EVALUATION OF KNOWLEDGE OF MEDICAL AND DENTISTRY COURSE STUDENTS ABOUT ORAL CARCINOMA

AVALIAÇÃO DO CONHECIMENTO DOS ESTUDANTES DOS CURSOS DE MEDICINA E ODONTOLOGIA SOBRE CARCINOMA BUCAL

Sabrina Chevitarese [1]
Jessica Almeida da Silva [2]
Victor Talarico Leal Vieira [3]
Leila Chevitarese [3]
Daniel de Souza Fernandes [3]

ABSTRACT

Purpose: The aim of the present study was to verify the knowledge of health professionals being educated in the Medical and Dentistry courses about oral cancer, specifically Oral Squamous Cell Carcinoma (OSCC), in view of this being the most prevalent type of cancer of the head and neck. Methods: A questionnaire contained objective questions was applied with the aim of evaluating knowledge about some aspects of OSCC. Students in the clinical cycle of the Course in Medicine and Course in Dentistry participated. Both groups were in the 5th and 8th semesters at the Campuses 1 (C1) and 2 (C2). A total of 454 questionnaires were answered and evaluated, distributed as follows: 301 and 153 from the C1 and C2, respectively. Results: The results show that the students from Medicine of the C1 and C2 were observed to be "Regular" (40.67%) and "Insufficient" (44.58%), respectively. For the course in Dentistry of C1 and C2, the prevalent response was "Good" for courses, 52.67% and 46.38%, respectively. Conclusion: The results revealed an inadequate level of knowledge of OSCC. Despite the knowledge is transmitted, changes are necessary to allow the students more time in clinical practice to reptai knowledge.
Key words: Human Resource, Oral Cancer, Squamous Cell Carcinoma; Dentistry; Medicine.

RESUMO

Objetivo: O objetivo do presente estudo foi verificar o conhecimento dos profissionais de saúde formados nos cursos de Medicina e Odontologia sobre câncer bucal, especificamente o Carcinoma de Células Escamosas Bucais (CCEB), tendo em vista que este é o tipo de câncer de cabeça e pescoço mais prevalente. Metodologia: Um questionário contendo perguntas objetivas foi aplicado com o objetivo de avaliar o conhecimento sobre alguns aspectos do CCEB. Participaram os alunos do ciclo clínico dos cursos de Medicina e Odontologia. Ambos os grupos estavam no 5º e 8º semestres nos campi 1 (C1) e 2 (C2). Foram respondidos e avaliados 454 questionários, distribuídos da seguinte forma: 301 e 153 do C1 e C2, respectivamente. Resultados: Os resultados mostram que os estudantes de Medicina dos C1 e C2 foram observados como "Regular" (40,67%) e "Insuficiente" (44,58%), respectivamente. Para o curso de Odontologia dos C1 e C2, a resposta predominante foi "boa" para os cursos, 52,67% e 46,38%, respectivamente. Conclusão: Os resultados revelaram um nível inadequado de conhecimento da CCEB. Apesar do conhecimento ser transmitido, são necessárias mudanças para permitir que os alunos tenham mais tempo na prática clínica para reter conhecimento.
Palavras-Chave: Recursos Humanos, Câncer Bucal, Carcinoma de Células Escamosas; Odontologia; Medicina

1- Universidade Federal Fluminense
2- Hospital Federal of Bonsucesso
3- Unigranrio

INTRODUCTION

The aim of this study was to evaluate the students teaching, expressed by the quality of their knowledge in the courses of Medicine and Dentistry at University in Rio de Janeiro, with regard to making early diagnosis of oral squamous cell carcinoma (OSCC). The purpose of this was to help in the educational process and to detect possible defects in the education of imminent physicians and dental surgeons, who should be capable of retaining and applying the information gained about the subject.

Oral cancer is ranked among the 10 most frequent types of malignant tumors in Brazil[1]. The OSCC is the most common type being the one that corresponded to the range of 90 to 95% of oral cancer[2]. In December 2005, the Ministry of Health (MH) launched the National Policy of Oncological Care - PNAO ("Política Nacional de Atenção Oncológica" - PNAO), by means of Administrative Ruling 2.439, recognizing cancer as a public health problem. This disease is responsible for approximately 16% of all the deaths in the world and represents 16,2%[2] of the mortality in Brazil. According to the Ministry of Health, to enable due control of cancer, this would require the direct and indirect involvement of the Federal Government, State and Municipal secretaries of health, health services, universities, research centers, non-governmental organizations, and society in general to form an Oncological Care Network (PNAO)[3,4].

In 2017 in Brazil the oral cancer was considered the fourth most frequent neoplasm in men in the Southeastern Region, according to INCA. It is ranked the twelfth most frequent neoplasm in women in the Northeastern Region. For each year of the biennium 2018-2019, in Brazil, there will be 11200 new cases of cancer of the oral cavity in men and 3500 in women, being ranked the 12th most frequent type among all of the cancers[5].

In the period from 2000 to 2004, the initial diagnosis of 53.9% of the cases that arrived at Unit I of INCA indicates oral cancer, and 70.3% of all the cases cared for by this unit in this period, arrived in an advanced stage of the disease[6]. In 2013, the total number of deaths from this pathology was 5401, with 4223 being men and 1178 women[7]. In 2015, in Brazil 4,672 deaths resulting from this kind of cancer occurred in men, and 1226 in women[4].

In the event of this type of cancer not being detected at an early stage, the natural history of the disease can mutilate and seriously affect the quality of life of the patients. Not only does it interfere directly in speech and chewing, but also in the capacity of engaging in social interactions[8,9,10,11,12].

This study traced strategies with the aim of improving the survival of patients and their quality of life. The objective was to verify the knowledge of the students in both the courses about oral cancer, specifically about OSCC. The intention was to propose strategies to ensure that the offered knowledge be fixed during the time of graduating program.

MATERIALS AND METHODS

Medicine students in university of Rio de Janeiro developed this study under a supervision of a course tutor. Questionnaires were applied to students acting in the clinical cycle of Medicine and Dentistry courses, it contained 37 objective questions formulated to evaluate the knowledge about the clinical aspects of OSCC, and the modalities of diagnosis and prognosis thereof, based on the study of Dib, Souza, Tortamano (2005)[13]. The questions were related to: sex, age, course, campus, level of self-knowledge, risk factors,

and aspects of the main lesions related to OSCC. The participating students were performing the 5th (Dentistry) and 8th (Medicine) semesters allocated in the Campuses 1 (C1) and 2 (C2).

The participants were informed about the content of the research, in accordance with the Term of Free and Informed Consent and the questionnaire. The students were invited and participated voluntarily of the research. The questionnaires were applied after the study was approved by the Research Ethics Committee (CAAE: 47335115.6.0000.5283) and after obtaining due authorizations from the coordinators of the mentioned courses, expressed by means of signing the respect Letters of Agreement.

The study data were organized into tables using the Excel program. The comparisons of interest were submitted to statistical tests to verify possible statistical differences. Because the data are expressed in proportions, the Z test was used. The tests were performed using the program Primer of Biostatistics 6.0 with a level of significance (α) adjusted to 5%. Based on the tests performed, differences were detected in relation to the studied proportions.

RESULTS

A total of 454 questionnaires were evaluated. The total number of participants at C1 was 301 (150 of Medicine corresponding to 49.83% and 151 of Dentistry, corresponding to 50.17%), and 153 at C2 (83 of Medicine corresponding to 54.25% and 70 of Dentistry corresponding to 45.75%). When the participants were classified by gender, in the medical school, 69.51%(155) were female and 30.49%(68) were male. In the Dentistry course 77.83%(165) were female and 22.17%(47) were male.

The Z test was performed to verify if there were statistically significant differences between the sexes of participants in both courses considered in the study. In the Medicine course (n=223), statistically significant difference was found between the sex of participants (p<0.05) with a difference of 39.02±4.73%, with prevalence of the female sex. In the Dentistry Course (n=212), also found statistically significant difference between the sexes (p<0.05) with the female sex being predominant with a difference 55.66±4.86%.

About the age of the participants, the medical school presented: 2.62%(6) students under 20 years, 80.87% (186) between 20 - 25 years, 9.57%(22) between 26 - 30 years and 6.94%(16) were over 30 years. In dentistry the distribution was: 5.65%(12) students under 20 years, 74.05%(157) between 20 - 25 years, 10.85%(23) between 26 - 30 years and 9.45%(20) were over 30 years of age.

The Z test compared all proportions 2 by 2 and it was possible to conclude that the higher concentration of students in both courses was in the age-range of 20-25 years of age (p<0.05). There was no statistically significant difference between the other age groups (p>0.05) even when compared with the lower proportion (<20 years).

Table 1 refers to the self-evaluation of students about their command of the content in relation to oral cancer, divided between both courses and campuses. The students of Medicine of the campus C1 and C2 obtaining "Regular" and "Insufficient", respectively, as prevalent responses. When evaluating this same variable in the Course in Dentistry, we could observe in both campuses that the majority of students qualified their knowledge as "Good".

Table 1 - Self-evaluation of the level of knowledge about oral cancer

Course	Campus	Excellent	Good	Regular	Insufficient	Total
Medicine	C1	11.33% (17)	22.67% (34)	40.67% (61)	25.33% (38)	100% (150)
	C2	4.82% (04)	10.84% (09)	39.76% (33)	44.58% (37)	100% (83)
Dentistry	C1	10.00% (15)	52.67% (79)	34.67% (52)	2.67% (04).	100% (150)
	C2	14.49% (10)	46.38% (32)	37.78% (24)	4.35% (03).	100% (69)

In medical school in C1 there was no statistically significant difference between the categories "excellent vs good", "excellent vs insufficient" and "good vs insufficient" (p>0.05). The other comparisons, in which the category "regular" was present, showed statistically significant difference (p<0.05). In the same unit, the Dentistry course showed statistically significant difference in all the categories (p<0.05), except in the comparison between the categories "excellent vs insufficient", that showed no statistical difference (p>0.05). The major portion of the Dentistry students classified their knowledge as good, and this category showed statistical difference in comparison with all the others (p<0.05). In view of the foregoing, it could be affirmed that there was a difference in the self-evaluation of the students of the dental and medical courses at the C1 unit. In the first course, the students considered their knowledge about oral cancer to be good, while in the second, they considered it regular.

In the Medicine course in C2 there was no statistically significant difference between the categories "excellent vs good" and "excellent vs insufficient". "Insufficient" was the category with the highest percentage of students. However, this did not differ statistically from the category "regular" (p>0.05). In the Course in Dentistry, the major portion of the students considered their knowledge about the subject to be good, however there was no difference between this and the "regular" category. It could be said that the

students of the course in medicine considered their knowledge about oral cancer to be regular or insufficient, while the dental students considered their knowledge to be "good" or "regular".

The next point evaluated was the number of students who performed the physical oral exam in their first consultation, seeking to identify aspects associated with oral cancer. The number of students of the Course in Medicine who did not perform the exam was higher (n=52) than the number of those who performed the exam (n=166). Whereas, in the other course, this data was inverted. 109 students performed the test and 124 do not make the adequate exam.

The results of the "correct" vs "incorrect" answers for both courses and university campus are presented at table 2. The p value for the compassions made with the Z test are sowed at table 3 (C1 and C2).

Variable	Category	Medicine		Dentistry	
		C1	C2	C1	C2
Most common cancer	Correct (OSCC)	28.57% (42)	18.29% (15)	37.32% (53)	**42.42% (28).**
	Incorrect	23.81% (35)	8.54% (7)	**47.19% (67)**	**43.94% (29).**
	Don't know	**47.62% (70)**	**73.17% (60)**	15.49% (22)	13.64% (9).
Most common aspect	Correct (Ulcer)	**36.81% (53)**	22.22% (18)	**72.97% (108)**	**64.29% (45).**
	Incorrect	22.91% (33)	17.29% (14)	21.62% (32)	28.57% (20).
	Don't know	**40.28% (58)**	**60.49% (49)**	5.41% (8)	7.14% (5).
Age group	Correct (>40 years)	**59.73% (89)**	**45.12% (37)**	**71.92% (105)**	**74.63% (50).**
	Incorrect	10.74% (16)	12.20% (10)	18.49% (27)	16.42% (11).
	Don't know	29.53% (44)	**42.68% (35)**	9.59% (14)	8.96% (6).
Precursor lesion	Correct (Leukoplasia)	23.97% (35)	25.61% (21)	**60.27% (88)**	**64.71% (44).**
	Incorrect	**36.30% (53)**	10.98% (9)	32.20% (47)	27.94% (19).

Table 2 - Specific questions related to knowledge about oral cancer

	Don't know	**39.73% (58)**	**63.41% (52)**	7.53% (11)	7.35% (5).

Table 3 - P=values for the responses to the variables presented in Table 2 for C1 and C2

	C1					
	Medicine			**Dentistry**		
Variable	Correct x Incorrect	Correct x Don't know	Incorrect x Don't know	Correct x Incorrect	Correct x Don't know	Incorrect x Don't know
Most common cancer	**0.625**	0.005	0.001	**0.156**	0.004	0.001
Most common aspect	**0.068**	**0.694**	0.018	0.001	0.001	**0.073**
Age group	0.001	0.001	0.019	0.001	0.001	0.400
Precursor lesion	0.106	0.032	**0.698**	0.001	0.001	0.002
	C2					
	Medicine			**Dentistry**		
Variable	Correct x Incorrect	Correct x Don't know	Incorrect x Don't know	Correct x Incorrect	Correct x Don't know	Incorrect x Don't know
Most common cancer	**0.613**	0.001	0.001	**0.980**	0.013	0.008
Most common aspect	**0.856**	0.001	0.001	0.001	0.001	**0.108**
Age group	0.001	**0.899**	0.003	0.001	0.001	**0.890**
Precursor lesion	**0.258**	0.001	0.001	0.001	0.001	**0.136**

The knowledge about the risk factors are displayed at table 4, the only combination without statistical difference was the "exposure to the sun light" ($p>0.05$) in the medicine course at C1. The p values of the comparisons made are displayed at table 5.

Table 4 - Specific questions related to knowledge of students about the risk factors related to oral cancer

Variable	Category	Medicine		Dentistry	
		C1	C2	C1	C2
Previous cancer	Correct (Yes)	**88.28% (128)**	**87.95% (73)**	**89.26% (133)**	**86.57% (58)**
	Incorrect	11.72% (17)	12.05% (10)	10.74% (16)	13.43% (9)
Use of Alcohol	Correct (Yes)	**93.24% (138)**	**86.75% (72)**	**85.14% (126)**	**94.2% (65)**
	Incorrect	6.76% (10)	13.25% (11)	14.86% (22)	5.80% (4)
Use of tobacco	Correct (Yes)	**98.62% (143)**	**96.39% (80)**	**97.99% (146)**	**100% (68)**
	Incorrect	1.38% (2)	3.61% (3)	2.01% (3)	0% (0)
Family history	Correct (Yes)	**96.55% (140)**	**96.34% (79)**	**94.59% (140)**	**100% (65)**
	Incorrect	3.45% (5)	3.66% (3)	5.41% (8)	0% (0)
Exposure to Sunlight	Correct (Yes)	**50.00% (72)**	40.74% (33)	**85.14% (126)**	**79.41% (54)**
	Incorrect	**50.00% (72)**	59.26% (48)	14.86% (22)	20.59% (14)

Table 5 - P-values for the comparisons correct x incorrect, in the variables present in Table 4, in C1 and C2.

VARIABLE	Medicine		Dentistry	
	Caxias	Barra	Caxias	Barra
Previous cancer	0.001	0.001	0.001	0.001
Use of Alcohol	0.001	0.001	0.001	0.001
Use of tobacco	0.001	0.001	0.001	NA
Family history	0.001	0.001	0.001	NA
Exposure to Sunlight	**0.906**	0.028	0.001	0.001

DISCUSSION

The students of Medicine and Dentistry at university of Rio de Janeiro should be able to identify problems and develop individualized therapeutic treatments for patients, to

enable them to diagnose and treatment of the most prevalent health problems of the population based on epidemiological studies[8,14].

This study arose from the perception of a medicine student involved in research during it passage through Oncology classes. Participation in congresses and experience gained in the Stomatology Clinic. The participation in the Dentistry course drew attention to the problem. The semiology classes of the oral cavity in the Course of Medicine are focused on the Oropharynx, and not on the oral cavity as a whole, this fact increased interest in the topic. The correct clinical exam carried out by well-trained health professional is critical to detect the disease early. The theoretical knowledge about the lesions, added up to a good training to perform the clinical exam, enable them to detect the lesions and make adequate diagnoses[8,9,10,11,15].

As regards sex, the present study reached the same conclusion as other work, the female sex was predominant[13]. This study found a predominant age range of 20-25 years. The literature corroborates finding similar results: 20 and 30 years[13], 22-28 years[16], 21.4 years mean age[17]. The age range of medical and dental students seems to consensual in different regions of Brazil and worldwide.

The present study sought to find out, by means of self-evaluation of students, the level of knowledge about oral cancer (Table 1). A similar study investigated this[17], they evaluated students of different university courses, and verified that 70.5% of them had insufficient knowledge. At the C1, 44.58% of the students of Medicine demonstrated that they had insufficient knowledge (Table 1). Analyzing the same result, per semesters/periods, a larger number of students who pointed out that they had insufficient knowledge were observed to be in the 5th period. As from the subsequent periods, this number tended to diminish. This fact was perhaps related to the low level of intimacy that students of Medicine have with clinical topics and perception of knowledge that they have

already acquired. This was reinforced by the fact that students of higher periods had already completed the Hematology-Oncology Discipline. It is necessary to bear in mind that the verb to teach presents two dimensions that are translated into the intention to teach and into the fulfillment of this intention[18]. The explanation of a content provided by the professor have to be capable of making the student assimilate it, so that the two dimensions of the act of teaching could be fulfilled[18].

In Table 1 shows that there was difference between the answers of students from C1 and C2 with regard to this variable (Regular and Insufficient, respectively). Perhaps there was lack of information about the topic in an extracurricular manner. This discrepancy could be explained by the cultural differences between groups[19]. Culture is a total phenomenon, capable of promoting a view of the world to the persons who share it, orienting their knowledge, practices and their attitudes and understanding about health and disease, both contained within their vision of the world and social practices[19].

An important aspect that could explain the low level of intimacy that Medical students have with examination of the oral cavity, was emphasized by other authors[9]. They explained that this limitation must be faced by means of developing a curriculum that includes an interprofessional approach and routine intraoral exam followed step-by-step, which covers the examination of soft tissues, instead of focusing on the chief complaint[9].

The Self-evaluation of the level of knowledge about oral cancer (Table 1) in the Dentistry course, in both campuses, revealed that the majority of students qualified their knowledge as "Good". When stratifying these results by periods/semesters with the exception of the 6th semester group, it was observed that the information was transmitted and the knowledge was learned, to the point where 44% of the students in the 7th semester checked the item "Excellent" as their degree of knowledge. The 6th semester group

presented a behavior that was not compatible with that of the other periods, characterizing a focal deficit of the subject in question. The answers of the students expressed by another work[13], presented higher degree of self-confidence than the students in the present study.

The number of students who performed the physical oral exam in their first consultation, seeking to identify aspects associated with oral cancer. The number of students of the Course in Medicine who did not perform the exam was higher than the number of those who performed the exam. In the other course, this data was inverted. The proportion of patients who presented oral cancer at an advanced stage was cause for concern, and it is known that early diagnosis is the most effective way to reduce the individual load of the disease[8,9,10,11]. Teaching the students of medicine how to perform the systematized clinical exam, so that they would be able to detect changes in the oral cavity and recognize the first signs of OSCC, would reduce the morbidity and mortality and elevate the quality of life.

The results about the physical exam performance and detection of oral cancer demonstrate that there was knowledge about the topic as well as concern about evaluating the presence of clinical aspects related to this pathology. This finding was in agreement with the recommendations of the National Curricular Guidelines of both courses investigated. They include the investigation of signs and symptoms, habits, risk factors, and performance of physical and diagnostic exams of persons who are under their care. In the Course in Dentistry, Dental Sciences are included as essential content for the education of a general clinician. It includes "the contents (theoretical and practical) of clinical propedeutics, in which knowledge will be administered about oral pathology, semiology and radiology"[20,21].

As may be visualized in Table 2, which shows specific knowledge about oral cancer, among the students of Medicine the option "Don't know" was the preferred choice. With exception for the variable "age range" in which the correct option was prevalent. In the case of the most common cancer, the most prevalent answer was "Don't know", with the finding of results of $p<0.005$ (47.62%) and $p<0.001$ (73.17%) in C1 and in C2, respectively. For the Dentistry Students, the correct option was predominant, except to the variable "the most common cancer" in the C1. While in C2, in this question, the number of correct and incorrect answers was very similar. In the Dentistry in C1, the "Incorrect" answer was the most prevalent (47.19%). The results showed that there was statistical difference when the response "Don't know" (15.49%, $p<0.001$) was compared, and without significant difference in relation to the correct answer (37.32%, $p>0.156$). These same occurs in Dentistry in C2. The value for the "Incorrect" answer was 43.94%, and when compared with the answer "Don't know" it was 13.64% ($p<0.008$); and in relation to the correct answer it was 42.42% ($p>0.980$). These results differ from those found in the literature[8] when they conducted a study in Amman, Jordan. It was verified that the majority knew that squamous cell carcinoma was the most common type of oral cancer, with 98.2% of the dentistry undergraduates and 89.3% of the graduated physicians answering correctly.

As far as the students of the Course in Medicine are concerned, the topic here discussed is known to be presented and discussed in the Hematology-Oncology Discipline. Teaching of its theoretical aspect is restricted to this discipline, and does not include the practical part, which is not the competence of this discipline. According to the results obtained in the present study there is a need to reinforce the practice and purpose of the oral exam of patients during the time of performing the physical exam, so that the teaching is in fact consolidated. The oral cavity must not be evaluated in isolation, and that for the

overall state of health of individuals to be positive, an adequate oral health status is important[22].

The eyes are only able to see that which the mind already knows[9], so a prior knowledge about the subject is necessary so that the tumor can be detected by the students. The failure to reach a diagnosis of oral mucosa lesions, will allow them to go unnoticed, or only skip over them. Students had more problems with detecting than with diagnosing lesions[11]. The capacity of dentists to perform early diagnosis of oral cancer depends on the degree of knowledge and skills acquired during their education[11].

It has previously been found that repeatedly performing the same steps of the exam in all patients, enhances the professional's capacity to detect lesions and not allow any type of change in the oral mucosa to go unnoticed[9]. The theoretical and clinical command of this topic gained in the education of both professionals may form part of the day-to-day clinical routine of dentists and doctors, so that the changes in their present conduct may be reflected in their future activities. The result expected to be obtained with this change, is the reduction in the prevalence of oral cancer in the Brazilian population, with positive impact on it and improvement in its quality of life. The Universities renew themselves in accordance with the social demands of health[23].

Table 2 shows evidence of the knowledge about the risk factors related to oral cancer. Differently from the results found in Table 1, here it was observed that the students of Medicine knew about the risk factors linked to the appearance of the pathology discussed in the present study, with the exception of exposure to sunlight, in which approximately 50% of the students did not associated this factor with the appearance of the disease. These reaffirm the discussion about teaching the theoretical content and point out the fact that some of the factors here evaluated would be common to those of other

neoplasias. The results found in other study[13] were also positive in relation to the risk factors for this neoplasm.

In the Dentistry course all the results expressed in Table 2 showed evidence of the presence of knowledge about the prevalent risk factors. This is due to the fact that this topic forms part of the day-to-day routine of graduated dentist or those being educated. The findings about the knowledge of the risk factors by the students of both courses here studied were in agreement with other study[8]. The authors verified that the use of alcohol was less frequently identified as a risk factor, but those graduated in dentistry were significantly more likely to answer correctly. The same occurred with exposure to sunlight, when compared with the graduated physicians.

The authors hope that the results of the present research will have an impact on the Health Education Courses of the studied university, and be reflected in other Brazilian universities, avoiding diagnosis in late stages. In addition, they hope it will provide approximation of both existent scenarios in order to enhance and promote excellence in teaching. This approximation will allow a better training, with a stronger clinical aspect, and the students will leave the university after going through the teachings of semiology and medical oncology, oral pathology and Dentistry semiology, with a differentiated point of view.

CONCLUSION

The authors could conclude that the topic "Oral Cancer" is transmitted in both the Course in Medicine and Course in Dentistry. However, changes are necessary in the offer of clinical teaching in both courses for the purpose of improving learning about this topic by the students involved in the present study, in order to improve the offer of full care to patients.

REFERENCES

1. Freire JCP, Nóbrega MTC, Freire SCP, Ribeiro ED. Incidência de neoplasias malignas orais nas regiões brasileiras. REFACS [Internet]. 2017 [cited on: July 28,2018; 5(Supl.1):141-145. Available at DOI: http://dx.doi.org/10.18554/refacs.v5i0.1993.

2. Dantas DDL. Clinical-pathological parameters in squamous cell carcinoma of the tongue. Braz Dent J 2003; 14(1):22-5.

3. Brasil. Ministry of Health. Administrative Ruling GM/MS 2,439 of December 8, 2005.

4. Castro R. Câncer Na Mídia: Uma Questão De Saúde Pública. Revista Brasileira de Cancerologia 2009; 55(1): 41-48

5. Estimativa 2018: incidência de câncer no Brasil / Instituto Nacional de Câncer José Alencar Gomes da Silva. Coordination of Prevention and Surveillance Rio de Janeiro - RJ INCA, 2017.

6. Rebelo MR, Costa MCE, Noronha CP, Ramos DN, Rebelo P. Ministry of Health - National Cancer Institute - Coordination of Prevention and Surveillance – Information Division. "Aplicação de Indicadores Selecionados aos Dados dos Registros Hospitalares de Câncer para Planejamento e Gestão Hospitalar "/ National Cancer Institute - Coordination of Prevention and Surveillance – Information Division Rio de Janeiro - RJ INCA, 2006.

7. National Cancer Institute José Alencar Gomes da Silva. Types of Cancer: Mouth Available at electronic address: http://www2.inca.gov.br/wps/wcm/connect/tiposdecancer/site/home/boca. Accessed on: January 7, 2018.

8. Alami, A Y; El Sabbagh, R F; Hamdan, A. Knowledge of Oral Cancer Among Recently Graduated Medical and Dental Professionals in Amman, Jordan. J Dent Educ 2013; 77(10):1356-64.

9. Ali, M A, Joseph, B K, Sundaram, D B. Dental Students' Ability to Detect and Diagnose Oral Mucosal Lesions. J Dent Educ 2015; 79 (2):140-45.

10. Baykul T, Yilmaz HH, Aydin U, et al. Early diagnosis of oral cancer. J Int Med Res 2010; 38(3):737-49.

11. Cerero-Lapiedra, R, Germán C, Esparza-Gómez, GC, et al. Ability of Dental Students in Spain to Identify Potentially Malignant Disorders and Oral Cancer. Journal of Dental Education 2015; 79(8): 959-64.

12. Johnson NW, Warnakulasuriya S, Gupta PC, Dimba E, Chindia M, Otoh EC, et al. Global oral health inequalities in incidence and outcomes of oral cancer: causes and solutions. Adv Dent Res 2011; 23:237-46vv

13. Dib LL, Souza RS, Tortamano N. Avaliação do conhecimento sobre câncer bucal entre os alunos de Odontologia, em diferentes unidades da universidade Paulista. Rev. Inst. Ciênc Saúde 2005 Oct-Dec; 23(4):287-95.

14. Unigranrio. Pedagogical Project of the Course in Medicine - Campus Duque de Caxias 2014.

15. Seoane J, Warnakulasuriya S, Varela-Centelles P, et al. Oral cancer: experiences and diagnostic abilities elicited by dentists in northwestern Spain. Oral Dis 2006; 12 (5):487-92.

16. Uti, OG; Fashina, AA. Oral Cancer Education in Dental Schools: Knowledge and Experience of Nigerian Undergraduate Students. J Dent Educ 2006, 70(6): 676-80.

17. SOARES DE LIMA AA, et al. Conhecimento de alunos universitários sobre câncer bucal. Rev Bras Canc 2005; 51(4): 283-288

18. Fonseca, TMM, Bida, GL. Ensinar x Aprender: pensando a prática pedagógica. Didactic material elaborated for the purpose of pedagogical support for the intervention project at the "Colégio Estadual Major Vespasiano Carneiro de Mello", in accordance with the guidelines established in the Educational Development Program of the State Secretary for Education, Superintendence of Education. State University of Ponta Grossa; 2013. Ponta Grossa, Parana. 2008, 43p. http://www.diaadiaeducacao.pr.gov.br/portals/pde/arquivos/1782-6.pdf. Date of access: April 14, 2019.

19. Langdon EJ, Wiik FB. Antropologia, saúde e doença: uma introdução ao conceito de cultura aplicado às ciências da saúde. Rev. Latino-Am. Enfermagem May-June 2010; 18(3): [09 screens]

20. Brazil. National Council of Education Resolution CNE/CES 3 of February 19, 2002.

21. Brazil. Ministry of Education Resolution No.3, June 20, 2014.

22. Gloria VFV. Relação entre condições bucais e a saúde geral [trabalho de conclusão de curso]. Belo Horizonte: Federal University of Minas Gerais, Specialization Course in Primary Family Health Care/Now; 2011.

23. Santos JLF, Westphal MF. Práticas Emergentes de um novo paradigma de saúde: o papel da universidade. Estudos Avançados 1999; 13(35): 71-88.