

# Knowledge on oral cancer among dentistry students at Federal University of Maranhão

*Conhecimento sobre o câncer oral entre estudantes de odontologia da Universidade Federal do Maranhão*

Samira Vasconcelos GOMES<sup>a</sup>, Thalita Santana CONCEIÇÃO<sup>a</sup>, Pierre Adriano Moreno NEVES<sup>a</sup>,  
Fernanda Ferreira LOPES<sup>a</sup>, Maria Carmen Fontoura Nogueira da CRUZ<sup>a\*</sup>

<sup>a</sup>UFMA – Universidade Federal do Maranhão, São Luís, MA, Brasil

## Resumo

**Introdução:** O câncer oral é uma doença multifatorial com alta incidência no mundo, que vem sendo considerado problema de saúde pública, sendo a prevenção e o diagnóstico precoce as melhores formas de reverter essa situação. **Objetivo:** Avaliar o nível de conhecimento sobre o câncer oral em uma população de estudantes de odontologia. **Método:** Um questionário sobre o câncer de boca foi aplicado a 150 alunos de seis turmas, divididos em três grupos de acordo com o semestre letivo. As variáveis estudadas foram analisadas estatisticamente aplicando-se o teste do Qui-quadrado com intervalo de confiança de 95%, e nível de significância de 5%. **Resultado:** Oitenta e oito alunos (60,61%) consideraram seu nível de conhecimento sobre câncer oral bom ou regular, enquanto 37,93% avaliaram seu conhecimento como insuficiente. O carcinoma espinocelular foi considerado o câncer mais comum por apenas 38,25% do total de estudantes, sendo o percentual maior de acerto para os grupos 2 (55,56%) e 3 (67,39%). O nível de conhecimento sobre os fatores de risco aumentou ao longo dos semestres, entretanto, 77,85% consideraram baixo o seu nível de confiança para realizar procedimentos de diagnóstico. **Conclusão:** O nível de conhecimento sobre câncer oral foi considerado bom ou regular entre os estudantes de odontologia entrevistados; apesar de demonstrarem um bom nível de conhecimento em relação aos fatores de risco e a questões específicas da doença, ficou clara a necessidade de implementar medidas educativas continuadas ao longo do curso de forma a consolidar o ensino sobre essa patologia.

**Descritores:** Neoplasias bucais; conhecimentos, atitudes e prática em saúde; estudantes de odontologia.

## Abstract

**Introduction:** Oral cancer is a multifactorial disease of high incidence worldwide and considered a public health problem, in which prevention and early diagnosis are the best ways to reverse this situation. **Purpose:** To evaluate the level of knowledge on oral cancer in a population of dentistry students. **Method:** A questionnaire on oral cancer was applied to 150 students from six classes, divided into three groups according to their semesters. The variables studied were statistically analyzed by applying the chi-square test with confidence interval of 95% and significance level of 5%. **Result:** Eighty-eight students (60.61%) considered their level of knowledge on oral cancer good and regular, while 37.93% rated their knowledge as insufficient. Squamous cell carcinoma was listed as the most common cancer by only 38.25% of students, with the highest percentage of correct answers being observed for groups 2 (55.56%) and 3 (67.39%). The level of knowledge on the risk factors increased over the semesters; however, 77.85% considered their level of confidence to perform diagnostic procedures low. **Conclusion:** The level of knowledge on oral cancer was considered good or regular among dentistry students, and although they showed good level of knowledge on the risk factors and to specific issues of the disease, there is a clear need to implement continued educational measures throughout the course to consolidate learning on this disease.

**Descriptors:** Mouth neoplasms; health knowledge, attitudes, practice; dentistry students.

## INTRODUCTION

Oral cancer is one of the most common types of cancer, with cancer being the second leading cause of death worldwide after cardiovascular diseases<sup>1</sup>. Oral squamous cell carcinoma (OSCC), also called spinocellular carcinoma, accounts for approximately 90% of mouth malignant neoplasm<sup>2</sup>. Both alcohol consumption

and use of tobacco are known to be risk factors for this disease, and its incidence is also associated with economic and social classes<sup>1</sup>.

In Brazil, excluding non-melanoma skin cancer, oral squamous cell carcinoma affects a considerable part of the

population, especially underprivileged classes, ranking 5<sup>th</sup> place among the most common malignancies in men and 12<sup>th</sup> among women, reaching a high rate of mortality<sup>3</sup>.

An aspect that attracts attention is that the number of patients arriving at Oral Diagnosis services with advanced disease is very alarming<sup>4</sup>, and since oral cancer is generally asymptomatic at early stages, patients fail in the identification of the problem and do not seek professional help until the lesion has spread<sup>1</sup>. Thus, treatment becomes difficult, sometimes leading to patient disfigurement, psychological trauma and dysfunction, affecting prognosis and quality of life<sup>5,6</sup>. The causes of late diagnosis include unpreparedness of medical and dental professionals without specific training to diagnose cancer at early stages and misinformation of the population about health care<sup>7</sup>.

The knowledge of Dental academics on oral cancer should be enhanced with the aim of helping new professionals to be better prepared to act promptly in the prevention phases and early diagnosis of this problem<sup>8</sup>. Such knowledge was shown to be inconsistent regarding the procedures for oral cancer diagnosis, although this knowledge was considered satisfactory in the study by Pinheiro et al.<sup>9</sup>.

Based on scientific evidence, it was observed that the educational process contributes to reducing the morbidity and mortality statistics of oral cancer<sup>8</sup>. Moreover, educated and well-trained dentists are fundamental in basic prevention and early detection of this disease<sup>9</sup>. Thus, it becomes necessary to evaluate the knowledge of dentistry students on oral cancer.

## METHOD

In order to meet the fundamental scientific and ethical requirements of Resolution 196/96 (Guidelines for Research Involving Human Beings) of the National Board of Health, this study was submitted to the Ethics Research Committee of the Federal University of Maranhão for consideration and it was approved by protocol number 340 27. The research was initiated only after the volunteers signed the informed consent form.

This is a cross-sectional study to assess the level of knowledge of dentistry students from the Federal University of Maranhão (UFMA) on oral cancer, being divided into 3 groups: Group 1 (1<sup>st</sup> and 2<sup>nd</sup> semesters), Group 2 (5<sup>th</sup> and 6<sup>th</sup> semesters), and Group 3 (9<sup>th</sup> and 10<sup>th</sup> semesters). These semesters were chosen in order to observe how the knowledge on oral cancer was perpetuated throughout the course, considering that disciplines Oral Pathology and Oral Diagnosis are taught in the 4<sup>th</sup> semester.

All students of the chosen semesters regularly enrolled in the course and found at the time of data collection were included, and those who reported some information that could interfere with questionnaire responses, those under other academic training in health areas or who have already answered a similar questionnaire on the same topic were excluded, totaling 150 students in the sample.

A questionnaire developed by Dib<sup>10</sup> with modifications was applied to the three groups of students aiming to assess their level of knowledge regarding: (a) *factors related to smoking and*

*attitudes towards cancer diagnosis;*(b) *knowledge on oral cancer;* (c) *knowledge on risk factors for developing oral cancer* and (d) *level of interest related to knowledge on oral cancer*. A calibrated researcher remained available for any clarifications.

All data were statistically analyzed using the Epi Info™ software version 7 (CDC, Atlanta, USA). A correlation frequency test was used, applying the chi-square test with confidence interval of 95% and significance level of 5%. The results were descriptively presented using proportions, measures of central tendency and dispersion.

## RESULT

Overall, 150 students were evaluated, 58 from Group 1, 45 from Group 2 and 47 from Group 3. However, only 114 students answered variable "gender", totaling 46 male and 68 female individuals, accounting for 40.35% and 59.64%, respectively, with mean age of 21.72 years.

The other results are observed in the Tables 1-4 referring to the distribution of frequencies among variables and groups. In these tables, values corresponding to statistical significance differences between groups are shown by letters a, b, c.

## DISCUSSION

Oral cancer is a chronic multifactorial disease resulting from the interaction of etiologic factors that affect cell proliferation control and growth processes. This process is coupled to changes in the interactions between cells and their environment<sup>11</sup>. The incidence of oral cancer in Brazil is considered one of the highest in the world, and 50% of patients die before five years after initial diagnosis<sup>12,13</sup>. It mainly affects male subjects and patients aged over 40 years, presenting an aggressive behavior<sup>12,14</sup>.

Its multifactorial etiology may result from the interaction between endogenous factors (e.g. general malnutrition and genetic predisposition), and exogenous factors (e.g. deficiency anemia), oral cavity infections (e.g. Human Papilloma Virus [HPV]), environmental factors such as sun exposure and behavioral factors, for example smoking and alcohol, whose association may result in neoplastic initiation and promotion<sup>15,16</sup>.

In all three groups examined, the majority of participants were female, accounting for 59.64%, with mean age of 21.72 years. The results found here are similar to those reported by Lima et al.<sup>11</sup>, Martins et al.<sup>12</sup> and Dib et al.<sup>17</sup>.

Most individuals included in the sample were non-smokers, which is an important feature when considering preventive attitudes on oral cancer, because it is much easier for a non-smoker professional to establish guidance measures to combat smoking among patients<sup>12,17</sup>.

With regard to self-assess of the knowledge level, statistically significant difference was observed ( $p < 0.01$ ), and students of groups 2 and 3 have higher confidence level in relation to students of the first year. This probably is due to the fact that both groups had already studied disciplines Oral Pathology

**Table 1.** Distribution of the number and percentage of responses according to groups and to factors related to smoking and attitudes towards cancer diagnosis

VARIABLE	CATEGORY	GROUP1 (n=58)		GROUP2 (n=45)		GROUP3 (n=47)		TOTAL		p
		n	%	n	%	n	%	n	%	
Smoking	Yes	1	1.79	1	2.33	0	0	2	1.37	0.68
	No	55	98.21	41	95.35	46	97.87	142	97.26	
	Stopped	0	0	1	2.33	1	2.13	2	1.37	
Self-evaluation knowledge level	Great	0	0	2	4.65	0	0	2	1.38	<0.01
	Good	1	1.75	11	25.58	14	31.11	26	17.93	
	Regular	17	29.82	24	55.81	21	46.67	62	42.76	
	Insufficient	39 <sup>a</sup>	68.42	6 <sup>b</sup>	13.95	10 <sup>b,c</sup>	22.22	55	37.93	
Referral of patients	Self-assessment	0	0	0	0	1	2.13	1	0.69	<0.01
	Dentist	28 <sup>a</sup>	50.91	24 <sup>a</sup>	55.81	37 <sup>b</sup>	78.72	89	61.38	
	Physician	13	23.64	12	27.91	1	2.13	26	17.93	
	Dental Faculty	0	0	1	2.33	2	4.26	3	2.07	
	Hospital	14	25.45	6	13.95	5	10.64	25	17.24	
	Awaits	0	0	0	0	1	2.13	1	0.69	

Different letters (a, b and c) show statistically significant differences between groups ( $p < 0.05$ ). [[Q1: Q1]]

**Table 2.** Distribution of the number and percentage of correct and incorrect answers regarding specific questions related to knowledge on oral cancer, by groups

VARIABLE	CATEGORY	GROUP1 (n=58)		GROUP2 (n=45)		GROUP3 (n=47)		TOTAL		p
		n	%	n	%	n	%	n	%	
Most common cancer types	Correct (OSCC)	1 <sup>a</sup>	1.72	25 <sup>b</sup>	55.56	31 <sup>b,c</sup>	67.39	57	38.25	<0.01
	Incorrect	6	10.34	9	20	7	15.22	22	14.76	
	Do not know	51	87.93	11	24.44	8	17.39	70	46.98	
Most affected site	Correct (Tongue)	0 <sup>a</sup>	0	4 <sup>b</sup>	8.89	16 <sup>c</sup>	34.04	20	13.33	<0.01
	Incorrect	17	29.31	28	62.22	20	42.55	65	43.33	
	Do not know	41	70.69	13	28.89	11	23.40	65	43.33	
Most common aspect	Correct (Ulcer)	8 <sup>a</sup>	13.79	29 <sup>b</sup>	64.44	27 <sup>b,c</sup>	57.45	64	42.66	<0.01
	Incorrect	7	12.07	12	26.67	10	21.28	29	19.33	
	Do not know	43	74.14	4	8.89	10	21.28	57	38	
Age group	Correct (> 40)	10 <sup>a</sup>	17.54	36 <sup>b</sup>	80	32 <sup>b,c</sup>	68.09	78	52.34	<0.01
	Incorrect	4	7.02	4	8.89	3	6.38	11	7.38	
	Do not know	43	75.44	5	11.11	12	25.53	60	40.27	
Aspect of cervical metastasis	Correct (Stiff, no pain)	3 <sup>a</sup>	5.26	17 <sup>b</sup>	37.78	16 <sup>b,c</sup>	34.78	36	24.32	<0.01
	Incorrect	5	8.77	12	26.67	11	23.91	28	18.92	
	Do not know	49	85.96	16	35.56	19	41.30	84	56.76	
Stage of diagnosis in Brazil	Correct (Advanced)	16 <sup>a</sup>	28.07	30 <sup>b</sup>	66.67	28 <sup>b,c</sup>	60.87	74	50	<0.01
	Incorrect	4	7.02	5	11.11	8	17.39	17	11.49	
	Do not know	37	64.91	10	22.22	10	21.74	57	38.51	
Precursor lesion	Correct (Leukoplasia)	1 <sup>a</sup>	1.79	26 <sup>b</sup>	57.78	31 <sup>b,c</sup>	67.39	58	39.45	<0.01
	Incorrect	6	10.71	12	26.67	9	19.57	27	18.36	
	Do not know	49	87.50	7	15.56	6	13.04	62	42.18	

Different letters (a, b and c) show statistically significant differences between groups ( $p < 0.05$ ). [[Q2: Q2]]

and Oral Diagnosis, in which the subject is better discussed, while students of the 1<sup>st</sup> and 2<sup>nd</sup> semesters, which so far have not received concrete theoretical information on this subject, were more insecure<sup>12,14</sup>.

Regarding the place of referral of possible cases, although showing statistically significant difference, in general, students would refer patients to specialized dentists, which enhances the performance of this professional. In group three, only one student

**Table 3.** Distribution of the number and percentage of correct and incorrect answers, according to specific questions concerning knowledge on the risk factors for developing oral cancer, by groups

VARIABLE	CATEGORY	GROUP 1 (n=58)		GROUP 2 (n= 45)		GROUP 3 (n=47)		TOTAL		P
		n	%	n	%	n	%	n	%	
Injectable drugs	Yes	34	59.65	16	35.56	14	29.79	64	42.95	<0.01
	(No)	23 <sup>a</sup>	40.35	29 <sup>b</sup>	64.44	33 <sup>b,c</sup>	70.21	85	57.05	
Previous cancer	Yes	36 <sup>a</sup>	62.07	40 <sup>b</sup>	88.89	39 <sup>b,c</sup>	82.98	115	77.18	<0.01
	(Yes)	22	37.93	5	11.11	8	17.02	35	22.82	
Alcohol	Yes	37 <sup>a</sup>	63.79	38 <sup>b</sup>	86.36	46 <sup>b,c</sup>	97.87	121	81.21	<0.01
	(Yes)	21	36.21	6	13.64	1	2.13	28	18.79	
Tobacco	Yes	57	98.28	45	100	47	100	149	99.33	0.45
	(Yes)	1	1.72	0	0	0	0	1	0.67	
Family history of cancer	Yes	55	96.43	44	97.78	43	91.49	142	95.3	0.31
	(Yes)	2	3.51	1	2.22	4	8.51	7	4.7	
Emotional stress	Yes	33	56.9	31	68.89	28	59.57	92	61.33	0.44
	(No)	25	43	14	31.11	19	40.43	58	38.66	
Low consumption of fruits and vegetables	Yes	27	46.55	18	40	23	48.94	68	45.33	0.67
	(No)	31	53.45	27	60	24	51.06	82	54.67	
Oral sex	Yes	29	50	29	64.44	24	51.06	82	54.67	0.28
	(Yes)	29	50	16	35.56	23	48.94	68	45.33	
Ill-fitting dentures	Yes	38	65.52	39	86.67	46	97.87	123	82	<0.01
	(No)	20 <sup>a</sup>	34.48	6 <sup>b</sup>	13.33	1 <sup>b,c</sup>	2.13	27	18	
Teeth in poor condition	Yes	34	59.65	24	53.33	27	57.45	85	57.05	0.81
	(No)	23	40.35	21	46.67	20	42.55	64	42.95	
Consumption of spicy foods	Yes	24	41.38	19	42.22	21	44.68	64	42.67	0.94
	(No)	34	58.62	26	57.78	26	55.32	86	57.33	
Poor oral hygiene	Yes	47	81.03	37	82.22	36	76.6	120	80	0.77
	(No)	11	18.97	8	17.78	11	23.4	30	20	
Direct contagion	Yes	18	31.03	7	15.56	5	10.64	30	20	0.02
	(No)	40 <sup>a</sup>	68.97	38 <sup>a,b</sup>	84.44	42 <sup>b</sup>	89.36	120	80	
Sun exposure	Yes	18 <sup>a</sup>	31.03	35 <sup>b</sup>	77.78	41 <sup>b,c</sup>	87.23	94	62.67	<0.01
	(Yes)	40	68.97	10	22.22	6	12.77	56	37.33	
Hot drinks and food	Yes	11	19.3	12	26.67	24	51.06	47	31.54	<0.01
	(No)	46 <sup>a</sup>	80.7	33 <sup>a</sup>	73.33	23 <sup>b</sup>	48.94	102	68.46	
Obesity	Yes	17	29.82	8	17.78	12	26.09	37	25	0.37
	(No)	40	70.18	37	82.22	34	73.91	111	75	

Different letters (a, b and c) show statistically significant differences between groups (p <0.05). [[Q3: Q3]]

**Table 4.** Distribution of the number and percentage of responses according to questions on the level of interest related to knowledge on oral cancer, by groups

VARIABLE	CATEGORY	GROUP1 (n=58)		GROUP2 (n=45)		GROUP3 (n=47)		TOTAL		p
		n	%	n	%	n	%	n	%	
Patients are informed about oral cancer	Yes	2	3.45	0	0	0	0	2	1.33	0.84
	No	53	91.38	45	100	47	100	145	96.67	
	Do not know	3	5.17	0	0	0	0	3	2	
Level of confidence to perform diagnosis procedures	High	1	1.71	0	0	1	2.17	2	1.34	<0.01
	Low	33 <sup>a</sup>	56.90	42 <sup>b</sup>	93.33	41 <sup>bc</sup>	89.13	116	77.85	
	Do not know	24	41.38	3	6.67	4	8.70	31	20.81	
University informed about oral cancer	Yes	6	10.34	5	11.11	5	10.64	16	10.67	<0.01
	No	10 <sup>a</sup>	17.24	31 <sup>b</sup>	68.89	40 <sup>bc</sup>	85.11	81	54	
	Do not know	42	72.41	9	20	2	4.26	53	35.33	
Last time a course about oral cancer was attended	Last year	0	0	7	15.56	5	10.64	12	8	<0.01
	During the last 2 to 5 years	0	0	2	4.44	18	38.30	20	13.33	
	Never	54 <sup>a</sup>	93.10	22 <sup>b</sup>	48.89	10 <sup>c</sup>	21.28	86	57.33	
	Do not remember	4	6.90	14	31.11	14	29.79	32	21.33	
Interest in attending a course on oral cancer	Yes	54	93.10	43	95.56	42	89.36	139	92.67	0.66
	No	1	1.72	0	0	2	4.26	3	2	
	Not sure	3	5.17	2	4.44	3	6.38	8	5.33	
Importance of dentist in prevention of oral cancer	High	56	96.55	45	100	47	100	148	98.67	0.52
	Average	1	1.72	0	0	0	0	1	0.67	
	Do not know	1	1.72	0	0	0	0	1	0.67	

Different letters (a, b and c) show statistically significant differences between groups ( $p < 0.05$ ). [[Q4: Q4]]

responded that he/she would personally perform the examination and other student stated that they would wait until the patient asked for guidance. These findings corroborate those reported by Dib<sup>10</sup>, Martins et al.<sup>12</sup> and Dib et al.<sup>17</sup>.

Regarding the most common mouth cancer type, location, clinical features, age group, stage of diagnosis and precursor lesions, there was also a statistically significant difference among groups, with lower rate of correct responses in group 1. This item is very important, as this information is crucial for the early identification of lesions. However, it was observed that the rate of correct answers increases as students receive theoretical and practical information throughout the course<sup>12</sup>. The fact that students from groups 2 and 3 did not yet know, in its entirety, that the most common oral cancer is OSCC and how it manifests clinically, attracts attention. In addition, there were a small number of students who considered the tongue as the site most affected by the disease, a result that differs from most studies<sup>14,17-21</sup>. This demonstrates that more effective measures should be taken throughout the course, favoring student learning and giving them confidence.

A review of Hospital Cancer Registry (HCR) from Cancer Hospital/INCA reveals that 60% of individuals come to services

with advanced disease, when the chances for cure are greatly reduced and treatment is expensive<sup>12</sup>. These data may reflect the lack of professional knowledge in early detection of oral cancer as well as limited access to health units and services provided to the Brazilian population, especially in the dental field<sup>12</sup>.

Although statistically significant differences were found, it was found that students of all levels show a high level of knowledge on the effect of tobacco and alcohol as etiological factors in oral carcinoma<sup>9,10,12,14,17-23</sup>. Alcohol abuse increases ten times the possibility of disease onset, and when combined with the habit of smoking, the risk is 142 times higher, compared to those not exposed to these factors<sup>21</sup>. Both carcinogens, isolated or not, are serious risk factors for the emergence of oral malignancies<sup>16</sup>.

Emotional stress, ill-fitting dentures and poor oral hygiene were considered risk factors mistakenly by participants. These data are similar to those reported by Pinheiro et al.<sup>9</sup>, Martins et al.<sup>12</sup>, Dib et al.<sup>17</sup>, Lamin et al.<sup>19</sup> and Clovis et al.<sup>23</sup>. Although factors such as ill-fitting dentures, which cause chronic irritation, and poor oral hygiene lack scientific confirmation, adequate care in the identification of these factors helps improving the patient's oral health.



Most participants correctly did not consider injectable drugs as a risk factor. The data observed in our research is in line with other studies<sup>9,12,17,19</sup>, which shows that most dental students are aware that this type of drugs do not predispose patients to oral cancer.

The results show that the low consumption of fruits and vegetables is not considered a risk factor, which is consistent with the study by Dib<sup>10</sup>, Martins et al.<sup>12</sup> and Dib et al.<sup>17</sup>. However, Pinheiro et al.<sup>9</sup> consider that this variable predisposes the appearance of this neoplasm as it can reduce immunity, trigger excessive keratinization process and increase free radicals, contributing to the activation of oncogenes.

Oral sex was considered a risk factor by most students, and group 2 had the highest average of correct answers in this item, similar to results of Ramos et al.<sup>8</sup>. However, there are studies in literature that did not observe this relationship<sup>10,12,17</sup>. According to INCA<sup>3</sup>, the incidence of oral cavity cancer related to HPV infection, such as tonsil, tongue and oropharynx, increases among young adults in both sexes. Part of this increase can be attributed to changes in sexual behavior.

Regarding other factors investigated, it was found that the level of knowledge has increased significantly over the years that students spend in the University, as also observed by Dib<sup>10</sup> and Martins et al.<sup>12</sup>. However, in variable hot beverage and food, the opposite was observed. Group 1 had higher mean score than the other groups to the item where more than half of group 3 consider as a risk factor.

Almost the entire sample did not consider that patients are sufficiently informed about oral cancer, which was also observed in the studies of Dib<sup>10</sup>, Martins et al.<sup>12</sup> and Dib et al.<sup>17</sup>. Despite the high prevalence of the disease, few prevention campaigns have been developed in Brazil as a national action aimed at educating the population, addressing in a broad and unrestricted form their causes, prevention and early diagnosis<sup>12</sup>.

When asked about the level of confidence to perform diagnostic procedures, 77.85% of students reported not feeling confident. Even in groups 2 and 3, the majority reported having low confidence level, 93.33% and 89.13% respectively<sup>12,17</sup>. For the study sample, these results are justified because the University did not adequately inform about oral cancer<sup>9,11</sup>.

Almost all University students declared to be interested in attending courses on oral cancer and believe that the dentist plays an important role in preventing the disease<sup>9,12,17</sup>. Undoubtedly, the ultimate goal as an educator is that in the near future, 100% of students are aware of the problem and satisfied with the performance of the University on this subject<sup>17</sup>.

Although the level of knowledge of students has increased over the semesters for most of the variables analyzed in this study, there is need for the implementation of continued educational measures throughout the course, such as the creation of a program to prevent oral cancer, to promote the involvement of all students and thus better standardize and disseminate information about this disease.

Therefore, promoting the learning of students on this topic and giving them confidence will enable them to perform procedures for the early diagnosis of neoplasms. Consequently, students will be able to guide patients on risk factors and early signs and symptoms of oral cancer, helping them to make choices for healthier lifestyles.

## CONCLUSION

The results of this research showed that: the level of knowledge on oral cancer was considered good or regular among surveyed dentistry students; although students demonstrate a good level of knowledge in relation to risk factors and in relation to specific issues of the disease, there is need for the implementation of continued educational measures throughout the course in order to consolidate the teaching of oral cancer.

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## CONFLICT OF INTEREST

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The authors declare no conflicts of interest.

## \*CORRESPONDING AUTHOR

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Maria Carmen Fontoura Nogueira da Cruz, Departamento de Odontologia II, Av. dos Portugueses, 1966, Bacanga, 65080-805 São Luís - MA, Brasil, e-mail: ma.carmen@uol.com.br

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