j. port. sci. res.
ISSN: 2616-7441 (Online)
ISSN: 2616-6232 (Print)
ISSN: 2616-7220 (USB)
INTERNATIONAL IDENTIFIER FOR SERIALS

Journal port Science Research
Available online www.jport.co
Volume 8, issue 1. 2025

Awareness of Oral Cancer in a Sample of Iraqi Dental Students

Rana M. Hasan

Department of Diagnostic Sciences, College of Dentistry, Uruk University, Baghdad, Iraq.

dr.rmh84@codental.uobaghdad.edu.iq

Abstract Background: The morbidity and mortality rates that are linked to oral cancer are significantly reduced through early detection and prevention. Dental undergraduates are essential in identifying expected oral cancer cases and promoting oral health, as they are future dental professionals. This study aimed to estimate knowledge and attitudes toward oral cancer and its prevention in a sample of Iraqi dental students in the College of Dentistry University of Baghdad. Methods: The study was conducted by a questionnaire consisting of 12 questions regarding knowledge and awareness about oral cancer was provided to 156 dental students in the third, fourth, and fifth grades. The data collected was tabulated, and subjected to statistical analysis, and thus results were obtained. Result: In the study sample females comprised the majority (67.9%). It was found that 69.2% of students were aware of oral cancer and 98.7% believed early detection is crucial. only 35.3% always do oral mucosal examination, 80.1% of students educate their patients about a healthy lifestyle to decrease the possibility of oral cancer, and 53.8% replied having the ability to detect premalignant lesions. Smoking is the main risk factor for oral cancer identified by 75.6%. Squamous cell carcinoma was being the most prevalent form of oral malignancy among 91% of participants. 61.5% considered tongue and floor of the mouth as risky areas and 44.2% reported ulcer as the most common clinical presentation of oral cancer. Conclusion: Though the students have good general knowledge, it is important to modify the academic curriculum and provide ongoing post-academic medical training, especially practical, to develop the essential abilities for accurate oral cancer screening.

10.36371/port.2025.1.6

Keywords: *Knowledge, awareness, dental Students, oral cancer.*

1. INTRODUCTION

Oral cancer is regarded as a significant health issue worldwide **[1]**. Cancer diagnosis and treatment has become an unfavorable epidemic, and it is a major global public health concern **[2]**. Cancer is one of the leading causes of death. Cancer treatment is unsatisfactory due to the disease's specific characteristics. Cancer cells can proliferate uncontrollably, invade, and metastasize **[3]**. Most individuals lack knowledge about the indications and manifestations of premalignant oral lesions and only seek medical attention when severe symptoms have already developed, resulting in a delay in the identification and management of the condition**[4]**. The increased morbidity and mortality associated with oral malignancies are attributable to delayed detection rather than aggression **[5]**. Squamous cell carcinoma (OSCC) is the most widespread type of oral cancer, affecting a substantial number of individuals worldwide. OSCC accounts for over 90% of head and neck malignancies **[6]** with nearly two-thirds diagnosed at advanced stages **[7-8]**. OC can be caused by a variety of risk factors, including medicines, smoking, direct sunlight, infections including human papillomavirus, occupational hazards, and food **[9]**. Biological factors including sex, age, and environmental carcinogens such as radiation and chemicals have been regarded as major promoting and prognostic elements in the evolution of oral cancer **[10]**. The oral cancer survival rate is 50%; however, this number can be increased to 80% with early lesion detection **[11]**.

For optimal outcomes, an early diagnosis is crucial. It enhances quality of life, decreases treatment expenses, and decreases rates of illness, mortality, and dismemberment. This can only be accomplished if medical practitioners, particularly dentists, routinely screen their patients for oral cancer and have a thorough understanding of the disease's pathophysiology and early warning symptoms **[12-13]**. However, several studies have found that these specialists are unable to diagnose early-stage oral cancer due to ineffectual practices and a shortage of understanding. Furthermore, facts about dentistry students' performance on this topic is inclined to be sparse and unsatisfactory **[14]**.

This study aimed to estimate the knowledge and attitudes towards oral cancer and its prevention in a sample of Iraqi dentistry students in the College of Dentistry University of Baghdad in third, fourth, and fifth stages of study.

2. MATERIALS AND METHODS

Rana M. Hasan, et al . 2025 Awareness of Oral Cancer in a Sample of Iraqi Dental Students. *Journal port Science Research*, 8(1), pp.31-35. https://doi.org/10.36371/port.2025.1.6

j. port. sci. res.
ISSN: 2616-7441 (Online)
ISSN: 2616-6232 (Print)
ISSN: 2616-7220 (USB)
INTERNATIONAL IDENTIFIER FOR SERIALS

Journal port Science Research
Available online www.jport.co
Volume 8, issue 1. 2025

A descriptive cross-sectional study was conducted among third, fourth, and fifth-grade dentistry students from May- June 2023 at the College of Dentistry-Baghdad University.

A total of 156 students were incorporated into the study via a convenience sample procedure. Oral cancer awareness among undergraduate dental students was assessed through a questionnaire modified from the research performed by Diajil **[6]**and Soares et al. **[15]** which contained in addition to the demographic data, 12 questions concerning knowledge and attitudes toward oral cancer, was distributed to students before the end of their academic year. The students got the questionnaire following their agreement to get involved and the provision of written informed consent, and they were not obligated to complete it.

The acquired data was input, cleaned, coded, and analyzed using SPSS software version 24.0.

3. RESULTS

A total of 156 participants were encompassed in this study, of which 34 (21.8%) were in the 3rd year, 57 (36.5%) were in the 4th year and 65(41.7%) were in the 5th year. The participants ranged from 19-26 years with a mean age of 21.58. Out of 156 participants, 50 (32.1%) were male and 106 (67.9%) were female (Table 1).

Table 1. *Distribution of study sample(n=156)*

Gender	No.	%
Male	50	32.1
Female	106	67.9
Years of study	No.	%
Third year	34	21.8
Fourth year	57	36.5
Fifth year	65	41.7

Awareness of oral cancer

Of the final year participants, 73.8% were aware of oral cancer, followed by 4th-year students 71.9% and they all agreed that early detection might raise the survival rate by improving the treatment. While 55.9% of the 3rd-year students were acquainted with oral cancer, 94.1% believed early detection is crucial. Regarding the undergraduates' attitudes, only 35.3% always do the oral mucosal examination, 80.1% of students educate their patients about a healthy lifestyle to decrease the risk of oral cancer, 53.8% replied having the ability to detect premalignant lesions with a higher percentage recorded in the fifth-year group. 57.7% of the total participants referred patients with suspected lesions immediately and the maximum percentage reported in fourth-grade students was 63.2% as shown in (Table 2)

Table 2. *Awareness of oral cancer*

Awareness of oral cancer		Third grade		Fourth grade		Fifth grade		Total	
		No.	%	No.	%	No.	%	No.	%
Have you heard about OC	Yes	19	55.9	41	71.9	48	73.8	108	69.2
	No	15	44.1	16	28.1	17	26.2	48	30.8
Do you do oral mucosa examination	always	5	14.7	23	40.4	27	41.5	55	35.3
	occasionally	29	85.3	34	59.6	38	58.5	101	64.7
Able to detect premalignant lesions	Yes	14	41.2	32	56.1	38	58.5	84	53.8
	No	20	58.8	25	43.9	27	41.5	72	46.2
Early detection of oral cancer can improve treatment	Yes	32	94.1	57	100	65	100	154	98.7
	No	2	5.9	0	0	0	0	2	1.3
Patients with suspicious lesions are referred	immediately	17	50	36	63.2	37	56.9	90	57.7
	at least 2 weeks	17	50	21	36.8	28	43.1	66	42.3
Do you advise patients about healthy lifestyles to decrease the risk of oral cancer	Yes	29	85.3	45	78.9	51	78.5	125	80.1
	No	5	14.7	12	21.1	14	21.5	31	19.9

Knowledge of the clinical characteristics and risk determinants of oral cancer

Answers provided by participants concerning clinical aspects and risk factors for oral cancer are presented in (Table 3).

Rana M. Hasan, et al . 2025 Awareness of Oral Cancer in a Sample of Iraqi Dental Students. *Journal port Science Research*, 8(1), pp.31-35. https://doi.org/10.36371/port.2025.1.6

j. port. sci. res.
ISSN: 2616-7441 (Online)
ISSN: 2616-6232 (Print)
ISSN: 2616-7220 (USB)
INTERNATIONAL IDENTIFIER FOR SERIALS

Journal port Science Research
Available online www.jport.co
Volume 8, issue 1. 2025

Among the risk factors associated with oral cancer, smoking and alcohol which are the most common were correctly identified by at least 72.3% of fifth-year, 75.4% of fourth-year, and 82.4% of third-year.

Most final-year students agreed that squamous cell carcinoma is the most common type of oral cancer 92.3% followed by the answers of the fourth year 91.2% and then the third year 88.2%.

Most participants considered the tongue and floor of the mouth as risky areas for oral cancer: 72.3% of the fifth year, 70.1% of the fourth year, and 26.5% of the third-year students.

Ulcer as the most common clinical presentation of oral cancer had been answered by 44.2% of the total participants. In regional metastasis of oral cancer to the lymph nodes, 66.67% of the students describe the lymph nodes as becoming enlarged, painless, and firm.

Regarding the treatment of oral cancer, the vast majority of participants stated that surgery and radiotherapy are the most frequent modalities that have been used, by 96.9% of 5th-year students, 96.4% of 4th-year students, and 94.1% of 3rd-year participants.

***Table 3**. The answers of dental students to the knowledge questions*

Knowledge of oral cancer	Third grade		Fourth grade		Fifth grade		Total	
	No.	%	No.	%	No.	%	No.	%
The main risk factor of OC (Tabacco)	28	82.4	43	75.4	47	72.3	118	75.6
The most common type of OC (SCC)	30	88.2	52	91.2	60	92.3	142	91
The most common sites involved by OC (Tongue, floor of the mouth)	9	26.5	40	70.1	47	72.3	96	61.5
The most common clinical presentation of OC (ulcer)	16	47.1	25	43.9	28	43.1	69	44.2
In regional metastasis of oral cancer, the lymph nodes become (painless and firm)	19	55.9	40	70.2	45	69.2	104	66.67
The most widely used treatment modality for OC (Surgery, radiotherapy)	32	94.1	55	96.4	63	96.9	150	96.1

4. DISCUSSION

All over the world, oral cancer is becoming a more significant public health issue. It is an impairing illness that can have devastating consequences in the emotional, functional, and financial facets of patients while also significantly lowering their quality of life. Reducing the morbidity and mortality rates due to oral cancer demands early detection and prevention. Dental students are essential in improving oral health and recognizing possible occurrences of oral cancer because they will eventually work as dental professionals. While post-graduate programs are significant for this field, graduating is crucial and ensures that students possess the necessary foundational knowledge regarding oral cancer prevention and early diagnosis **[15]**.

The high proportion of female participants (67.9%) in the study can be mostly ascribed to the higher enrollment of females in the dental studies compared to males discerned in other nations like Nepal, India, and Brazil **[15-16-17]** as well as the younger age group of 19 to 26 years old, with a mean age of 21.58. This study revealed that a dentistry student's awareness rate of oral cancer was 69.2%, lower than that of Diajil study **[6]** in Iraq and Chan et al. study **[18]** among undergraduate students in Malaysian dental schools. This study showed a widespread agreement among the entrants 98.7%, that oral cancer is a treatable illness and enhanced comprehension of the significance of early detection can play a role in improving the survival rates of patients,96.1% stated that therapeutic modality is most frequently employed for OC are surgery and radiotherapy. The responses on the attitudes showed that only 35.3% of students reported doing oral mucosal examinations regularly and this result was much less than that among Malaysian and Brazilian dental students **[15-18]**. 53.8% of students considered themselves able to detect premalignant lesions and 57.7% referred patients with suspicious lesions immediately to a specialist. Furthermore, 80.1% of students regarded it crucial to educate patients about healthy lifestyles whereas in a study conducted in India, it was found that 67% of dental students advise their patients to decrease the risk of oral cancer **[19]**. Students at the advanced undergraduate level demonstrated a slightly superior response pattern on awareness and attitudes because students have shown a remarkable improvement in their self-confidence, attributed to the regular emphasis of the curriculum on oral pathology and oral medicine. Evidence from the literature consistently indicates that the primary risk factors of OC are exposure to tobacco toxins and excessive alcohol consumption **[20]**. Most participants in all three groups (75.6%) accurately recognized

Rana M. Hasan, et al . 2025 Awareness of Oral Cancer in a Sample of Iraqi Dental Students. *Journal port Science Research*, 8(1), pp.31-35. https://doi.org/10.36371/port.2025.1.6

j. port. sci. res.
ISSN: 2616-7441 (Online)
ISSN: 2616-6232 (Print)
ISSN: 2616-7220 (USB)
INTERNATIONAL IDENTIFIER FOR SERIALS

Journal port Science Research
Available online www.jport.co
Volume 8, issue 1. 2025

smoking as the main risk factor for OC. This outcome may be attributed to the knowledge acquired from additional sources, including academic educational programs and medical publications. These findings were consistent with those obtained from research done in Romania **[21]**, Jordan **[22]**, Croatia **[23]**, Spain **[24]**, and Nepal **[25]**. In contrast to the findings above, a study conducted in Iran that revealed a lower proportion of participants who accurately recognized smoking (40.7%) as a risk factor **[26]**. Regarding the knowledge of the clinical aspect of OC, 91% of students described SCC as the most frequent form which was higher than that of Soares et al. study **[15]**.

In this study, 61.5% believed that the tongue and floor of the mouth were the most probable sites of oral cancer involvement with the highest percentage at fifth-year students. Although the tongue is often thought to be the major location of oral cancer, students should be alert to other possibilities like floor of the mouth. This knowledge will promote a thorough and curious attitude to evaluate patients and make diagnostic decisions. Relating to the clinical manifestation of oral cancer, only 44.2% of students agreed that ulcers are the most common manifestation which was much lower than the study by Srivastava et al. **[16]** 89.9% and Chan et al. **[18]** 89.4%. This study revealed a lack of sufficient understanding of the signs and symptoms of oral cancer. Consequently, it is essential to introduce and emphasize these aspects in educational curricula and postgraduate activities. Solid and painless lymph nodes were identified as the predominant form of metastatic lymph nodes by 66.67% of students. Practitioners must recognize the importance of palpation and be capable of identifying the pattern of malignant lymphadenopathy. Dental students should be encouraged to think critically and use evidence-based practices. Enhanced understanding of oral cancer diagnosis and treatment among graduating dental students will lead to a higher proportion of practicing dentists who possess the necessary training and sound expertise in this area. The results of this study offer significant insights into the level of knowledge and awareness around OC among dentistry students in Iraq. Nevertheless, it is crucial to approach the interpretation of these findings with prudence because of some limitations. Limitations of this study included small sample size and reliance on a self-administered questionnaire, relying on students' subjective interpretations, and it is important to note that as the surveys were not used for graduation purposes, the collected data accurately reflect the current state of knowledge and behavior among students. The study predominantly employed closed-ended questions, which can restrict the extent of comprehension about the underlying causes of specific actions or attitudes and result in a shortage of qualitative insights.

5. CONCLUSION

The current study demonstrates good knowledge and awareness concerning oral cancer among dentistry students. However, it was noted that the students could not fully comprehend the clinical aspects of the lesion. Furthermore, when various undergraduate years were considered, the disparity in knowledge and attitudes toward oral cancer was slightest. This study highlighted the importance of modifying the academic curriculum and providing ongoing postgraduate medical education, especially practical, to develop the essential abilities for accurate oral cancer screening.

Conflict of interest: None.

REFERENCES

[1] Museedi OSh. Oral cancer awareness among group of general dental practitioners in Iraq. J Bagh Coll Dentistry 2014; 26(1):(108-111).

[2] B. M. Naeamah, F.W. Khudair, 2023. Cancer Patients' Satisfaction with Health Care Services Provided by National Cancer Teaching Hospital Professionals . Journal port Science Research, 6(1), pp.22-28. https://doi.org/10.36371/port.2023.1.5.

[3] Ali A. H. Aljeboory, Rafid M. Hashim, Reem G. Hussein, Yahya Y. Z. Farid, Capparis Spinosa as an Alternative Nanoscience Medicine in Treatment of Cancer (A New Aspect of Cancer Treatment).Journal port Science Research, 7(1), pp.77-86. https://doi.org/10.36371/port.2024.1.10.

[4] Carter LM, Ogden GR. Oral cancer awareness of general medical and general dental practitioners. Br Dent J. 2007 Sep 8;203(5):248–9. doi: 10.1038/bdj.2007.630. [PubMed] [CrossRef] [Google Scholar]

[5] Elgazzar RF. Assessment of oral cancer awareness among dental students, practitioners and patients in Manitoba, Canada. Glob J Otolaryngol. 2018 Aug;17(3) doi: 10.19080/GJO.2018.17.555961. [CrossRef] [Google Scholar]

[6] Diajil AR. Awareness and knowledge of oral cancer among final year undergraduate dental students in Baghdad-Iraq. J Bagh Coll Dentistry 2013; 25(3):(69-79).

[7] Warnakulasuriya S. Global epidemiology of oral and oropharyngeal cancer. Oral Oncol 2009; 45(4-5): 309-16.

j. port. sci. res.
ISSN: 2616-7441 (Online)
ISSN: 2616-6232 (Print)
ISSN: 2616-7220 (USB)
INTERNATIONAL IDENTIFIER FOR SERIALS

Journal port Science Research
Available online www.jport.co
Volume 8, issue 1. 2025

[8] Ahmed SM, Mubeen, Jigna VR. Molecular biology: an early detector of oral cancers. Ann Diagn Pathol 2009; 13(2): 140-5.

[9] Alshami ML, Abdulbaqi HR, Abdulkareem AA. Awareness and knowledge of oral cancer in the city of Baghdad, Iraq: a questionnaire-based survey. Journal of Stomatology. 2019; 72, 6: 263-268.

[10] Pavia M, Pileggi C, Nobile CG, Angelillo IF. Association between fruit and vegetable consumption and oral cancer: a meta-analysis of observational studies. Am J Clin Nutr 2006; 83: 1126-34.

[11] Güneri P, Epstein JB. Late stage diagnosis of oral cancer: components and possible solutions. Oral Oncol. 2014 Dec;50(12):1131–6. doi: 10.1016/j.oraloncology.2014.09.005. [PubMed] [CrossRef] [Google Scholar]

[12] Gómez I, Warnakulasuriya S, Varela-Centelles PI, López-Jornet P, Suárez-Cunqueiro M, Diz-Dios P, et al. Is early diagnosis of oral cancer a feasible objective? Who is to blame for diagnostic delay? Oral Dis. 2010; 16: 333-42.

[13] Baykul T, Yilmaz HH, Aydin U, Aydin MA, Aksoy M, Yildirim D. Early diagnosis of oral cancer. J Int Med Res. 2010; 38: 737-49.

[14] Jaber MA. Dental practitioner's knowledge, opinions and methods of management of oral premalignancy and malignancy. Saudi Dent J. 2011; 23: 29-36.

[15] Soares TRC, Carvalho MEdA, Pinto LSS, Falcão CA, Matos FTC, Santos TC. Oral cancer knowledge and awareness among dental students. Brazilian J Oral Sci. 2014;13:28–33.

[16] Srivastava R, Wazir SS, Jyoti B, Kushwah S, Pradhan D, Priyadarshi P. Perception and outcome of oral cancer awareness among clinical undergraduate dental students of Tertiary health care centre at Kanpur city: A cross-sectional study. Natl J Maxillofac Surg. 2020;11(1):89–93.

[17] Rai V, Yadav D, Tyagi U, Tripathi S. Assessment of knowledge and awareness of oral cancer among dental students of a private dental college in Nepal - A cross-sectional study. Int J Sci Res. 2020;9(1):75–6.

[18] Chan, ZW., Phuan, YF., Ooi, PY. et al. An assessment of oral cancer knowledge, attitudes, and practices among undergraduate students in Malaysian dental schools. BMC Oral Health 23, 617 (2023). https://doi.org/10.1186/s12903-023-03354-8.

[19] Kumar S., Harshini Ak. Knowledge and awareness about oral cancer among undergraduate dental students. Asian Journal of Pharmaceutical and Clinical Research 9 (2016): 165-167.

[20] Silva SD, Hier M, Mlynarek A, Kowalski LP, Alaoui-Jamali MA. Recurrent oral cancer: current and emerging therapeutic approaches. Front Pharmacol.2012; 30: 149-56.

[21] Murariu, A.; Baciu, E.-R.; Bobu, L.; Diaconu-Popa, D.; Zetu, I.; Geleţu, G.; Vasluianu, R.-I.; Hurjui, L. Knowledge, Practice, and Awareness of Oral Cancer and HPV Infection among Dental Students and Residents: A Cross-Sectional Study. Medicina 2022, 58, 806. https://doi.org/10.3390/medicina58060806.

[22] 2Sallam, M.; Al-Fraihat, E.; Dababseh, D.; Yaseen, A.; Taim, D.; Zabadi, S.; Hamdan, A.A.; Hassona, Y.; Mahafzah, A.; Şahin, G.Ö. Dental students' awareness and attitudes toward HPV-related oral cancer: A cross sectional study at the University of Jordan. BMC Oral Health 2019, 19, 171. [Google Scholar] [CrossRef] [Green Version]

[23] Radman, M.; Glavina, A.; Sabol, I.; Mravak-Stipetić, M. Knowledge of Oral Cancer among the Fourth and Fifth Year Dental Students. Acta Stomatol. Croat. 2018, 52, 340–347. [Google Scholar] [CrossRef]

[24] Lorenzo-Pouso, A.I.; Gándara-Vila, P.; Banga, C.; Gallas, M.; Pérez-Sayáns, M.; García, A.; Daley, E.M.; Gasamáns, I. Human Papillomavirus-related oral cancer: Knowledge and awareness among Spanish dental students. J. Cancer Educ. 2019, 34, 782–788. [Google Scholar] [CrossRef]

[25] Shrestha, A.; Marla, V.; Shrestha, S.; Agrawal, D. Awareness of Undergraduate Dental and Medical Students Towards Oral Cancer. J. Cancer Educ. 2017, 32, 778–783. [Google Scholar] [CrossRef]

[26] Tadbir, A.A.; Ebrahimi, H.; Pourshahidi, S.; Zeraatkar, M. Evaluation of Levels of Knowledge about Etiology and Symptoms of Oral Cancer in Southern Iran. Asian Pac. J. Cancer Prev. 2013, 14, 2217–2220.