

## Knowledge and Awareness of Oral Precancerous Lesions Among Dentists and Dental Students in Riyadh City, Kingdom of Saudi Arabia

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### ABSTRACT

*The purpose of this study was to investigate the knowledge and perceptions of oral precancerous lesions and risk factors of oral cancer among soon-to-be graduating students and general dentists in Riyadh city. A self-administered questionnaire was distributed to senior dental students in different dental colleges in Riyadh city using a modified version of previously validated templates.*

**Result:** *A total of 872 questionnaires were returned. Most of the respondents were dental students almost 73%, while general practitioners were 27.2%. More than half were females (56.8%) in the sample. Leukoplakia was described by 64.1% of respondents as the most common type of oral precancerous lesion while 63% described the tongue as most common site of oral erythroplakia.*

**Conclusion:** *Awareness and detection of oral precancerous lesions among dental students and dentists in Riyadh city was satisfactory. All dentists should be aware of clinical aspects of the commonest precancerous lesions in order to optimize early diagnosis.*

### Keywords

Oral precancerous lesions, Dentists, Dental students, General practitioner.

### Introduction

Early detection of cancerous and precancerous lesions, especially speckled leukoplakia and erythroplakia, (which carry high probability of cancer transformation) can significantly improve outcomes and prognosis, and allowing patients to enjoy a normal life with a reduced possibility of transformation and complications of cancer and its treatment [1].

Precancerous lesions of oral mucosa are now renamed as potentially malignant disorders following the World Health Organization Workshop held in 2005, The new terminology “potentially malignant disorders” is expected to eliminate terminological confusion. Oral leukoplakia, oral submucous fibrosis, and oral erythroplakia are the most common oral precancerous lesions that have a very high malignant transformation rate, which should be diagnosed in the early stage [2].

Dental students and general practitioner who are in a first line position should be updated and aware about the importance of their role in detecting early signs and diagnosis of oral cancer. Previous studies reported that dentists might be unable to diagnose precancerous lesions due to a lack of knowledge about the risk factors, signs and symptoms of squamous cell carcinoma [3].

Awareness and knowledge about cancerous and pre-cancerous lesions, risk factors and careful examination of all patients, especially old patients is essential and could be help for early detection through proper training in the theory and practice, which will help in reducing oral cancer incidence [4].

Hitherto there is limited information focusing on awareness and knowledge of precancerous lesions in Riyadh city. The purpose of this study was to investigate the knowledge of oral precancerous lesions of the soon-to- graduate dental students and general dentists in Riyadh City, Kingdom of Saudi Arabia. Results may help the dental institutions to revise their undergraduate curriculum and program to suit a more career-guided training for its graduates.

## Materials and Methods

### Participants

Students were invited to voluntarily participate from different dental colleges (Riyadh Elm University (REU), King Saud university (KSU), King Abdullah bin Abdulaziz hospital (DAU), Farabi Dental College (FDC) in Riyadh, the capital city of Saudi Arabia. Participation was voluntary and participants' identities were left anonymous. The study subjects were final year dental students (level 12) or were interns and general practitioners. The questionnaires were administered during the first semester of the 2018-2019 academic year.

### Ethics

Study proposal was registered with the research center of Riyadh Elm University and ethical approval was obtained from the Institutional Review Board (IRB) before the study commenced.

### Questionnaire

This was designed and adapted using previously validated templates [2,5-8]. Information was derived from the self-administrated questionnaire which covered the following variables: demography, including gender, age and education level. Twelve closed-response item questions were on precancerous lesions such as leukoplakia, erythroplakia, lichen planus and oral submucous fbrosis.

### Statistical Analysis

The questionnaires were collected. The data were entered, and a descriptive analysis was performed using SPSS program.

### Results

A total of 872 questionnaires were completed by all participants. Most of the respondents were dental students almost 73%, while general practitioners were 27.2%. More than half (56.8%) were females in the sample. Most students (73%) were between 20 and 30 years of age, followed by general practitioners (26.9%) older than 30 years of age as shown in Table 1.

Characteristic		Number	Percentage
Study Level	Eleven	218	25%
	Twelve	220	25.2%
	Intern	196	22.4%
	General practitioner	238	27.2%
Gender	Male	376	43.1%
	Female	496	56.8%
	20-25	299	34.2%
	26-30	338	38.4%
	>30	235	26.9%

**Table 1:** Characteristics of students participated in the study (N=872).

Analyzing the clinical features, 64.1% identified leukoplakia as the most common type of oral precancerous lesion, 86.3% of the participants knew that leukoplakia is a white lesion, more than half of the participants, 53.2%, knew the meaning of homogeneous leukoplakia, with 43.1% even reporting that non homogeneous leukoplakia had the higher risk of malignant transformation. The

tongue was identified by 63% as the most common site of oral erythroplakia while 48.3% described erosive lichen planus as more likely to progress to malignancy.

Symptoms such as burning sensation and/or intolerance to spicy food were recognized as the most common symptoms in the initial phase of oral submucous fibrosis by 32.3% of the respondents while 41.1 % associated with these symptoms with lichen planus.

Regarding diagnosis of oral lesions, 82.7% believed that biopsy was mandatory when the lesion persisted for more than 2 weeks and 43.3% believed that histopathological examination was important for definitive diagnosis as shown in Table 2.

Question		Number	Percentage
What is the most common type of precancerous lesion?	Leukoplakia	559	64.1%
	Erythroplakia	166	19.0%
	Lichen planus	98	11.2%
	I don't know	49	5.6%
The usage of the term leukoplakia	White lesion	753	86.3%
	Red lesion	52	5.9%
	Oral ulcer	23	2.6%
	I don't know	44	5.0%
The most common site of Oral erythroplakia	Tongue	553	63.3%
	lip	41	4.7%
	Hard palate	78	8.9%
	Soft palate	189	11
	I don't know	21.6%	1.2%
Much more likely to show dysplasia or carcinoma	Leukoplakia	321	36.8%
	Erythroplakia	254	29.1%
	Lichen planus	158	18.1%
	oral mucous fbrosis	96	11.0%
	I don't know	43	4.9%
Does oral dysplasia go away?	Yes	467	53.3%
	No	366	41.9%
	I don't know	39	4.4%
How long is required to run a precise diagnostic procedure when there is no chance for oral lesion to be cured?	Less than 1 week	18	2.0%
	less than 2 weeks	132	15.1%
	more than 2 weeks	722	82.7%
Which type of lichen planus is more likely to be malignant?	plaque-like LP	141	16.1%
	Reticular LP	307	35.2%
	Erosive LP	422	48.3%
	I don't know	2	0.11%
Definitive diagnosis of oral lesions?	clinical examination	232	26.6%
	radiographic examination	243	27.8%
	histopathological examination	376	43.3%
	all three have the same value	21	2.4%
Uniformly flat, thin, uniformly white in color and shows	Homogenous leukoplakia	464	53.2%
	non-homogeneous leukoplakia	284	32.5%

shallow cracks of the surface keratin is?	oral mucous fibrosis	113	12.9%
	I don't know	11	1.2%
Which of the following consider the most Risk factors of malignant transformation	non-homogeneous leukoplakia	376	43.1%
	Size of lesion	168	19.2%
	Homogenous leukoplakia	192	22.0%
	Location of lesion	127	14.5%
	I don't know	9	1.0%
Symptoms such as burning sensation and/or intolerance to spicy food are the most common symptoms in the initial phase	Leukoplakia	107	12.2%
	Erythroplakia	116	13.3%
	Lichen planus	359	41.1%
	oral mucous fibrosis	282	32.3%
	I don't know	8	0.9%

**Table 2:** Level of knowledge of participants on oral cancer (N=872).

## Discussion

Dentists play an important role in the recognition of oral cancer and precancerous lesions even in asymptomatic patients through good practice and knowledge. Dentist must understand oral cancer and precancerous lesions as a public health problem. It is the responsibility of the dental schools to ensure that students have the relevant basic knowledge on prevention and early diagnosis of oral cancer and precancer. For this reason, this study aimed to determine the level of knowledge of senior dental students and general dental practitioners regarding oral precancerous lesions.

The results revealed that a large number of females (56%) and young students between 20 and 30 years of age (72%) had satisfactory knowledge about oral precancerous lesions. In a survey conducted in Iran the knowledge level among 200 dentists who answered 15 questions related to oral precancerous lesions ranged from 6.22% to 8.53% [9]. In a study done in U.S.A. by Yellowitz et al. [10], the knowledge level among 7,000 dentists who answered 14 questions related to oral cancer was 8.4% and according to a study in New York, the dentist's knowledge of 29 questions related to oral cancer was approximately 60% [11]. Van der Wall defined leukoplakia as "A white plaque of questionable risk having excluded (other) known diseases or disorders that carry no increased risk for cancer [12].

In his study, 64% of participants were aware of the most common form of oral precancerous lesion, 87% of the participants could differentiate that leukoplakia was a white lesion. In Jordan less than 25% of dental students knew about oral potentially malignant disorders (OPMDs) as risk factors for oral cancer with 45% reporting that leukoplakia was the best-known OPMD, followed by erythroplakia and oral submucous fibrosis [13].

Erythroplakia is a clinical term that refers to a red patch that cannot be defined clinically or pathologically. Oral erythroplakia occurs most frequently in older men and appears as a red macule or plaque. The floor of mouth, lateral tongue, retromolar pad, and soft palate are the most common sites of involvement [14]. In the present study, 63% of the general practitioners were aware that

tongue is the most common site of oral erythroplakia, followed by soft palate (24%).

Clinically, oral lichen planus OLP may be seen as any of the six subtypes including papular, reticular, plaque-like, atrophic, erosive, and bullous [15]. The most common type is the reticular pattern, while increased malignant transformation risk occurs more in erosive and atrophic forms in cases located at the lateral border of the tongue [16]. In the current study more than half (58%) knew that erosive lichen planus was potentially more likely to become malignant.

Regarding diagnosis of all oral lesions, 83% believed that biopsy was mandatory when the lesion persisted for more than 2 weeks and that histopathological examination was important for definitive diagnosis (79%). Tahere et al. [9] reported that 69% of respondents in their study knew the importance of histopathological diagnosis of suspicious oral lesions.

## Conclusion

Based on the results of this study, it can be concluded that participating students had a good knowledge of oral precancerous lesions and were apparently alert in their examinations to the possibility of detecting malignant lesions. This is encouraging and should be maintained and/or improved.

As professional oral health care providers, dentists should be aware of all presenting clinical aspects of precancerous lesions in order to optimize early diagnosis. Training courses and continuing education are essential strategy to increase and maintain knowledge, awareness and early detection of potentially malignant oral diseases and cancer.

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