

# Evaluation of the Knowledge of Dentistry Graduates about Malignant Oral Lesions and Potentially Malignant Oral Disorders

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Avaliação do Conhecimento de Graduandos em Odontologia sobre Lesões Orais Malignas e Desordens Orais Potencialmente Malignas

Evaluación del Conocimiento de los Estudiantes de Odontología sobre Lesiones Orales Malignas y Trastornos Orales Potencialmente Malignos

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## ABSTRACT

**Introduction:** Potentially malignant oral disorders and oral cancer in early stages, when diagnosed early, have good prognosis. However, oral cancer is a public health problem today due to imprecision of dental care which makes early detection difficult. **Objective:** To evaluate the knowledge of dental students about oral cancer lesions and potentially malignant oral disorders. **Method:** Data were collected through a virtual questionnaire sent to undergraduate dentistry students from some universities/colleges located in the state of Bahia, between June and October 2022. Subsequently, the data were statically analyzed and four concepts were established: A (excellent level of information); B (good level of information); C (unsatisfactory level of information) and D (very poor level of information). **Results:** The sample consisted of 161 female students (78.3%) mostly between 20 and 29 years old. There was no statistically significant difference between students with up to one year of approval in stomatology, pathology or related disciplines, an students with more than one year of approval ( $p = 0.126$ ). Leukoplakia was the disorder most related to cancer (77%) and only 23% of undergraduates obtained grade A, however, 96.9% of the respondents are interested in attending a continuing education course on the subject. **Conclusion:** The majority of the students evaluated had good level of information, nevertheless, the study participants had great doubts about the risk factors and the location of malignant lesions.

**Key words:** Mouth Neoplasms; Diagnosis; Evaluation Study; Teaching/statistics & numerical data.

## RESUMO

**Introdução:** As alterações orais potencialmente malignas e o câncer oral, quando diagnosticados precocemente, possuem um bom prognóstico. No entanto, a imprecisão nos atendimentos odontológicos dificulta a detecção precoce, fazendo com que o câncer bucal permaneça como um problema de saúde pública atualmente. **Objetivo:** Avaliar o conhecimento de graduandos em odontologia sobre lesões orais e alterações orais potencialmente malignas. **Método:** Os dados foram coletados por meio de um questionário virtual, enviado para graduandos de odontologia de algumas universidades/faculdades localizadas no Estado da Bahia, entre os meses de junho e outubro de 2022. Posteriormente, os dados foram analisados estatisticamente e quatro conceitos foram estabelecidos: A (ótimo nível de informação); B (bom nível de informação); C (nível insatisfatório de informação) e D (péssimo nível de informação). **Resultados:** A amostra foi composta por 161 estudantes, a maioria entre 20 e 29 anos e do sexo feminino (78,3%). Não houve uma diferença estatística significativa entre os estudantes com até um ano de aprovação em componentes curriculares de estomatologia, patologia ou correlatos, com discentes com mais de um ano de aprovação ( $p = 0,126$ ). A leucoplasia foi a alteração mais relacionada ao câncer (77%) para os entrevistados, e apenas 23% dos graduandos obtiveram o conceito A; no entanto, 96,9% dos entrevistados possuem interesse em assistir a um curso de educação contínua sobre o assunto. **Conclusão:** A maioria dos acadêmicos avaliados apresentou um bom nível de informação, entretanto, observou-se que os fatores de risco e a localização das lesões malignas geraram grandes dúvidas nos participantes deste estudo.

**Palavras-chave:** Neoplasias Bucais; Detecção Precoce de Câncer; Estudo de Avaliação; Ensino/ estatística & dados numéricos.

## RESUMEN

**Introducción:** Los trastornos orales potencialmente malignos y el cáncer oral en estadios tempranos, cuando se diagnostican a tiempo, tienen un buen pronóstico. Sin embargo, la imprecisión en los tratamientos dentales dificulta la detección previa, por lo que el cáncer bucal sigue siendo un problema de salud pública en la actualidad. **Objetivo:** Evaluar el conocimiento de los estudiantes de odontología sobre las lesiones orales cancerosas y los trastornos orales potencialmente malignos. **Método:** Los datos fueron recolectados a través de un cuestionario virtual, enviado a estudiantes de grado en odontología de algunas universidades/facultades ubicadas en el estado de Bahía, entre junio y octubre de 2022. Posteriormente, los datos fueron analizados estadísticamente y se establecieron cuatro conceptos: A (nivel excelente de información); B (buen nivel de información); C (nivel de información insatisfactorio) y D (nivel de información muy bajo). **Resultados:** La muestra estuvo conformada por 161 estudiantes, la mayoría entre 20 y 29 años y de sexo femenino (78,3%). No hubo diferencia estadísticamente significativa entre estudiantes con hasta un año de aprobación en estomatología, patología o disciplinas afines, con estudiantes con más de un año de aprobación ( $p=0,126$ ). La leucoplasia fue el trastorno que más se relacionó con el cáncer (77%) y solo el 23% de los estudiantes de pregrado obtuvo la calificación A, sin embargo, el 96,9% de los encuestados está interesado en asistir a un curso de educación continua sobre el tema. **Conclusión:** La mayoría de los estudiantes evaluados presentaron un buen nivel de información, sin embargo, se observó que los factores de riesgo y la localización de las lesiones malignas generaron grandes dudas entre los participantes de este estudio.

**Palabras clave:** Neoplasias de la Boca; Diagnóstico; Estudio de Evaluación; Enseñanza Español /estadística & datos numéricos.

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## INTRODUCTION

Buccal cancer affects the oral cavity involving lips, jugal mucosa, gingiva, tongue, floor of the mouth and hard palate, and 95% of the cases<sup>1</sup> are epidermoid carcinomas. For each year of the triennium 2023-2025, the National Cancer Institute (INCA) estimated 10,900 new cases for men and 4,200 for women with higher incidence and mortality rates in the Southeast and South Regions<sup>2</sup>.

Diagnosis and correct treatment are essential for oral potentially malignant disorders (OPMD), since they are the first clinical indication of a probable carcinogenic transmutation<sup>3</sup>. More invasive and mutilating interventions can be avoided to ensure prolonged survival had these precancerous alterations or initial staging cancers been diagnosed earlier by the dental-surgeon (DS)<sup>4</sup>.

A thorough physical examination performed by a skilled DS should evaluate the lymph nodes at the head and neck, in addition to oropharynx, leading to a more effective diagnosis of suspicious lesions<sup>5</sup>. It is possible to design strategies based in precise anamneses to provide guidance to the patients and influence the risk factors<sup>4</sup>.

The results of researches addressing students and professionals' knowledge are able to help the elaboration of pedagogic measures to improve diagnostic skills of OPMD and buccal cancer earlier and effectively still during academic formation and avoid their evolution to malignant lesions. In addition, these measures can minimize mortality and compromise the quality-of-life since buccal cancer affects suction, mastication, deglutition, phono articulation, breathing and facial changes with impacts on self-esteem<sup>6</sup>.

The objective of this study was to evaluate the knowledge of dentistry students on oral cancer and OPMD, with a 38-questions questionnaire created and validated by Dib<sup>7</sup>, applied through the virtual platform Research Electronic Data Capture (REDCap).

## METHOD

Descriptive, cross-sectional study conducted in the State of Bahia, in Brazil's Northeast Region with data collected from June to October 2022.

Dentistry students living in Bahia were selected to participate. The study instrument was applied at the following universities: "*Universidade Estadual de Feira de Santana (UEFS)*", "*Centro de Ensino Superior de Feira de Santana (UNEF)*", "*Centro Universitário de Excelência (UNEX)*", "*Escola Bahiana de Medicina e Saúde Pública (EBMSP)*" and "*Universidade Estadual do Sudoeste da Bahia (UESB)*".

The participants are dentistry students who attended all the classes of oral pathology, stomatology or similar and were approved by public or private colleges of the State of Bahia. The inclusion criteria were dentistry students of both sexes enrolled at the institutions mentioned above and the exclusion criteria were dentistry students who did not complete the fifth semester.

Through a virtual questionnaire, the participants responded to questions about diagnosis of oral potentially malignant disorders and oral cancer, consisting in 38 questions validated by Dib<sup>7</sup> and some adaptations to the present study.

The data were collected and managed by REDCap, a secure web-based safe software platform for building and managing online surveys and databases providing: (1) intuitive interface to capture validated data; (2) audit trails for tracking data manipulation and export procedures; (3) automated export procedures for seamless data download and common statistical packages and (4) interoperability and data integration with external sources hosted at UEFS<sup>8,9</sup>.

The questionnaire was divided in five sections. The first was the Informed Consent Form (ICF). The second consisted in questions 1, 2, 3, 4, 5 and 6 with sociodemographic questions as age, sex, tobacco use, public or private college. The third section, questions 10, 11, 12, 13, 14, 15 and 16 addressing the clinical characteristics of OPMD and oral cancer and conditions to progress to the disease. The fourth section consisted in questions 17 to 23 about the student's knowledge of factors related to the etiology of OPMD and oral cancer. The fifth and last section encompassed questions 7, 8, 9, 33, 34, 35, 36, 37 and 38 to define the participants' profile: interests, knowledge and conduct in relation to OPMD and oral cancer.

To validate the responses, the participant read the ICF received online and marked the option "I read the ICF and agree in participating voluntarily", otherwise, the participant marked the option "I read the ICF and do not agree in joining the study" and returned the questionnaire. Either option was construed as the signature of the ICF, and the participant read the questions only upon marking one of the options and returning the questionnaire. A copy of the study and of the ICF were exported to PDF automatically after the end of the study.

Once the data have been collected they were downloaded to a local device electronically.

Only the questions of the second and third sections were counted reaching 23 points and later, the data were analyzed and granted four grades according to the criteria: (A) 19-23 hits, excellent level of information; (B) 13-18

hits, good level of information; (C) 7-12 hits, regular level of information and (D) 0-6 hits, unsatisfactory level of information.

A Microsoft Excel spreadsheet (version 365, Microsoft, Redmond, Washington, USA) was created from REDCap<sup>10</sup> (Vanderbilt University); in addition, the results of the qualitative variables were expressed in percent and the quantitative variables as mean  $\pm$  standard deviation. For the bivariate analysis, the chi-square test was applied to test the relationship among categorical variables and test *t* to compare the difference of the means of two groups with level of significance of 5%. The software adopted for the statistical analyzes was SPSS v20<sup>11</sup> (IBM, New York, USA). Simple and contingency tables and histograms were utilized to represent the data.

The Institutional Review Board of “*Universidade Estadual de Feira de Santana*” – UEFS approved the study, report number 5274883 (CAAE (submission for ethical review): 54130121.9.0000.0053) in compliance with Directives 466/2012<sup>12</sup> and 510/2016<sup>13</sup> of the National Health Council

## RESULTS

Sociodemographics of the sample and clinical conduct are portrayed in Table 1. The sample consisted in 161 dentistry students with mean age of 24.4 $\pm$ 5.7 years, mostly females (78.3%), 50.3% from public universities and 49.7% from private universities and in the seventh semester (26.1%).

143 students (88.8%) performed exams at the first consultation to identify oral cancer in response to the questionnaire. Of the 18 (11.2%) who did not, 13 (72.2%) responded they were not encouraged, four (22.2%) did not know how to make the exam, one (5.6%) said it was time consuming and none of them responded it wasn't necessary. However, 76.4% (n=123) claimed their patients were not aware of oral cancer.

56.5% claimed their level of confidence was intermediate in response to the question about procedures of the diagnosis as anamneses and evaluation of soft tissues to identify oral cancer, even if 65.2% of the students were trained to perform the exam during their academic formation.

28.6% (n=46) attended complementary courses (continuing education) on oral cancer in the last six months, 18% (n=29) in the last two years, 14.9% (n=24) never attended any course and 20.5% (n=33) didn't know. Nevertheless, 96.9% (n=156) are interested in attending a course on oral cancer in the future and most of them believe the presence of a DS is important (98.8%) to prevent and perform early diagnosis of oral cancer.

The test applied grants 23 points as top score for the students who responded to all the questions correctly and zero for missed responses. In average, the group reached 16.25 points with standard deviation of 3.1 (Figure 1)

According to the number of hits, the majority (65.8%) was granted grade B within the range of 13-18 hits. 23% were granted grade A, with 19-23 hits and 11.2%, grade C within 7-12 hits (Table 2). It is noteworthy that 88.8% of the students have been granted grades A and B and none, grade D.

The results of the comparison of the means of the knowledge test scores of oral pathology, stomatology or related (5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> semesters) with up to year of approval and the scores obtained by students with more than one year of approval (8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> semesters) revealed that those with up to one year of approval presented mean of 16.6 $\pm$ 3.1 points, higher than the students with more than one year of approval with mean of 15.8 $\pm$ 3.1 points but the differences were not statistically significant ( $p = 0.126$ ).

No statistically significant variation was found among the variable grade and the variables sex ( $p = 0.492$ ), semester ( $p = 0.656$ ) and interest in continuing education ( $p = 0.159$ ). However, the results indicated association among the variable grade and variables age ( $p < 0.001$ ), level of confidence ( $p < 0.008$ ), continuing education ( $p < 0.031$ ), importance of DS ( $p < 0.023$ ) and type of institution ( $p < 0.001$ ). Table 3 presents the associations of grades and variables age, semester, knowledge level, level of confidence and importance of the DS.

The percent of hits and misses for each question was calculated to identify formation gaps. The students believed that ill-adjusted prosthetics, poor oral hygiene and emotional stress, 63.4%, 57.1% and 54.7% respectively, are risk factors for oral cancer as the results revealed (Table 4).

## DISCUSSION

Cancer is an “abnormal growth of atypical cells that the immune system is unable to control”<sup>14,15</sup>. Most of the malignant tumors of the oral cavity are classified as histologic subtype well, moderately and poor differentiated squamous cells carcinoma (SCC). Less incident, in addition to this type, are salivary glands, sarcomas and mucosal melanoma<sup>15</sup>.

The present study concluded that 76.4% of the students claimed that the patients do not have enough information about early detection, corroborating the study by Martins et al.<sup>16</sup> where more than one third of older individuals interviewed have not ever had access to information on how to prevent buccal cancer.

Table 1. Sociodemographics and clinical conduct for malignant lesions

Variable	Category	n	%
Age	20-29	141	87.6
	30-39	13	8.1
	40 or more	4	2.5
	Did not respond	3	1.9
Sex	Male	35	21.7
	Female	126	78.3
Semester	5	11	6.8
	6	29	18.0
	7	42	26.1
	8	33	20.5
	9	25	15.5
	10	21	13.0
Smoker	Yes	3	1.9
	No	154	95.7
	Ex-smoker	4	2.5
Institution	Public	81	50.3
	Private	80	49.7
Level of knowledge	Excellent	14	8.7
	Good	94	58.4
	Regular	48	29.8
	Poor	5	3.1
Seek dentist to detect oral cancer	Yes	143	88.8
	No	18	11.2
Reasons for not performing oral examination	Don't know how	4	22.2
	Time consuming	1	5.6
	I'm not encouraged to do	13	72.2
Patients well informed about oral cancer	Yes	27	16.8
	No	123	76.4
	Don't know	11	6.8
Level of confidence	High	9	5.6
	Intermediate	91	56.5
	Low	59	36.6
	Did not respond	2	1.2
Was trained	Yes	105	65.2
	No	51	31.7
	Don't know	5	3.1
Continuing education	6 months ago	46	28.6
	1 year ago	29	18.0
	2 years ago	29	18.0
	Never	24	14.9
	Don't remember	33	20.5
Interest in attending a course	Yes	156	96.9
	No	2	1.2
	Not sure	3	1.9

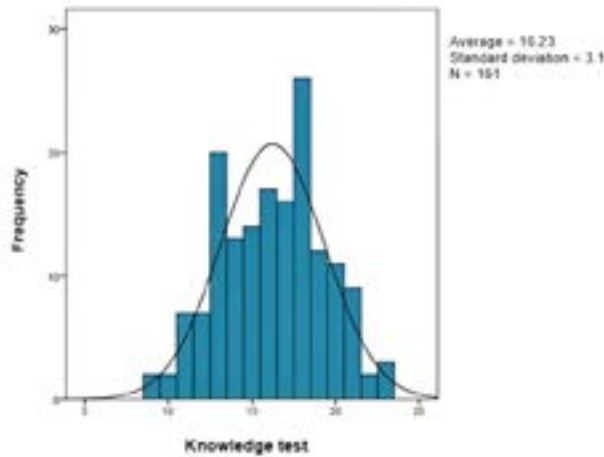


Figure 1. Distribution of scores of the knowledge test

Table 2. Qualification according to grades of the knowledge test

Grade	N	%
A	37	23.0
B	106	65.8
C	18	11.2

Moreira<sup>17</sup> has also found a high number of participants (63.63%) who claimed they had never received any type of information about how to prevent oral cancer. It is believed that poor knowledge about signs and symptoms, preventive actions and risk factors of oral cancer is one of the main reasons for late diagnosis<sup>18</sup>.

A search of the scientific literature revealed that 50% of the patients seek for treatment at later stages of the disease while only 15% are diagnosed at initial stages<sup>19</sup>. Great part of the study participants (78.8%) were aware of the epidemiology of the disease and at what stage it was diagnosed more frequently, but, conversely, 21.2% were unaware.

Early diagnosis is essential to prevent the development of SCC as the existing treatments are able to reduce substantially the progression of the disease whether diagnosed at earlier stages and offer better quality-of-life<sup>20</sup>. It was possible to conclude that in response to the study questionnaire, nearly 90% of dentistry students attempted to detect oral lesions and oral cancer at the consultation.

Some lesions can precede oral cancer as OPMD: actinic cheilitis, leukoplakia, discoid erythematous lupus, congenital dyskeratosis, erythroplasia, oral submucosal fibrosis, bullous epidermolysis and lichen planus<sup>21</sup>. These changes with transformative potential are initially benign residual modifications but morphologically altered with high risk of evolving to malignant neoplastic lesion<sup>22,23</sup>. According to Binda et al.<sup>24</sup>, nearly 80% of oral cancer

result from alterations.

The majority of the study participants responded that leukoplasia (77.0%) was the type of alteration responsible for the development of oral cancer and 7.5% associated candidiasis with oral cancer, consistent with the literature as the most frequent alteration with 85% of the cases<sup>25</sup>.

The DS should be able to identify pre-malignant lesions and acknowledge the importance of being diagnosed at early stages for better prognosis, promoting buccal and systemic health<sup>26</sup>, with follow-up and proper therapeutic measures for each clinical situation<sup>27</sup>.

The level of knowledge of younger teachers with little academic experience and skills to diagnose oral cancer was lower, reinforcing the necessity of offering training programs for better diagnosis of this pathology.

The study identified that 83.2% of the students affirmed that SCC was the most common type, but 16.7% were unaware which was the most common type or missed the response; ameloblastoma (8.1%) was the second option, a benign odontogenic tumor according to Oliveira et al.<sup>28</sup>, corroborated by Silva et al.<sup>29</sup> where 64% of the participants affirmed that SCC is the most common type and ameloblastoma is the second option (8.2%).

Freitas et al.<sup>30</sup> concluded that the most frequent anatomic site for oral cancer is the tongue, consistent with Albuquerque et al.<sup>31</sup>, who have also concluded that SCC at the tongue accounts for 25% to 50% of all the cases of oral cancer. However, a significant portion of the students (46.6%) missed the response.

These data negatively affect early diagnosis and prognosis of neoplastic lesions, because when compared with other oral cancers, spindle cell carcinoma at the tongue has great predisposition to metastasize to lymph nodes (incidence of 15-75%), depending on the extension of the primary lesion<sup>32</sup> but mostly on the borders and two thirds of the anterior part of the tongue<sup>33</sup>.

The study students believe the use of injectable drugs (40.4%), ill-adjusted prosthetics (63.4%) or emotional stress (40.4%) are the major risk factors for oral cancer as opposed to the literature findings which indicate that tobacco and alcohol use are the main SCC-related risk factors<sup>30,33-37</sup>.

Furthermore, sun exposure was selected as risk factor for SCC (95.7%) confirming literature findings that intense sun exposure is the principal risk factor for lower lip spindle cell carcinoma<sup>38</sup>.

Oral sex was selected by 60.2% of the students as risk factor, contrary to the findings of Dib et al.<sup>39</sup>. However, in the last decade, human papilloma virus (HPV) was the cause of malignant neoplasms of head and neck<sup>40</sup>. Mouth and oropharynx cancer (MOC) share common aspects regarding epidemiology, risk factors, diagnosis

**Table 3.** Association of independent variables with grades

Variables		Grades			Total	p value	
		A	B	C			
Age	20-29	N	34	95	12	141	0.001
		%	24.1%	67.4%	8.5%	100.0%	
	30-39	N	3	8	2	13	
		%	23.1%	61.5%	15.4%	100.0%	
	40 or more	N	0	1	3	4	
		%	0.0%	25.0%	75.0%	100.0%	
Semester	Up to one year of approval	N	21	53	8	82	0.656
		%	25.6%	64.6%	9.8%	100.0%	
	More than one year of approval	N	16	53	10	79	
		%	20.3%	67.1%	12.7%	100.0%	
Level of knowledge	Excellent	N	3	11	0	14	0.093
		%	21.4%	78.6%	0.0%	100.0%	
	Good	N	24	62	8	94	
		%	25.5%	66.0%	8.5%	100.0%	
	Regular	N	8	32	8	48	
		%	16.7%	66.7%	16.7%	100.0%	
	Poor	N	2	1	2	5	
		%	40.0%	20.0%	40.0%	100.0%	
Level of confidence	High	N	5	4	0	9	0.008
		%	55.6%	44.4%	0.0%	100.0%	
	Intermediate	N	23	59	9	91	
		%	25.3%	64.8%	9.9%	100%	
	Low	N	7	43	9	59	
		%	11.9%	72.9%	15.3%	100%	
	Don't know	N	2	0	0	2	
		%	100%	0%	0%	100.0%	
Importance of the dental-surgeon	High	N	36	106	17	159	0.023
		%	22.6%	66.7%	10.7%	100.0%	
	Average	N	1	0	0	1	
		%	100.0%	0.0%	0.0%	100.0%	
	Low	N	0	0	1	1	
		%	0.0%	0.0%	100.0%	100.0%	

and treatment and oropharynx tumors affect the base of the tongue, oropharynx and amigdalla<sup>41,42</sup>.

A significant portion of the students investigated – 51 (31.7%) – claimed they were poorly trained during their formation and 18 (11.2%) responded they did not perform exams of soft tissues to detect oral lesions. Of these, 13 affirmed they are not encouraged to do the exam.

The dentistry formation guidelines<sup>43</sup> recommend courses of stomatology and oral pathology, being possible to conclude that 105 (65.2%) students were trained correctly and 88.8% affirmed they examined soft tissues to identify malignant or potentially malignant lesions. These findings are similar to the study by Virgínio et al.<sup>5</sup> with 59 students of the ninth and tenth semesters, where



**Table 4.** Percent of hits and misses of cancer related aspects, risk factors and etiology

Variable	Hits		Misses	
	n	%	n	%
Most common type of oral cancer	134	83.2%	27	16.8%
Most frequent anatomic site affected by oral cancer	86	53.4%	75	46.6%
Most common aspect in patients with oral cancer at initial stage	119	73.9%	42	26.1%
Most common age range of oral cancer	141	87.6%	20	12.4%
Most common cervical lymph node metastases in oral cancer	102	63.4%	59	36.6%
Most common stage of oral cancer diagnosed according to Brazil epidemiologic data	126	78.3%	35	21.7%
Most common condition associated with oral cancer	124	77.0%	37	23.0%
Use of injectable drugs	96	59.6%	65	40.4%
History of other type of cancer	139	86.3%	22	13.7%
Alcohol use	146	90.7%	15	9.3%
Tobacco use	160	99.4%	1	0.6%
History of family cancer	157	97.5%	4	2.5%
Emotional stress	73	45.3%	88	54.7%
Low intake of fruits and vegetables	92	57.1%	69	42.9%
Oral sex	97	60.2%	64	39.8%
Mal-adjusted prosthetics	59	36.6%	102	63.4%
Tooth decay	96	59.6%	65	40.4%
Intake of spicy foods	85	52.8%	76	47.2%
Poor oral hygiene	69	42.9%	92	57.1%
Direct contact	141	87.6%	20	12.4%
Sun exposure	154	95.7%	7	4.3%
Hot food and drinks	118	73.3%	43	26.7%
Obesity	114	70.8%	47	29.2%

98% were trained during their formation and 76.27% attempted to find signs of changes at the first consultation.

More than half of the study participants (65.8%) were graded B (good level of information), similar to a study developed by Dib<sup>7</sup> with 52 students of the eighth semester who were graded A (excellent level of information) or B. The present study with students approved in oral pathology or alike ratify these data with small statistic difference among semesters.

The students investigated by Silva et al.<sup>29</sup> fared better than post-graduated DS because the students are stimulated to see the patient in its totality and not only as dental structures needing specific treatments and performing thorough examinations in their clinical practice<sup>44</sup>.

With 98.8% of the participants affirming that the DS is important for prevention and diagnosis of oral cancer, only 28.6% attended specialization courses on oral cancer in the last six months. Only 37 (23%) participants were

graded A, but 96.9% are interested in attending other courses on oral cancer, which can change the scenario of uncertainties and poor knowledge about OPMD as the present study confirmed.

Knowledge of technology for online studies, little possibility of checking the veracity of the responses and incomplete responses are some of the study limitations, as, for instance, 64 study questionnaires were incomplete and discarded, negatively affecting data collection.

## CONCLUSION

Most of the students reached grade B (65.8%), a good level of information about OPMD and oral cancer. However, part of the group failed to respond correctly which risk factors and most affected sites by these lesions were. In addition, poor reliability of dental examination impacts the prognosis and the patients consulted by the students are barely aware of what oral cancer is, a

clear obstacle for self-exam and early diagnosis of these manifestations.

Additionally, the study may help to structure population-targeted awareness public policies to disclose the main factors associated with the origin and progression of oral cancer related lesions.

### CONTRIBUTIONS

All the authors contributed substantially to the study design, acquisition, analysis and/or interpretation of the data, wording and/or critical review. They approved the final version to be published.

### DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

### FUNDING SOURCES

None.

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