ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 16 Issue, 04, pp. 70280-70284, April, 2026
https://doi.org/10.37118/ijdr.30804.04.2026

RESEARCH ARTICLE OPEN ACCESS

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING ORAL CANCER AMONG UNDER GRADUATE DENTAL STUDENTS –AN INSTITUTIONAL BASED CROSS-SECTIONAL STUDY

Dr. Sindhuja Tamilmani*[1], Dr. Deivanayagi, M[2], Dr. Keerthiga E[3], Indumathi Thirunavukkarasu[4] and Dr. Sampath Raj J[4]

[1]Tutor, Department of Oral Medicine and Radiology, Adhiparasakthi Dental College and Hospital, Melmaruvathur, Chengalpattu District, Tamilnadu, India 603319; [2]HOD and Professor, Department of oral Medicine and Radiology, Adhiparasakthi Dental College And Hospital, Melmaruvathur, Chengalpattu District, Tamilnadu , India 603319; [3]Tutor, Department of Public Health Dentistry, Adhiparasakthi Dental College And Hospital, Melmaruvathur, Chengalpattu District, Tamilnadu, India 603319; [4]CRI Adhiparasakthi Dental College And Hospital, Melmaruvathur, Chengalpattu District, Tamilnadu , India 603319

ARTICLE INFO

Article History:
Received 27th January, 2026
Received in revised form
20th February, 2026
Accepted 16th March, 2026
Published online 30th April, 2026

Key Words:

Oral cancer, Squamous cell Carcinoma, Premalignant Lesion, Management.

Corresponding author:
Dr. Sindhuja Tamilmani,

ABSTRACT

Background: Oral cancer is a significant public health concern in India, with high morbidity due to tobacco use, alcohol consumption, and delayed diagnosis. Early detection by dental professionals is essential to improve outcomes. ***Aim and Objective:*** To assess the knowledge, attitude, awareness, and clinical practices regarding oral cancer among undergraduate dental students in Melmaruvathur, Tamil Nadu. ***Materials and Methods:*** A cross-sectional questionnaire-based study was conducted among 194 undergraduate dental students. The survey evaluated knowledge of risk factors, common sites, diagnostic methods, attitudes toward early detection, and clinical practices. Data were analyzed using descriptive statistics and Chi-square tests. ***Results:*** Most students showed good knowledge. The floor of the mouth (68.6%) and squamous cell carcinoma (96.4%) were correctly identified. Tobacco and alcohol (96.9%) and biopsy (71.6%) were recognized appropriately. However, gaps existed in awareness of rarerisk factors and biopsy practice. ***Conclusion:*** Students demonstrated good knowledge and attitudes, but further training is needed to enhance clinical practice and awareness.

Citation: Dr. Sindhuja Tamilmani, Dr. Deivanayagi, M, Dr. Keerthiga E, Indumathi Thirunavukkarasu and Dr. Sampath Raj J, 2026. "Assessment of Knowledge, Attitude and Practice Regarding oral Cancer among under Graduate Dental Students –An Institutional Based Cross-Sectional Study". *International Journal of Development Research*, 16, (04), 70280-70284.

INTRODUCTION

Oral cancer is a major global health concern with high morbidity and mortality particularly in developing countries like India. Recently the incidence of oral cancer is increasing to an alarming level, especially in developing countries. epithelial cell carcinoma (SCC) males about 95% of oral cancer[2]. The chemical factors like tobacco and alcohol or betel nut,orodental factors and biological factors like human papillomavirus, syphilis, dietary deficiencies,UV radiation, genetic conditions like fanconi anemia, dyskeratosis congenita, weakened immune system this factors increases the risk of developing oral cancer. Oral cancer affects the anterior tongue,cheek, floor of mouth,gingiva or other part of the mouth.carcinoma occurs more often in males,in people from lower socioeconomic scale and in ethnic groups, although rates in females are on increase[1]. Early detection of oral potentially malignant disorders (OPMDS) Like leukoplakia, oral submucous fibrosis,lichen planus,erythroplakia and tobacco pouch keratosis and oral cancer is extremely important in achieving an honest prognosis and results in reducing the morbidity and mortality rates.Dentists have a prominent role within the prevention and early diagnosis of carcinoma because they could be the primary clinicians to encounter a patient with oral cancer[1]. Early diagnosis increases the quality of life and lowers treatment costs,to achieve this,it is important that health professionals,especially dentists,perform oral cancer examinations as part of their clinical practice and be especially aware of not only the pathogenesis of the disease,but also the first clinical signs[2]. This cross sectional study aimed to assess the knowledge, attitude and practices towards oral cancer among dental students Melmaruvathur, Tamil nadu.

MATERIALS AND METHODS

This study used a cross-sectional, questionnaire-based survey to assess undergraduate dental students' knowledge, attitudes, and practices regarding oral cancer. This study included students at different stages of clinical experience and understanding, allowing for a comparison of their knowledge, attitudes, and practices concerning oral cancer.

Students were excluded if they chose not to participate. The sampling method was convenient, as students were approached through existing communication channels instead of using a randomized method. The questionnaire was shared through WhatsApp groups created by the students as a Google form . This made it easier to reach students and improve participation and response rates. A total of 194 students completed and submitted the questionnaire.

RESULTS

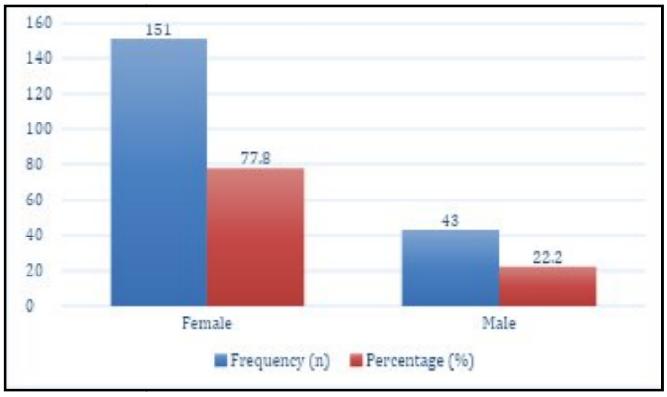
A total of 194 participants were included in the study, among them 92(47.4%) were final year students and 102 (52.6%) were CRRI students to assess knowledge, attitude, awareness, and clinical practice regarding oral cancer. Descriptive analysis revealed high levels of awareness among CRRI about major risk factors such as tobacco, alcohol, and HPV infection, and recognition of squamous cell carcinoma as the most common oral cancer. Participants demonstrated a positive attitude, acknowledging the public health significance of oral cancer and the role of dental professionals in early detection. However, gaps were observed in knowledge of rare risk factors and biopsy practice. Overall, findings highlight strong awareness with areas requiring further training ($p < 0.001$).

Table 1 shows the gender distribution of the study participants. Among the total 194 respondents, the majority were females, accounting for 151 participants (77.8%), whereas males constituted 43 participants (22.2%). The results indicate a clear predominance of female participants in the study population. The Chi-square goodness-of-fit test demonstrated a statistically significant difference in the distribution of participants by gender ($p < 0.001$). This finding suggests that the observed proportion of females and males differed significantly from an equal distribution. The higher participation of females may reflect greater involvement or availability of female respondents in the surveyed population during the data collection period. Table 2 represents the survey results indicate that the majority of participants demonstrated good knowledge regarding oral cancer. Most respondents correctly identified the floor of the mouth (68.6%) as the most commonly affected site, with squamous cell carcinoma (96.4%) recognized as the predominant form. Lichen planus (60.8%) was least associated with oral cancer, while tobacco and alcohol consumption (96.9%) were correctly identified as the main etiological factors. For detection, the majority preferred biopsy (71.6%) over clinical examination or imaging. All variables were statistically significant ($p < 0.001$), indicating that the observed knowledge distribution among participants differed significantly from a uniform distribution.

Table 1. Distribution of Participants by Gender (n = 194)

Gender	Frequency (n)	Percentage (%)	p-value
Female	151	77.8	<0.001*
Male	43	22.2	
Total	194	100	

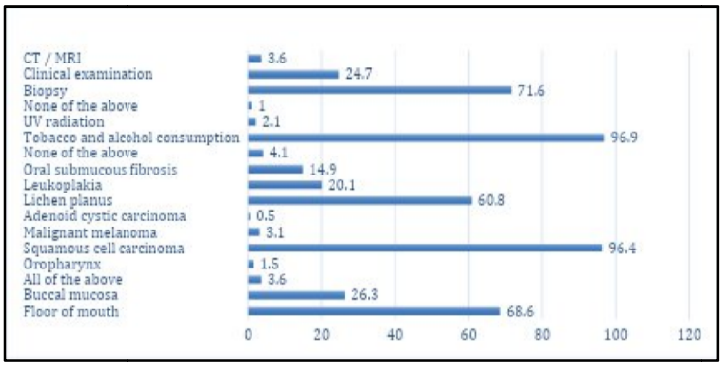
Chi-square goodness-of-fit test



Graph 1.

Table 2. Knowledge Regarding Oral Cancer (n = 194)

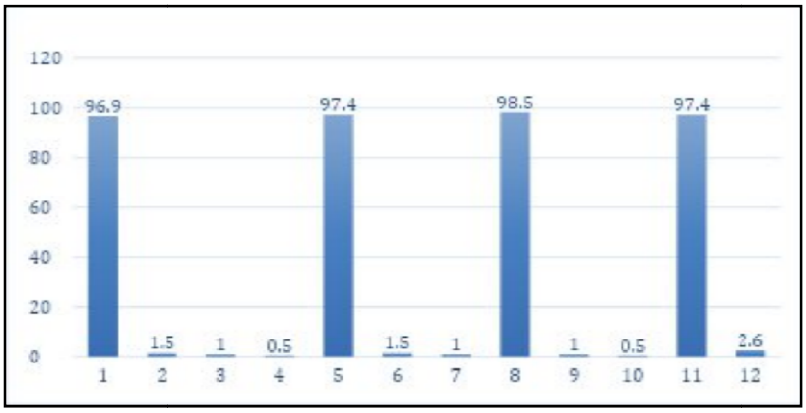
Variable	Response	Frequency	Percentage (%)	p-value
Most commonly affected site of oral cancer	Floor of mouth	133	68.6	<0.001*
	Buccal mucosa	51	26.3	
	All of the above	7	3.6	
	Oropharynx	3	1.5	
Most common form of oral cancer	Squamous cell carcinoma	187	96.4	<0.001*
	Malignant melanoma	6	3.1	
	Adenoid cystic carcinoma	1	0.5	
Lesion least associated with oral cancer	Lichen planus	118	60.8	<0.001*
	Leukoplakia	39	20.1	
	Oral submucous fibrosis	29	14.9	
	None of the above	8	4.1	
Most common etiology of oral cancer	Tobacco and alcohol consumption	188	96.9	<0.001*
	UV radiation	4	2.1	
	None of the above	2	1.0	
Gold standard tool for oral cancer detection	Biopsy	139	71.6	<0.001*
	Clinical examination	48	24.7	
	CT / MRI	7	3.6	



Graph 2

Table 3. Attitude Toward Oral Cancer (n = 194)

Variable	Response	Frequency	Percentage (%)	p-value
Oral cancer is a significant public health concern	Yes	188	96.9	<0.001*
	Don't know	3	1.5	
	Not sure	2	1.0	
	No	1	0.5	
Dental professionals have key role in early detection	Yes	189	97.4	<0.001*
	Not sure	3	1.5	
	No	2	1.0	
Tobacco and alcohol are risk factors	Yes	191	98.5	<0.001*
	No	2	1.0	
	Don't know	1	0.5	
Premalignant lesions increase risk	Yes	189	97.4	<0.001*



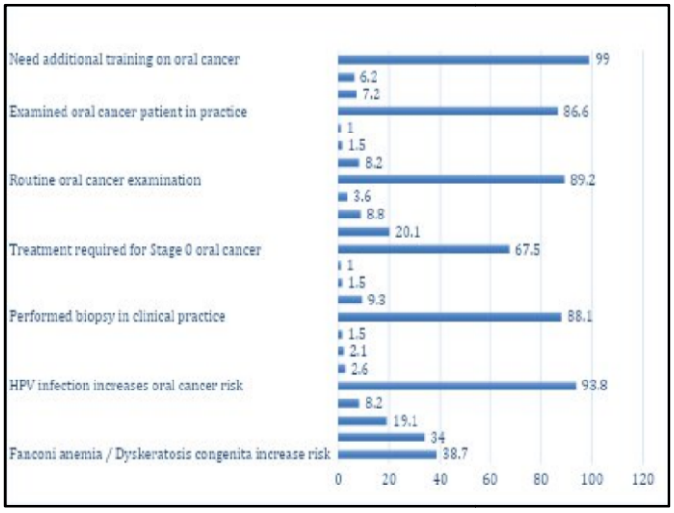
Graph 3.

Table 4. Awareness and Practice Regarding Oral Cancer (n = 194)

Variable	Response	Frequency	Percentage (%)	p-value
Fanconi anemia / Dyskeratosis congenita increase risk	Yes	75	38.7	<0.001*
	Don't know	66	34.0	
	Not sure	37	19.1	
	No	16	8.2	
HPV infection increases oral cancer risk	Yes	182	93.8	<0.001*
	Not sure	5	2.6	
	No	4	2.1	
	Don't know	3	1.5	
Performed biopsy in clinical practice	No	171	88.1	<0.001*
	Yes	18	9.3	
	Don't know	3	1.5	
	Not sure	2	1.0	
Treatment required for Stage 0 oral cancer	Yes	131	67.5	<0.001*
	No	39	20.1	
	Not sure	17	8.8	
	Don't know	7	3.6	
Routine oral cancer examination	Yes	173	89.2	<0.001*
	Maybe	16	8.2	
	No	3	1.5	
	Don't know	2	1.0	
Examined oral cancer patient in practice	Yes	168	86.6	<0.001*
	No	14	7.2	
	Not sure	12	6.2	
Need additional training on oral cancer	Yes	192	99.0	<0.001*
	Don't know	2	1.0	

* $p < 0.05$ considered statistically significant (Chi-square test)

The data reveal a highly positive attitude toward oral cancer among participants. Almost all respondents acknowledged oral cancer as a significant public health concern (96.9%) and recognized the critical role of dental professionals in early detection (97.4%). Awareness of tobacco and alcohol as major risk factors (98.5%) and the increased risk posed by premalignant lesions (97.4%) was also widespread. The p-values (<0.001) indicate that these responses were statistically significant, showing that participants' attitudes are strongly aligned toward preventive measures and early detection strategies, reflecting high awareness and proactive perception regarding oral cancer control. The results indicate varied awareness and strong clinical practice patterns regarding oral cancer. While only 38.7% recognized that Fanconi anemia or Dyskeratosis congenita increase risk, a large majority identified HPV infection as a risk factor (93.8%). Most participants had not performed biopsies (88.1%), yet routinely examined patients for oral cancer (89.2%) and had encountered oral cancer cases in practice (86.6%). Awareness of treatment for Stage 0 oral cancer (67.5%) was moderate. Almost all respondents (99%) expressed the need for additional training, demonstrating a proactive attitude toward enhancing clinical competence. All variables were statistically significant ($p < 0.001$).



Graph 4.

DISCUSSION

Oral cancer remains a major global public health concern due to its high morbidity and mortality, particularly in developing countries where tobacco consumption and delayed diagnosis are common. Early detection and prevention play a crucial role in improving survival rates, and dental professionals are often the first healthcare providers to identify early lesions during routine examinations. Therefore, assessing the knowledge, attitude, awareness, and clinical practices of dental students regarding oral cancer is essential to improve early diagnosis and management. The present study evaluated these aspects among 194 participants and revealed generally high awareness and positive attitudes toward oral cancer, although certain gaps in knowledge and clinical practice were identified.

Gender Distribution of Participants: The present study demonstrated a predominance of female participants (77.8%) compared to males (22.2%), and the difference was statistically significant ($p < 0.001$). This skewed gender distribution may reflect the increasing enrollment of females in dental education and healthcare professions. Similar trends have been reported in several studies where female dental students or professionals constituted the majority of respondents in oral health awareness surveys. For example, studies assessing oral cancer awareness among dental practitioners have often observed higher participation among female respondents due to greater representation in dental institutions or willingness to participate in academic surveys[3.]

Although gender distribution itself may not directly influence knowledge levels, previous studies suggest that female dental professionals sometimes demonstrate higher engagement in preventive healthcare practices and patient education. The predominance of female participants in the present study could therefore partly contribute to the high levels of awareness and positive attitudes observed among respondents.

Knowledge Regarding Oral Cancer: Knowledge about oral cancer is critical for dental professionals because they play an essential role in the early detection of potentially malignant disorders and oral cancer. In the present study, most participants demonstrated good knowledge regarding the disease. A majority correctly identified the floor of the mouth (68.6%) as the most commonly affected site of oral cancer.Similar findings have been reported in previous research where dental practitioners showed reasonable awareness regarding high-risk anatomical sites for oral cancer development[4.] An overwhelming majority of participants (96.4%) identified squamous cell carcinoma as the most common form of oral cancer.High awareness regarding the histopathological type of oral cancer among dental professionals is encouraging because it reflects adequate academic training in oral pathology. Participants in the present study also demonstrated substantial knowledge regarding etiological factors. Approximately 96.9% correctly identified tobacco and alcohol consumption as the most common etiological factors associated with oral cancer.Similar findings have been reported in studies conducted among dental professionals and students, where tobacco and alcohol were the most commonly recognized risk factors[5.]

However, despite the high awareness of common risk factors, knowledge regarding less common etiological factors appeared relatively limited. Only a proportion of respondents recognized conditions such as lichen planus or genetic disorders as potential risk factors. This finding is consistent with previous studies which have shown that dental professionals often possess good knowledge of well-known risk factors but limited awareness of emerging or less common risk factors such as viral infections, nutritional deficiencies, or genetic syndromes[6.] Regarding diagnostic methods, most participants (71.6%) correctly identified biopsy as the gold standard for oral cancer detection.Similar findings have been reported in studies evaluating oral cancer awareness among dentists, where biopsy was correctly recognized as the definitive diagnostic method by the majority of respondents[7.] Overall, the knowledge-related findings of the present study indicate a relatively high level of awareness among participants, which is encouraging. Nevertheless, gaps remain regarding less common risk factors and certain diagnostic aspects, highlighting the need for continued education and training.

Attitude Toward oral Cancer: In the present study, participants demonstrated a highly positive attitude toward oral cancer prevention and management. Almost all respondents (96.9%) agreed that oral cancer represents a significant public health problem. A similarly high proportion of participants (97.4%) acknowledged the important role of dental professionals in early detection. Dentists routinely examine the oral cavity and are therefore ideally positioned to identify suspicious lesions at an early stage. Studies have emphasized that dental professionals serve as the first line of defense in oral cancer screening, particularly among high-risk populations[4.] Furthermore, nearly all respondents recognized tobacco and alcohol as major risk factors (98.5%) and acknowledged the increased risk associated with premalignant lesions (97.4%). Awareness of premalignant conditions such as leukoplakia, erythroplakia, and oral submucous fibrosis is critical because early detection and management of these conditions can prevent malignant transformation.These findings are consistent with previous studies reporting positive attitudes among dental professionals regarding oral cancer prevention and early detection. However, despite this positive attitude, some studies have reported that confidence levels in performing oral cancer examinations remain low among dental professionals. In one cross-sectional study, many dentists felt inadequately trained to conduct comprehensive oral

cancer screening, indicating the need for additional educational programs[3].

Awareness and Clinical Practice towards oral cancer: The present study revealed varying levels of awareness regarding certain risk factors and clinical practices. Approximately 93.8% of participants recognized human papillomavirus (HPV) infection as a risk factor for oral cancer. HPV-associated oropharyngeal cancers have been increasingly reported worldwide, particularly among younger individuals. Awareness of viral etiological factors among dental professionals is therefore essential for patient education and prevention strategies. However, only 38.7% of respondents recognized that rare genetic conditions such as Fanconi anemia or Dyskeratosis congenita increase the risk of oral cancer. These conditions are associated with DNA repair defects and increased susceptibility to malignancies. The limited awareness observed in the present study highlights a knowledge gap regarding rare risk factors. Similar findings have been reported in previous research where dental professionals were less familiar with genetic syndromes associated with oral cancer[5]. The present study also assessed biopsy practices among participants. A large majority (88.1%) reported that they had not performed a biopsy in clinical practice. This finding may reflect limited clinical exposure, lack of training, or the practice of referring suspicious lesions to specialists. Although referral to specialists is appropriate in many cases, basic knowledge and confidence in performing biopsy procedures are important for timely diagnosis. Similar observations have been reported in studies conducted among dentists in various countries. For example, research conducted in Egypt found that although dentists were aware of oral cancer risk factors, only a minority routinely performed comprehensive screening examinations or lymph node assessments[8]. The moderate awareness regarding treatment of stage 0 oral cancer (67.5%) observed in the present study also indicates the need for improved knowledge of cancer staging and management protocols.

Need for Additional Training: One of the most significant findings of the present study is that almost all participants (99%) expressed the need for additional training in oral cancer detection and management. This finding is consistent with numerous previous studies highlighting the importance of continuing education for dental professionals. Continuing professional development programs, workshops, and clinical training sessions can significantly improve the knowledge and confidence of dental practitioners in performing oral cancer screening and diagnostic procedures. Studies have shown that dentists who attend continuing education programs demonstrate higher knowledge scores and improved clinical practices related to oral cancer detection[9]. The demand for additional training also reflects the evolving nature of oral cancer research, with emerging risk factors such as HPV infection, genetic predisposition, and lifestyle factors requiring updated knowledge and skills.

CONCLUSION

Overall, the findings indicate that dental students possess a solid foundation of knowledge and generally positive attitudes toward oral cancer, reflecting the effectiveness of current theoretical education. Most students are aware of the major risk factors, such as tobacco use and alcohol consumption, and recognize the importance of early detection in improving patient outcomes, which is consistent with previous studies [1,5,9]. Their willingness to engage in preventive practices and patient education further highlights a constructive mindset that is essential for future dental professionals. However, despite adequate theoretical knowledge, many students demonstrate limited confidence or experience in performing comprehensive oral cancer screenings, particularly in identifying early or atypical lesions. Similar gaps in clinical practice and confidence have been reported in earlier studies [3,8]. Additionally, awareness of less common risk factors—such as human papillomavirus (HPV), dietary influences, and genetic predisposition— appears insufficient, which aligns with findings from other research highlighting limited knowledge of emerging and rare etiological factors[5,6]Therefore, there is a clear need to strengthen clinical training through more hands-on experience, case-based learning, and regular exposure to real-life scenarios. Integrating advanced diagnostic techniques, workshops, and continuing education programs into the curriculum can significantly enhance both competence and confidence among dental students, as supported by prior studies[7,9]. Emphasizing interdisciplinary collaboration and up-to-date research will further broaden students' understanding and preparedness. In conclusion, while dental students are well-prepared at a theoretical level, targeted educational interventions are essential to bridge the gap between knowledge and clinical practice, ultimately improving early detection, prevention, and management of oral cancer [1,3,9].

REFERENCES

Abdelrahman M, et al. Oral cancer awareness among dentists: a cross-sectional study. J Egypt Natl Canc Inst. 2025.

Alshammari F, et al. Knowledge, attitudes and practices of oral cancer prevention among dental students and practitioners. BMC Oral Health. 2021;21:579.

El Tantawi M, et al. Oral cancer screening knowledge and practices among dental professionals. J Oral Maxillofac Surg. 2023.

Jboor DH, Al-Darwish MS, Nur U. Oral cancer knowledge, attitude and practice of dentists in Qatar. Dent J. 2019;7(2):43.

Kaur G, Kaur N, Angral A, Jhatta DA. Evaluation of awareness, knowledge, attitude and screening of oral cancer among dental practitioners and dental students: an online questionnaire based cross-sectional study. Int J Med Sci Diagn Res. 2021;5(7):8–21. doi:10.32553/ijmsdr.v5i7.824.

Kebabcıoğlu Ö, Pekiner FN. Assessing oral cancer awareness among dentists. J Cancer Educ. 2018;33(5):1020-1026.

Özdede M, et al. Turkish dental students' knowledge and awareness of oral cancer. BMC Oral Health. 2025.

Riba H. Knowledge, attitudes and practices towards oral cancer among dental practitioners in northeastern India. Cureus. 2024;16(5):e60894.

Soares TRC, Carvalho ME de A, Pinto LSS, Falcão CA, Matos FTC, Santos TC. Oral cancer knowledge and awareness among dental students. Brazilian Journal of Oral Sciences. 2014;13(1):28–33. doi:10.1590/1677-3225v13n1a06.

****