

PREVALENCE OF ORAL MUCOSAL LESIONS AMONG PATIENTS VISITING PRIVATE UNIVERSITY DENTAL HOSPITAL, RIYADH, SAUDI ARABIA

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ABSTRACT

The occurrence of lesions impacting the oral mucosa is a significant parameter in assessing oral health and its prevalence is essential for government decision-making concerning the relevant health programs. A form was used to collect information from 380 patients with documentation of age, gender, systemic condition, and habits. Each patient was examined using a mouth mirror, and artificial light, and the total time taken was 5-8 minutes. The patient was examined while seated in the supine position.

In total, 28.3% of the people who took part in the study showed signs of having one or more oral lesions. Abscesses (45%), linea alba (35%), and pericoronitis (15%) were the most common types of lesions that were found. The overall prevalence of oral mucosal lesions in the given sample was on the lower side, with abscesses and linea alba being the most common. Moreover, there was no statistically significant association found between gender, smoking status, medical condition, and nationality.

Key words: Oral lesions, Prevalence, Private college, Dental hospital.

Introduction

Worldwide, the poor oral health of adult patients is demonstrated by increased levels of tooth loss, dental caries, and periodontal disease, supplemented by other disorders such as xerostomia, pre-malignant lesions, and oral cancer, especially in old age [1-3]. The occurrence of lesions impacting the oral mucosa is a significant parameter in assessing oral health and its prevalence is essential for government decision-making concerning the relevant health programs [4, 5].

Oral lesions can hinder daily social activities in affected patients in the form of impacts on mastication, swallowing, speech, and symptoms such as xerostomia, halitosis, or dysesthesia. Oral mucosal lesions include Fissured tongue, Fordyce granules, geographic tongue, Pigmentation, Candida, lingual Varices, Petechiae, Leukoplakia, and other malignant lesions [6, 7].

Histopathologic analysis of biopsied specimens is an important essential diagnostic tool that is generally influenced by clinical data and other diagnostic tests. Assessing the distribution of oral and maxillofacial lesions (OMFL) is important for evaluating their prevalence in the population, and thus identifying high-risk subpopulations and optimizing healthcare service allocation [8].

Patients with regular high glucose levels have more tendencies to develop oral cavity infections and abscesses.

Oral complications are more likely to occur in diabetic patients which expose the oral cavity more susceptible to infection [9].

Literature review

Epidemiological studies stated a wide range in the prevalence and most common forms of oral lesions in several regions of the world. The prevalence of these lesions among the general population has been reported at 9.7% in Malaysia [10], 15.5% in Turkey [11], 25% in Italy [12] and 61.6% in Slovenia [13]. These lesions have been found in 15% of Saudi Arabian [9] and 41.2% of Indian [14] dental patients.

As far as young patients are concerned, Roza *et al.*, (2021) estimated the frequency of oral leukoplakia and oral erythroplakia in young patients. They concluded that the frequency of oral leukoplakia is low in young patients. Observational studies are necessary for understanding oral leukoplakia and other oral potentially malignant disorders in younger patients [15].

Although smoking-related lesions are common, smoke-less tobacco also poses an important threat. Binmadi *et al.* (2022) reported that smokeless tobacco is considered a risk factor for oral cancer [16]. They examined 59 patients who underwent SLT, among these, 18.6% were diagnosed with oral squamous cell carcinoma [17].

Basha *et al.* (2019) conducted a systematic review that showed the prevalence of oral cancer in KSA varied from 21.6% to 68.6% [18]. It is a significant public health problem in the south of Saudi Arabia and specifically in Jazan province. Male to female ratio varied from 0.7:1 in Jazan province to 1.2:1 in other regions of KSA. The high prevalence of oral cancer among females may be attributed to increased consumption of smokeless tobacco Shamma which in turn increased the risk of oral cancer [19].

Study hypotheses

The prevalence of oral mucosal lesions is high among old aged patients and having systemic conditions.

Aims of the study

- To determine the prevalence of oral mucosal lesions among the patients visiting REU clinics.
- To compare the prevalence based on gender, age, systemic conditions, and habits.

Materials and Methods

Study design & sample

This is a cross-sectional study, which included clinical examination after acquiring patients' consent.

Sample size calculation:

Confidence level: 95%

Population Size: 2000

Margin of Error: 5%

Sample size: 380

Inclusion criteria

Patients aged more than 18 years.

Exclusion criteria

Patients less than 18 years of age.

Study instrument

A form was used to collect information from each patient with documentation of age, gender, systemic condition, and habits (Appendix). Each patient was examined using a mouth mirror, and artificial light, and the total time taken was 5-8 minutes. The patient was examined while seated in the supine position.

We recorded the frequencies of lesions observed among patients, which included abscess, pericoronitis, pulp polyp, candidiasis, materia alba, linea alba, mucocele, leukoplakia, lichen planus, fibroma, and hairy tongue. Data were recorded on the excel sheet, with patients' information being mentioned including file number, gender, occupation, nationality, age, smoking status, type of smoking, medical condition, frequency of tooth brushing and dental visits, and self-reported oral health. Groups for comparison included gender, nationality, smoking status, and medical condition.

Data confidentiality

Data collected from the patients' files (name, contact information, and file number) was kept confidential.

Statistical analysis

Collected data were analyzed using SPSS version 22, where descriptive as well as inferential statistics were conducted. Comparisons between groups were made with the value of significance kept under 0.05 using the Chi-square test.

Results and Discussion

Table 1. Demographic information about the participants

Demographical variables	Frequencies
Gender	Male: 61.4% Female: 38.6%
Occupation	None: 24% Student: 19% Employee: 36% Businessman: 21%
Nationality	Saudi: 73.8% Non-Saudi: 26.2%
Mean age	35.96 years (SD 12.33)

Table 1 displays the participants who had a decrease in their oral infection symptoms. According to the findings, the percentage of male participants who have lesions in their mouths is 61.4%, whereas the percentage of female participants who have lesions is 38.6%. According to the data, 36% of the people are business owners, 21% are employed in some capacity, 19% are students, and the other individuals do not have any type of work. The result also describes the nationality of the participants, the majority of them are of Saudi nationality (73.8%), while the remaining participants are of a nationality other than Saudi (26.2%). Additionally, the data reveals that the average age is 35.96 years old.

Table 2. Habits and medical status of the study participants

Habits & medical status	Frequencies
Smoker	Yes: 19.8% No: 80.2%
Cigarettes per day	Less than 10: 77.3% More than 10: 22.7%
Type of smoking	e-cigarette: 15% conventional: 65% shisha: 20%
Medical status	Yes: 9.3% No: 90.7%

Brushing frequency	None: 12.2%
	Once daily: 55.6%
	Twice daily: 32.3%
Visiting clinic	Regularly: 13.5%
	Only when needed: 86.5%

The behaviors of the participant, as well as their current state of health, are presented in **Table 2**. This participant is the patient who is being studied for an oral muscular lesion. Only 19.8% of the participants smoke, and the remaining 77.73% consume fewer than 10 cigarettes per day. 15% of them smoked conventional cigarettes, 65% smoked cigars, and 20% drank shisha as their primary form of tobacco consumption. The percentage of people who have a medical condition is 9.3%, while 55.6% of participants clean their teeth once per day, and 32.3% do it twice each day. The findings show that 13.5% of participants are people who go to the clinic regularly.

Table 3. Presence of oral lesions among study participants

Oral lesion-related queries	Frequencies
Presence of oral lesion	Yes: 28.3%
	No: 71.7%
Type of oral lesion	Abscess: 45%
	Pericoronitis: 15%
	Pulp polyp: 4%
	Linea alba: 35%
	Hairy tongue: 1%

The **Table 3** describes the total percentages of oral lesions among study participants. In total, 28.3% of the people who took part in the study showed signs of having one or more oral lesions. Abscesses (45%), linea alba (35%), and pericoronitis (15%) were the most common types of lesions that were found. Other lesions, such as pulp polyps (4% of patients) and hairy tongue (1% of patients) were less in occurrence.

Table 4. Comparison among variables regarding the presence of oral lesions

Variables	Comparison	P-value
Gender	Male: 60.7%	.482
	Female: 39.3%	
Nationality	Saudi: 69.1%	.123
	Non-Saudi: 30.9%	
Smoker	Yes: 25.3%	.314
	No: 74.7%	
Medical condition	Yes: 22.8%	.296
	No: 77.2%	

The **Table 4** shows the comparison among variables regarding the presence of oral lesions. The conclusion

drawn from this investigation is that there is not a significant difference when comparing gender, nationality, smoking status, and medical condition due to the high P value. Based on the findings, it was determined that 60.7% of those suffering from oral lesions are male, while 39.3% are female. The other factor to consider is the patient's nationality; while 69.1% of patients are Saudi, the remaining patients are not Saudi but have been diagnosed with the disease of oral lesions. Based on the comparison between smokers and non-smokers, it has been determined that 25.3% of those who have oral lesions are smokers.

This study found that 69.1% of Saudis suffer from oral lesions of at least one type. When compared to the findings of the previous study, the prevalence of oral lesions was 58.1% [20]. These findings are close to those obtained from studies conducted in Slovenia (61.6%), the Philippines (61.0%), and Spain (58.8%) [21]. The prevalence of oral lesions was found to be much greater in Thailand (83.6%), as well as in Italy (81.3%) [22], in comparison to what was observed here in this study. This research, however, was restricted to participants of a particular age and gender demographic. The prevalence of oral lesions found in studies by [22] (25.1%) and [23] (8.4%), which excluded harmless oral conditions and included significant oral lesions only, was found to be significantly lower than that of our study. Our research found that the prevalence of oral lesions was significantly lower. The findings of several

pieces of research that analyzed the prevalence of oral mucosal lesions in relation to several demographical factors, such as gender, occupation, nationality, and mean age, are summarized in **Table 1**. In the current investigation, researchers found that patients suffering from oral lesions had a mean age of 35.96 years.

Cigarette smoking is one of the most significant risk factors for oral cancer and is associated with a wide variety of pathological changes to the oral mucosa [24]. The identification and screening of smokers at an early stage is of utmost importance. In this study, 19.8% of smokers had oral cancer, and 77.3% of them smoked less than 10 cigarettes per day. On the other hand, some patients smoked more than 10 cigarettes per day, which made up 22.7% of the total. Therefore, providing high-risk individuals with routine dental services and care, in addition to health education, is necessary. One study found that fissured tongue, coated tongue, aphthae, linea alba, glossitis, leukoplakia, candidiasis, and macroglossia were the most prevalent OMLs [25]. However, our study participants did not reveal such lesions

Another study concluded that smoking and becoming older are both major contributors to the chance of developing OMLs. Another study found that smokers had an average age that was about seven years younger than nonsmokers [26]. Our study found that smokers had no significantly different oral lesions than nonsmokers. The presence of

Fordyce granules was found to be most widespread in smokers, whilst OMLs were shown to be more common in men than in women [14].

In this study, we only looked at people who smoked cigarettes, both conventional cigarettes (65% of participants) and shisha cigarettes (20%). We did not assess any other behaviors, such as drinking alcohol or chewing tobacco. According to the findings of another study, OMLs varied depending on certain behaviors, however, smoking was found to have the highest prevalence. Therefore, it is even more important for smokers to undergo close monitoring and comprehensive assessment. In addition to this, dental practitioners, oral hygienists, and other medical specialists need to be properly trained on how to treat smokers [24].

Those participants in this study who brushed their teeth once per day had a worse medical status than those individuals who brushed their teeth twice per day. This finding was consistent across both groups. We concluded after analyzing the data that smokers have a much higher incidence of OMLs. According to the available research, the results of these studies were comparable to those of others. Dentists have a responsibility to be aware of the impact smoking has on the progression of oral pathologic lesions and to encourage patients who smoke to give up the habit. Cigarette smoking leads to oral premalignant and malignant lesions, as well as an increase in the number of abnormal nuclei that may be found in the oral epithelium [24].

According to the findings of the research that has been done on the previous literature, 25.2% of the people who participated in the study had one or more white lesions. Leukoedema (5.1%), frictional keratosis (3.9%), and khat-induced white lesion (8.8%) were the most common types of lesions found in patients. Among the patients, 2.4% had lichen planus, 1.2% had leukoplakia, and 1.7% had smokeless tobacco-induced lesions. There was a strong correlation between the existence of white lesions and advanced age ($P = .004$), male gender ($P = .009$), and habits of chewing khat or tobacco ($P = .001$), according to the findings of the study [27, 28]. However, our study did not find any statistical associations for similar variables.

One of the limitations of this study is the lack of oral behaviors being documented other than smoking and brushing, such as chewing tobacco or beetle nut. Moreover, collecting samples from various demographic regions may help provide better findings.

Conclusion

The overall prevalence of oral mucosal lesions in the given sample was on the lower side, with abscesses and linea alba being the most common. Moreover, there was no

statistically significant association found between gender, smoking status, medical condition, and nationality.

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Conflict of interest: None

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Ethics statement: This study fulfills the ethical requirement of the REU ethical committee.

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