Assessment of knowledge attitude and practice towards oral cancer among dental students and house officer at a tertiary care dental Centre in Lahore

ABSTRACT:

Background: Oral cancer is a major public health issue with increasing prevalence globally, particularly in Asian countries. Early detection and prevention play a crucial role in reducing morbidity and mortality. Dental students and house officers are at the forefront of oral healthcare and thus should be adequately equipped with the necessary knowledge, attitude, and practices related to oral cancer.

Material & Methods: To evaluate the knowledge of oral cancer, a descriptive cross-sectional questionnaire based study was carried out among the third year BDS, final year BDS, and house officers at Azra Naheed Dental College, Lahore. Electronic distribution of the questionnaire among the House Officers and students occurred. SPSS version 26 then was used to analyze the data.

Results: 132 participants responded to a questionnaire that was distributed electronically. 94.7% of the total participants agreed that they have heard of oral cancer and 18.9% voted in favor that oral cancer is contagious. 56.8% said tongue is the most common site for oral cancer. Majority of the participants (73.4%) agreed that they do not have sufficient knowledge concerning prevention of oral cancer. 93.2% of the participants explain tobacco, betel nut and decreased intake of fruits and vegetables to the potential risk factors of the oral cancer.

Conclusion: The participants' basic knowledge, attitude, and practices toward oral cancer are insufficient to diagnose, prevent and refer such patients. Therefore, enhancing dental students' knowledge of oral cancer is essential.

Keywords: *Awareness, Dental students, Mouth Neoplasms, Oral Cancer.*

Introduction

Oral cancer, defined as a malignant neoplasm arising in the lip or oral cavity, is predominantly classified as oral squamous cell carcinoma (OSCC), as approximately 90–95% of oral cancers originate histologically in the squamous cells of the oral mucosa[1-6]. OSCC represents a significant and growing public health concern worldwide, affecting 2.2 million individuals annually, with incidence rates steadily increasing [7]. It is ranked as the eighth most common cancer globally and constitutes nearly one-fourth of all new cancer cases in South Asian countries like India, Sri Lanka, Pakistan, and Bangladesh[8].

The epidemiology of OSCC reveals variations across demographic and regional contexts. While the disease predominantly affects individuals aged 40 years and older, recent decades have seen an alarming rise in younger patients being diagnosed[9, 10]. The site of occurrence also varies; for instance, the buccal mucosa is most frequently affected in South and Southeast Asia, while the tongue is the most common site in other regions[11]. Notably, OSCC exhibits a gender disparity, being two to three times more prevalent in men than women across most ethnic groups [1, 5, 12].

The development of OSCC is strongly linked to avoidable etiological risk factors. Tobacco use, excessive alcohol consumption, and the habitual chewing of areca nut-based products such as gutkha and pan masala are primary contributors in high-prevalence regions [13, 14]. Additional risk factors include exposure to UV radiation, occupational hazards like metal dust, dietary deficiencies such as iron deficiency in Plummer-Vinson syndrome, immune deficiencies, and infections with human papillomavirus (HPV), particularly type 16 [1, 4, 5, 13, 15-17]. Smoking and alcohol consumption are potential risk factors for approximately 75% of oral cancers in countries like the United Kingdom[2].

Pathophysiologically, OSCC often develops from premalignant oral lesions or conditions, such as leukoplakia or erythroplakia, although it can also arise de novo [13, 17]. Chronic irritation, such as that caused by betel quid chewing, can induce micro-abrasions and exophytic growths in the gingiva, buccal sulcus, and buccal mucosa. In contrast, smokers and drinkers often develop endophytic lesions in areas like the lateral side of tongue and the floor of the mouth[1].

Early detection plays a critical role in improving OSCC prognosis. Unfortunately, many cases are diagnosed at advanced stages when invasion and metastasis have already occurred, contributing to high mortality and morbidity rates. Early-stage lesions are often painless and asymptomatic, leading to delayed diagnoses[18]. Awareness and education regarding the early signs of oral cancer and associated risk factors are crucial for timely detection and intervention, which can significantly improve treatment outcomes and survival rates [3, 19, 20].

This study aims to evaluate the knowledge, attitudes, and practices of dental students & house officers at Azra Naheed Dental College regarding OSCC. The goal is to identify areas for improvement in their understanding and management of the disease. Given that some oral cancers remain asymptomatic in early stages, a lack of awareness or insufficient training among dental practitioners may contribute to delays in referral and treatment. Enhancing the knowledge base of future dental professionals could play a pivotal role in reducing these delays and improving patient outcomes.

Materials and Methods:

A cross-sectional questionnaire based study was carried out among third year BDS, final year BDS, house officers at Azra Naheed Dental College, Lahore in September 2024 to February 2025 after Ethical Approval from the college. Sample Size was Calculated Using Confidence interval 95%, margin of error 5%. 132 participants were given a specifically designed questionnaire electronically. There were twelve questions on the questionnaire to evaluate fundamental knowledge and awareness of oral cancer prevention, risk factors, early identification and referral of oral cancer patients to Oral and Maxillofacial Surgeon. Out of the twelve questions, three were multiple choice questions asking about the most often occurring site, preferred method of knowing more about oral cancer and possible risk factors; nine were simple yes or no option questions. SPSS version 26 had the outcomes entered for statistical analysis. The data were analyzed and presented in terms of frequencies and percentages.

Results: The total participants were one hundred and thirty two (132) including students from 3rd year, final year and house officers.

The frequencies and percentages of the various variables have been depicted in table 1.

Question	Response	Frequency	Percent (%)
Have you heard of oral cancer?	Yes	125	94.7%
	No	7	5.3%
Is oral cancer contagious?	Yes	25	18.9%
	No	107	81.1%
Are you aware of initial signs of oral cancer?	Yes	108	81.8%
	No	24	18.2%
Most common site for oral cancer?	Tongue	75	56.8%
	Floor of Mouth	44	33.3%
	Palate	12	9.1%
	Lower Lip	1	0.8%
Is oral cancer treatable?	Yes	118	89.4%
	No	14	10.6%
Do you feel you have sufficient knowledge on prevention/detection?	Yes	35	26.5%
	No	97	73.4%
Need for additional training/information regarding oral cancer?	Yes	114	86.4%
	No	18	13.6%
Preferred format to gain more knowledge	Seminars	61	46.2%
	Internet	40	30.3%
	Lectures	31	23.5%
Where would you refer a patient with suspected oral malignancy?	Oral & Maxillofacial Surgeon	111	84.1%

	Oral Medicine	14	10.6%
	General Dentist	7	5.3%
Do you think you're competent to scrutinize oral cancer?	Yes	71	53.8%
	No	61	46.2%
Are oral cancer awareness campaigns effective?	Yes	116	87.9%
	No	16	12.1%
Are you aware that lymph node examination is an important step?	Yes	107	81.1%
	No	25	18.9%
Do you explain risk factors like (tobacco, betel nut, poor diet, and trauma) to your patients?	Yes	123	93.2%
	No	9	6.8%

Discussion

In this study, the first question was 'have you heard of oral cancer?' A very high percentage (94.7%) of participants had heard of oral cancer, indicating general awareness among the respondents. This aligns with findings from previous studies that highlight increasing public exposure to oral cancer through media and health campaigns. However, awareness alone does not necessarily translate into adequate knowledge, as reflected in other areas of the survey.

The second question was "Is oral cancer contagious?" Notably, a significant proportion (81.06%) correctly answers that oral cancer is not contagious, which is promising. Misconceptions around disease transmission can contribute to stigma, so this level of understanding is beneficial for public health communication.

The third question was "Most common site for oral cancer?" When evaluating knowledge of the most common site for oral cancer, (56.8%) of respondents correctly identified the tongue, followed by the floor of the mouth (33.3%).This is consistent with epidemiological data, which often cite the tongue as the most affected site[3, 17, 21]. However, the low selection of other sites like the palate

and lower lip may point to a need for a more comprehensive understanding of all high-risk locations.

The next question was about the treatability of oral cancer if diagnosed on time. Optimistically, 89.4% of participants acknowledged that oral cancer is treatable, a hopeful view that may promote early detection and intervention if symptoms are recognized. Despite this, a significant portion (73.4%) admitted to lacking sufficient knowledge regarding preventive measures. This gap is concerning and highlights the urgent need for targeted educational initiatives.

The fifth question was to assess the need for sufficient knowledge to the participants. The demand for enhanced training was clearly expressed, with 86.4% of participants expressing a need for additional information which is consistent with other studies[4, 15, 16].Preferences for learning formats leaned most toward seminars (46.2%)[19], followed by internet-based resources (30.3%) and lectures (23.5%). This suggests that interactive, structured formats may be more effective in delivering detailed knowledge on the subject.

In answer to a question about the referral of a patient with suspected oral malignancy, a large majority (84.1%) reported they would refer a suspected oral malignancy to an Oral and Maxillofacial Surgeon, which is an appropriate and commendable referral pathway[19]. Meanwhile, only 5.3% would refer to a general dentist, showing that respondents generally understand the need for specialist intervention.

When asked about their own competence in identifying oral cancer, opinions were nearly evenly split, with 53.8% feeling competent. This highlights an area for professional development, particularly in clinical training.

A high number (87.9%) agreed that awareness campaigns are effective, reflecting a belief in the power of community education. Furthermore, 81.1% recognized lymph node examination as a critical aspect of oral cancer screening, an important clinical step that may be overlooked in under trained practitioners.

Lastly, an overwhelming majority (93.2%) of respondents reported that they educate patients on the risks of tobacco and betel nut use, and low consumption of fruit and vegetables which are potential risk factors for the oral cancer[15-17].

Conclusion: This study reveals that while most dental students and house officers at Azra Naheed Dental College are aware of oral cancer, their knowledge, particularly regarding its prevention and clinical aspects, is insufficient. Misconceptions exist, and many participants lack confidence in their ability to prevent the disease, despite recognizing key risk factors like tobacco and betel nut use. These gaps highlight the need for improved education and training within the dental curriculum to better prepare future professionals for early detection, patient education, and effective prevention of oral cancer.

Conflict of interest: None

Limitation of Study: This study's drawback is that it is a single-center study, and the data were acquired subjectively using a questionnaire.

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