

Awareness and Knowledge of Tobacco Use and Its Relation to Oral Cancer Among Patients Visiting Stomatology Teaching Hospital

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Background: Oral cancer (OC) is a major global health issue, with tobacco use being one of the most significant preventable risk factors. Despite its strong association with OC, public awareness about the harmful effects of tobacco remains limited. This study aims to evaluate the awareness and knowledge of tobacco use related to oral cancer among patients referred to the Stomatology Teaching Hospital.

Methods: A cross-sectional survey was conducted at the Stomatology Teaching Hospital of Kabul University of Medical Sciences (KUMS) between January 1 and July 30, 2023. Using a convenience sampling method, the study included 435 patients aged 15 to 76 years. Logistic regression analysis was employed to determine factors associated with tobacco use, and the data were analyzed using SPSS version 26.0.

Results: Participants were divided into two groups: tobacco users and non-tobacco users. Most of them were young (18 to 30 years old) with a significant difference in oral cancer knowledge between the two groups ($p < 0.001$). Cigarettes were the most common tobacco type among users (62.1%), which was also statistically significant ($p < 0.001$). Tobacco users were 3.04 times more likely to have knowledge about oral cancer (OR: 3.04, $p < 0.001$, 95% CI: 1.93–4.80), indicating a significant association.

Conclusion: The study reveals a general lack of awareness about oral cancer in our study population, particularly regarding specific risk factors. To improve awareness, it is essential for both public awareness campaigns and dentists to play a more active role in educating the public about oral cancer.

Keywords: awareness, cigarette smoking, tobacco, oral cancer

Introduction

One of the most prevalent cancers, both in developed and developing nations, is oral cavity cancer.¹ Oropharyngeal and oral cavity cancers are the ninth most lethal malignancy worldwide and the seventh most frequently diagnosed tumors, respectively, according to the World Health Organization's (WHO) 2014 World Cancer Report.^{2,3} According to the GLOBOCAN's data on Cancer Incidence in Five Continents, in 2022, there were a total of 19,976,499 new cases of cancer reported. The number of new cases for lip and oral cavity cancer was 389,846, which represents 2.0% of all new cancer cases.⁴

Despite the fact that the cause of oral cancer remains largely unclear, it is linked to a complex interplay of genetic and environmental factors, including exposure to carcinogens.^{5–7} Tobacco and alcohol consumption are the most significant risk factors for developing oral cavity cancer, with the combined effect of these substances increasing the risk by approximately 24 times.⁸ Although the prevalence of alcohol consumption in Afghanistan is notably low compared to global standards, it still poses a significant risk for oral cancer. Research suggests that while non-communicable diseases (NCDs) are on the rise, the prevalence of cancer, including oral cancer, remains underreported in Afghanistan.⁹ Additionally, despite increasing

awareness of tobacco use as a major risk factor for oral and other cancers, only about one-quarter of people recognize tobacco as a risk factor for oral cancer, highlighting ongoing gaps in understanding of oral cancer risk.¹⁰

The majority of individuals have no symptoms in the early stages of oral cancer. Early lesions may be hardly noticeable, and the doctor may not detect it during a routine exam. Patients frequently lack a good understanding of the symptoms associated with oral cancer.¹ One of the established signs of oral cancer is a non-healing ulcer, as well as noticeable red or white areas, swelling in the mouth, and soreness in the tongue. As stages pass, survival rates typically decline, and metastasis to distant organs in late-stage squamous cell carcinomas causes a sharp decline in survival rates.¹¹ People may be better able to prevent the disease, identify it earlier, and have better prognoses if they are more aware of the signs, symptoms, and early identification of oral cancer.¹²

Numerous studies have examined the knowledge and awareness of cancer among various population groups, and many of these studies have acted as a forerunner to the creation of educational and preventive programs to educate people about this frequently poorly understood ailment.¹³ Given the significance of oral cancer for both national and international public health, as well as the need of early detection, population education is crucial for improving survival. Therefore, the current study sought to ascertain the level of knowledge and awareness of oral cancer among patients seeking treatment at Stomatology teaching hospital.

Methods

This cross-sectional study was conducted at the Stomatology Teaching Hospital of Kabul University of Medical Sciences (KUMS) between January 1 and July 30, 2023. The study team created a self-administered multiple-choice survey based on a pretested survey used in related studies.^{14–16} The questionnaire was translated in to local language (Dari), and the translation was assessed by three members of the study team for accuracy and appropriateness. The questionnaire comprised 17 multiple-choice questions, divided into sections addressing patient sociodemographic, knowledge assessment, and educational outreach regarding OC from their healthcare provider.

The study employed a convenient technique, including patients aged 15 to 76 years. Patients were divided into two groups based on their tobacco use status: tobacco users and non-tobacco users, which was self-reported in the questionnaire. Tobacco use was defined as the consumption of any form of tobacco, including both smoking and smokeless tobacco products. Data on the type, duration, and frequency of tobacco use were collected. Face-to-face interviews were conducted using the WHO STEP-wise questionnaire.¹⁷

Informed consent was obtained from all patients in the hospital's outpatient department (OPD), as well as from legal guardians. For parents who completed the self-administered surveys, written informed consent was obtained. Participants were assured that their involvement was voluntary and anonymous. Data collection was conducted by data collectors, who received brief training and used the pre-designed questionnaire. Participants completed the questionnaires while waiting in the dental office waiting rooms for their appointments. If participants were unable to read or write, OPD personnel assisted them in completing the survey. The study was approved by the Kabul University of Medical Sciences, Afghanistan (KUMS 1401/0925/120). We confirm that the study complies with the ethical principles outlined in the Declaration of Helsinki. The 17 multiple-choice questions assessed socio-demographic factors, such as age, gender, education level, and tobacco usage (both smokeless and smoking tobacco). The knowledge assessment section contained questions regarding oral cancer awareness, symptoms, risk factors, and preventive measures. The educational outreach section explored whether participants had received information about oral cancer and its connection to tobacco use from their healthcare providers.

The survey questionnaire contained 17 multiple-choice questions evaluating socio-demographic factors including age, gender, education level, and tobacco usage (both smokeless and smoking tobacco). The knowledge assessment included questions about oral cancer awareness, symptoms, risk factors, and preventive measures. Additionally, the educational outreach survey included questions about patients' knowledge of oral cancer and its connection to tobacco consumption, as well as whether their doctors provided education on these topics.

Statistical analysis was conducted using SPSS software version 26.0 (IBM, Armonk, NY, USA). Descriptive analysis was performed participant characteristics, using frequencies, means, standard deviation (SD), and a 95% confidence interval (CI). Chi-square tests were utilized to explore associations between tobacco use and socio-demographic variables

such as age, sex, education, and oral cancer awareness, as well as type of tobacco, duration, and frequency of tobacco use. All variables that could potentially be risk factors or influence oral cancer awareness were considered as independent variables, including sex, age groups, education level, and responses to oral cancer awareness questions. A p-value of < 0.05 was considered statistically significant.

Result

The studied population consisted of 435 patients who were randomly selected and all of them gave consent to participate in this study. The participants were divided into two main group tobacco use and non-tobacco use. Among tobacco use and non-tobacco use the majority of participants were young in the age group of 18 to 30 years respectively (n=92, 44.7%, n=131, 57.5%), regarding gender most of the tobacco use and non-tobacco use participants were male (n=158, 76.7%, n=186, 81.2%) respectively, which did not showed any significant statistic difference. A large proportion of respondents both tobacco use and non-tobacco use had education up to high school level and higher. Given the male predominance and high illiteracy rates in the study population, we included these variables in our multivariate logistic regression analysis to account for their potential confounding effects.

In relation to oral cancer knowledge, among tobacco users, the majority of participants (n=110, 53.4%) reported that they knew about oral cancer. On the other hand, only n=72 (31.4%) of non-tobacco users were aware of oral cancer, and a significant statistical difference was observed in the knowledge of oral cancer between tobacco users and non-tobacco users ($p < 0.001$). Cigarettes were more prominent than other types of tobacco (n=128, 62.1%), which is statistically significant ($p < 0.001$). Additionally, 34.5% of tobacco use reported using tobacco for a period of time longer than three years. Furthermore, 32.5% of smoking individuals consumed more than 16 cigarettes per day, and this was found to be statistically significant ($p < 0.001$). **Figure 1:** The bar graph shows the different signs of oral cancer reported by participants. The most commonly reported sign was an abnormal mass (98%), followed by difficulty chewing/swallowing (92%), changes in voice quality (45.5%), mouth sore (28.7%), and white/red patch (52%) (**Figure 1**). **Figure 2:** Bar graph

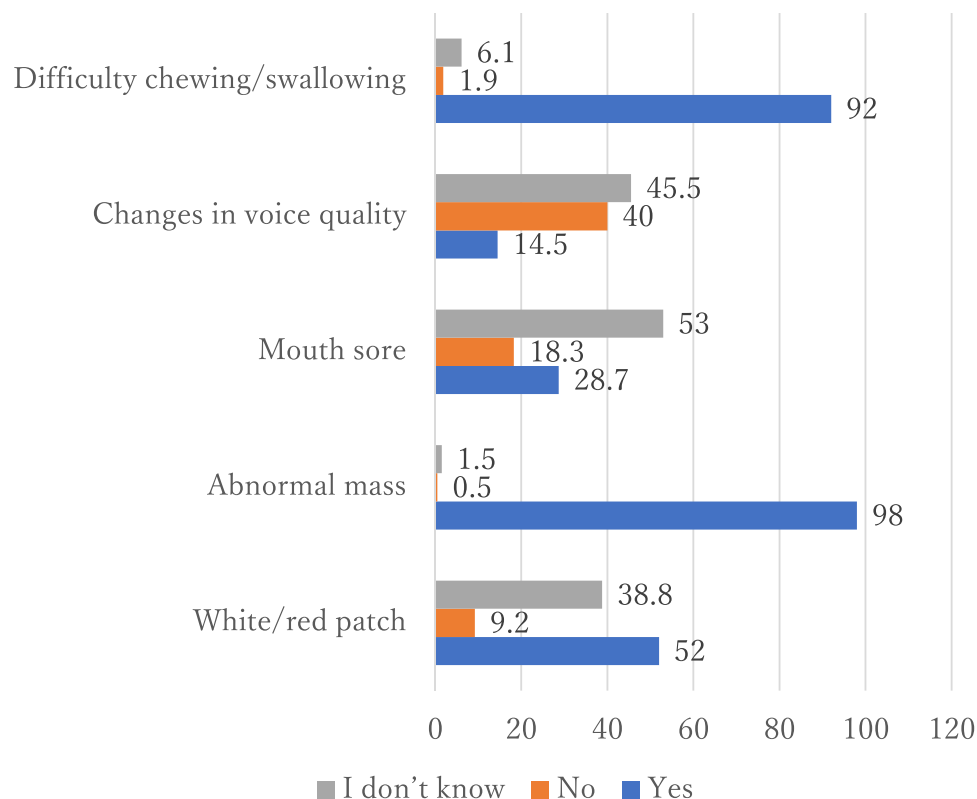


Figure 1 Signs of Oral Cancer.

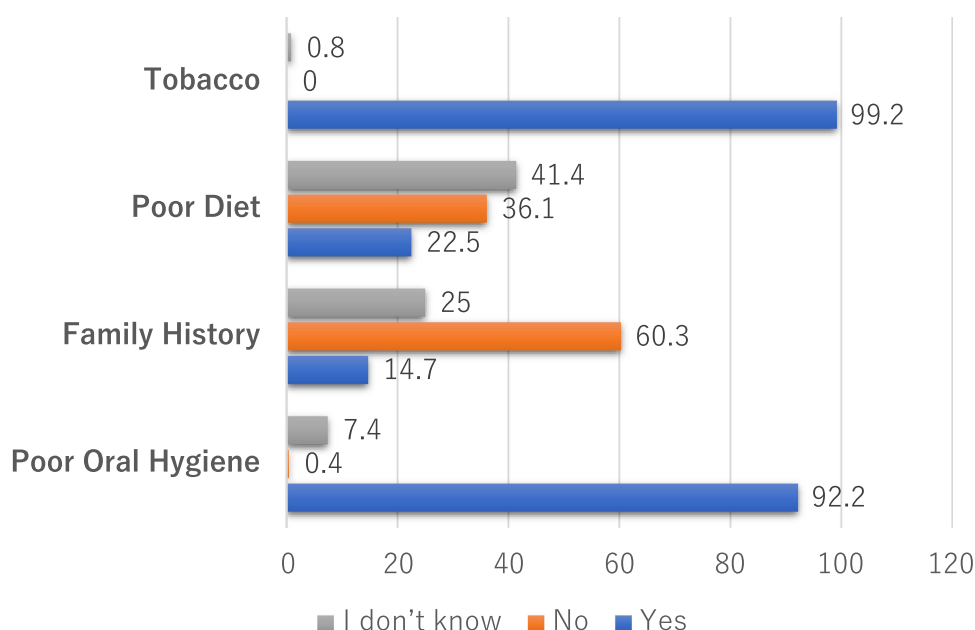


Figure 2 Risk Factors for Oral Cancer.

also displays the risk factors for oral cancer among participants. Tobacco use was the most commonly reported risk factor (99.2%) for oral cancer, followed by poor oral hygiene as the most significant risk factor (Figure 2).

It is worth noting that 80% of tobacco users and 80.1% of non-tobacco users in our study received information about oral cancer from their dentists, which, in turn, was not statistically significant (Table 1) indicates the results of a multivariate logistic regression analysis that examined the associations among tobacco use, gender, education level, age, and questions about oral cancer knowledge. The analysis reveals a robust and statistically significant association between tobacco use and individuals aged 60 or older. These individuals have odds of tobacco use that are 3.88 times higher than those younger than 60 ($p < 0.001$). Additionally, tobacco users were found to be 3.04 times more likely to possess knowledge about oral cancer (OR: 3.04, $p < 0.001$, 95% CI: 1.93–4.80), indicating a significant association. (Table 2)

Table 1 Socio-Demographic Characteristics of Patients by Tobacco Use Status

		With Tobacco use (n=206)	Without Tobacco use (n=229)	p-value
Variables no (%)				
Gender	Male	158(76.7)	186(81.2)	0.149
	Female	48(23.3)	43(18.8)	
Age	<30	92 (44.7)	131 (57.5)	0.002
	31–60	72 (35.0)	76 (33.3)	
	≥60	42 (20.4)	21 (9.2)	
Level of education	Illiterate	52 (25.2)	66 (28.8)	0.004
	Primary	27 (13.1)	43 (18.8)	
	Secondary	25 (12.1)	44 (19.2)	
	High school or more	102 (49.5)	76 (33.2)	
Have you ever heard of oral CA?	No	96 (46.6)	157 (68.6)	<0.001
	Yes	110 (53.4)	72 (31.4)	

(Continued)

**Table 1** (Continued).

		With Tobacco use (n=206)	Without Tobacco use (n=229)	p-value
Type of Tobacco	Never used Tobacco		229 (100)	<0.001
	Cigarette	128 (62.1)	–	
	Waterpipe tobacco smoking	29 (14.1)	–	
	Smokeless tobacco (Nass)	49 (23.8)	–	
Duration of any type of tobacco use	< 6 months	49 (23.8)	–	<0.001
	1–< 2 years	52(25.2)	–	
	2–< 3 years	34(16.5)	–	
	≥ 3 years	71 (34.5)	–	
Frequency of tobacco use per day	1–5 times per day	35 (17.0)	–	<0.001
	6–10 times per day	51 (24.8)	–	
	11–15 times per day	53(25.7)	–	
	16 ≥	67(32.5)	–	
Has your dentist asked you about your smoking habit?	Yes	164(80.0)	185(81.1)	0.429

Abbreviation: CA, Cancer; % percentage.

Table 2 Multivariate Logistic Regression Analysis of Factors Associated with Tobacco Use Among the Study Participants

Variables	With tobacco use (n=206)	OR	(95% CI)	P value
Gender, n (%)				
Male	158(76.7)	ref		
Female	48(23.3)	1.06	0.59–1.89	0.834
Education, no (%)				
Illiterate	52 (25.2)	ref		
Primary/private education	27 (13.1)	0.70	0.37–1.34	0.754
Secondary	25 (12.1)	1.15	0.91–1.46	0.215
High school or more	102 (49.5)	1.09	0.61–1.93	0.757
Age, no (%)				
<30	92 (44.7)	ref		
31–60	72 (35.0)	1.38	0.87–2.17	0.166
≥60	42 (20.4)	3.88	2.05–7.36	<0.001
Q1				
No	42 (20.0)	ref		
Yes	164(80.0)	0.96	0.45–2.06	0.933
Have you ever heard of oral CA?				
No	96 (46.6)	ref		
Yes	110 (53.4)	3.04	1.93–4.80	<0.001

Note: Q1: Has your dentist asked you about your smoking habit?

Abbreviations: OR, odds ratio; CI, confidence interval; ref, reference category; %, percentage.

Discussion

Nearly 66% of oral cancer patients are diagnosed at late stages, resulting in intensive treatment and poor survival rates.¹⁸ Insufficient public awareness is recognized as a significant obstacle to the early detection of oral cancer.¹⁹ The study revealed

a widespread lack of awareness about oral cancer among the participants. Only 41.8% of patients were aware of the likelihood of oral cancer, which is unsatisfactory compared to awareness rates in other studies. For instance, in a recent survey conducted in Beijing in 2022, 52.9% of participants were aware of oral cancer.²⁰ In a comparable survey carried out in Jakarta, Indonesia, only 53.2% of the population had heard of oral cancer.¹² Only 68.9% of the study population in a similar study conducted in Pakistan had heard of oral cancer.²¹ A few nations or regions also recorded lower awareness rates among their citizens, including 15.3% in Nigeria¹¹ and 30.7% in Iran,¹⁴ and Portugal 68.6%.²² An American study, however, found findings that were different from those of ours. This study revealed that there was a high degree of oral cancer awareness, with 94% of survey participants having some knowledge of the disease. The high educational level of the study participants may have contributed to this heightened awareness.¹³ These findings indicated that there was still a need for more information regarding oral cancer in general, making it crucial to adopt the act of health education. No specialized information sources about oral cancer are available to the general public in Afghanistan.

In this study, cigarette smoking was the predominant mode of tobacco use in which 62.1% of smoking participants reported, followed by water-pipe tobacco and smokeless tobacco (Nass) which was reported only by 14.1% and 23.8% of respondents respectively. In addition, 34.5% of the respondents had a history of smoking for more than 3 years, and the overall frequency of cigarette smoking was more than 16 times a day. Since tobacco use causes millions of cancer deaths each year, it continues to be the biggest cancer risk factor. The aromatic hydrocarbon benzo-pyrene and the tobacco-specific nitrosamines are the main carcinogens in tobacco smoke.²³

One of the most crucial variables in the prevention of oral cancer is public awareness of the risk factors. In the present study, although the knowledge regarding risk factors was found to be good; with 99.2% of respondents recognizing smoking as a risk factor for oral cancer; most of them appeared unconcerned about this connection. Similar findings were observed in other studies.^{24–26} Our study aligns with findings that while awareness of smoking's dangers is high, it does not always lead to behavior change. In Afghanistan, the low cost of tobacco, due to minimal taxation, likely contributes to continue smoking despite this awareness.

In addition, the continuation of tobacco use despite awareness may be rooted in several psychological factors, including addiction, cognitive dissonance, and denial. Addiction to nicotine can create a strong dependency, making it difficult for individuals to quit, even when they understand the health risks involved. Cognitive dissonance, where individuals are aware of the dangers but continue their behavior to avoid the discomfort of change, is another potential psychological barrier.^{27,28} Moreover, some individuals may downplay the personal risks, believing that they will not be affected. These psychological factors highlight the need for targeted behavioral interventions in addition to general awareness campaigns. Community-based interventions should focus on both raising awareness and providing tangible support for behavior change.²⁸ To address these challenges, a comprehensive approach is needed, combining increased tobacco taxes with community-based interventions like smoking cessation programs, behavioral counseling, and psychological support through cognitive-behavioral therapy and motivational interviewing. These efforts should be integrated into primary healthcare services to enhance effectiveness.²⁹ Therefore, it is imperative to educate the public about the significant increase in oral cancer risk associated with tobacco use. It appears that informing people through the media, particularly campaigns promoting tobacco cessation, is effective.

We would want to address a limitation of our study: the fact that we only interviewed patients at Kabul Stomatology Teaching Hospital. It would have been nice to survey a representative sample of Kabul city residents. But this study will serve as a starting point for a much bigger study. The present study's dependence on self-reported data was another drawback. Respondents may overstate the severity or frequency of conditions, or they may understate it. Additionally, patients may have misunderstood or forgotten what was covered in the survey.

Conclusion

This cross-sectional study highlights the limited awareness and understanding of oral cancer within our study population. While participants were able to recognize that poor oral hygiene and tobacco use can cause oral cancer, they lacked awareness of other specific risk factors. This suggests that simply raising awareness may not be sufficient, as individuals who are aware of the dangers of smoking may still continue to smoke. Therefore, efforts should include not only raising awareness but also implementing comprehensive strategies to support behavior change. It is essential to mandate that dentists fulfill their critical

role in educating the public about oral cancer and to incorporate additional interventions, such as support systems for quitting smoking and behavioral counseling, to address both knowledge and practical behavioral change.

Data Sharing Statement

Data supporting the study's findings can be obtained upon request from the corresponding author.

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Disclosure

The authors report no conflicts of interest in this work.

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