be implemented that include discussions on oral health prevention, and education of patients who practice oral hygiene is a fundamental and complementary aspect of their overall health.

Conflict of Interest

Not available

Financial Support

Not available

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