

Evaluation of Oral Cancer Awareness and Knowledge Among Patients at a Tertiary Care Dental Hospital, Lahore

Abstract:

Objective: To assess knowledge, attitudes and practices regarding oral cancer among patients attending the outpatient department and screening the gaps regarding awareness of risk factors & prevention.

Methodology: This cross-sectional study was conducted at Chaudhry Muhammad Akram Dental Hospital from September 2024 till February 2025. 406 patients were included by nonprobability consecutive sampling technique. A structured questionnaire was used to collect the data. The chi-square test was used to investigate the association between the variables with a significance level of $p < 0.05$, while frequency and percentages were analyzed with the descriptive statistics.

Results: Of the 406 participants 59.4% were male and 41.1% were female. Awareness to Common symptoms of oral cancer were reported to be 30%. 20% of the study participants said they'd ever visited a dentist on a regular basis, 14.8% had ever received any type of oral cancer screening. It was found that there is a statistically significant ($p < 0.05$) association of risk factors regarding education status.

Conclusion: This study highlights significant lack of awareness of oral cancer in terms of risk factors and the screening practices.

Keywords: Awareness, Oral Cancer, Risk factors, Screening

Introduction:

Oral cancer is a major global health problem with low- and middle-income countries suffering from high morbidity and mortality rates due to late-stage diagnosis and low awareness¹. It is one of the most common cancers in South Asia, and the burden of oral cancers is increasing in Pakistan due to tobacco use, chewing of betel quid, and poor oral hygiene maintained by the population in Pakistan². Recent studies show that oral cancer is calculated among the top 10 cancers among population in Pakistan especially in urban and rural areas. The emergence of such a disease is particularly disturbing in a setting where there is widespread prevalence of smokeless tobacco products such as gutka, pan and naswar which are common among lower socio-economic classes³. There have been excellent medical advancements that unfortunately have not yet extended to early signs and risk factors leading to late-stage diagnosis and poor outcomes on treatment⁴.

It is very important that the raising level of public awareness about oral cancer may reduce its incidence, and the prognosis may be improved by early diagnosis and preventive measures, as

most of the previous studies proved. However, there is no existing data available on knowledge and attitude of population regarding oral cancer in Pakistan. Few people are aware of the link between oral cancer and modifiable risk factors, and it is not a practice among most adults to visit a dentist for a routine preventive screening⁵. On top of that, there is no organized national awareness program, hence the public ignorance in this regard. Enhancing the awareness and attitudes of dental patients to visit dental hospitals can be beneficial in identifying the gaps in the existing knowledge gaps and the necessity for health education for changing the prevailing situation.

Therefore, this study was conducted among patients to assess their awareness of oral cancer symptoms, risk factors, prevention, as well as information source among patients and to identify the gaps in knowledge to formulate effective public health strategies aimed at early detection and prevention.

Materials & Methods:

This descriptive cross-sectional study was conducted at Chaudhry Muhammad Akram Dental Hospital, Lahore from September 2024 to February 2025. A sensible estimate for the prevalence (P) of oral cancer awareness in our target population would, according to a paper published by Reddy et al⁶, be approximately 60% (0.60). The sample size was finally calculated as 369, keeping margin of error to be 5%, and confidence interval of 95%. We increased the sample size by 10% in case of any non-response or incomplete survey, so, our final sample size was 406 patients.

Patients of either sex aged 18 years or above who were attending the outpatient department at the above-mentioned Hospital were included in the study. Participants who had given informed consent to participate were recruited. All patients without a history of oral cancer or any other malignancy was included in this study. Exclusion criteria were having any malignancy, oral cancer, refusal to participate, and cognitive or communication impairment that could prevent the patient from completing the questionnaire.

Participants were assessed for knowledge about oral cancer, awareness about oral cancer and attitude toward oral cancer through a structured questionnaire. SPSS version 25 was used to analyze the data. Descriptive statistics include mean, standard deviation, frequency and percentage to summarize data. Inferential statistics were utilized to test the study hypotheses.

Chi-square tests were conducted to assess associations between categorical variables including education level and knowledge of oral cancer. We performed correlation analysis to assess the relationship between media exposure and knowledge of oral cancer. Statistical significance was set at p-value <0.05. Study protocol was approved by institutional review board (IRB) prior to initiation of the study. All subjects included in this study provided informed consent prior to participation. To ensure the reliability and validity of the study, cut-off values for key variables were established according to international published studies^{7,8}

- **Awareness Level Classification:**
 - High Awareness: Score $\geq 70\%$
 - Moderate Awareness: Score 40-69%
 - Low Awareness: Score $< 40\%$

- **Regular Dental Visits:**
 - Frequent Visitors: At least one visit every 6 months
 - Occasional Visitors: One visit per year
 - Rare Visitors: Less than one visit per year

Results:

The study included a total of 406 participants. The figures and tables below depict the demographic parameters of the respondents and their attitudes and awareness on oral cancer.

Figure 1: Demographic Characteristics of Participants (n=406)

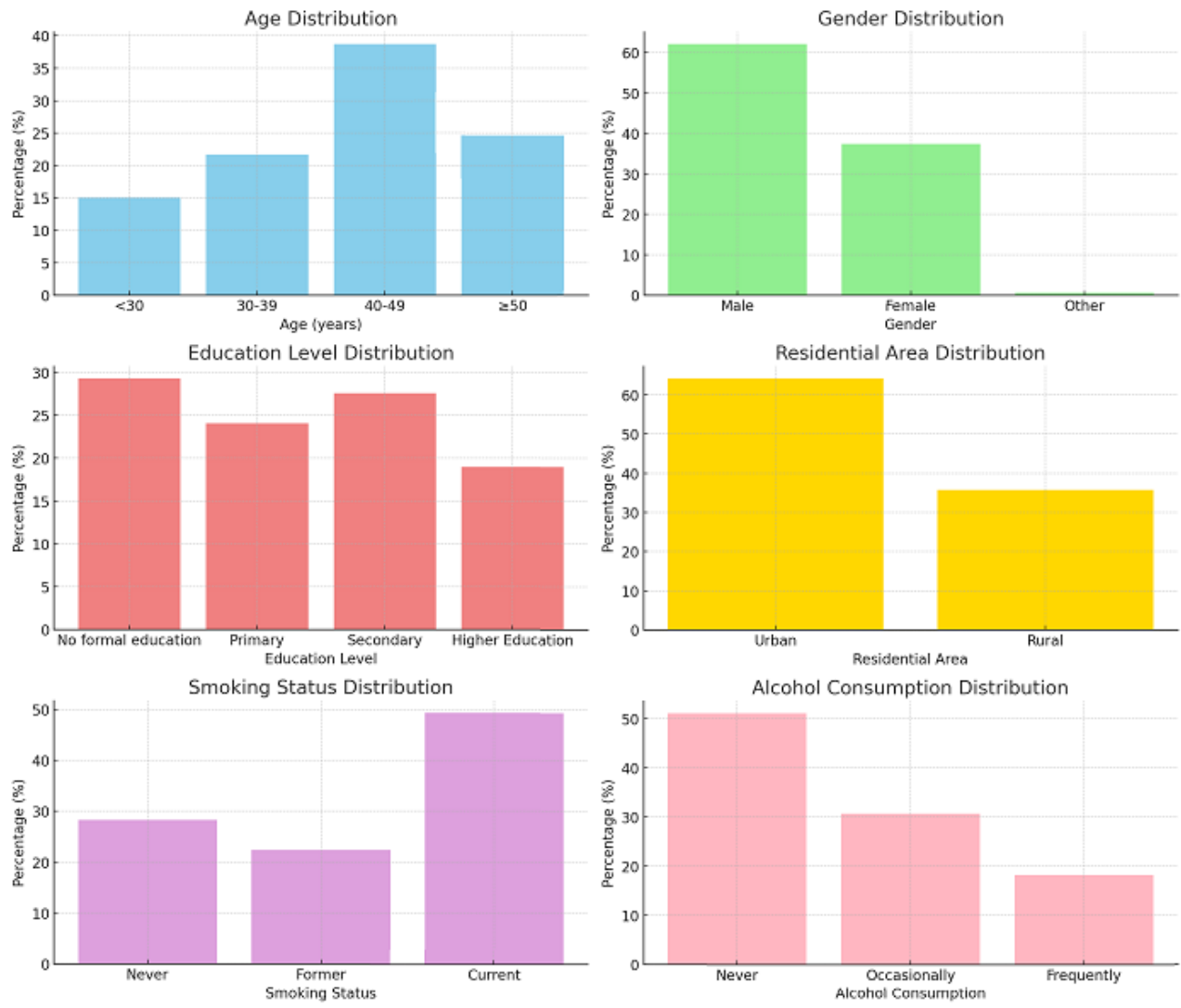


Table 1: Awareness of Oral Cancer (n=406)

Variable	Response	Frequency (n)	Percentage (%)	p-value
Have you heard of oral cancer?	Yes	276	68%	<0.001*
	No	130	32%	
Awareness of common symptoms	Yes	122	30%	0.032*
	No	284	70%	

Variable	Response	Frequency (n)	Percentage (%)	p-value
Awareness of tobacco as a risk factor	Yes	243	60%	<0.001*
	No	163	40%	
Awareness of betel nut/pan/gutka as a risk factor	Yes	262	64.5%	0.014*
	No	144	35.5%	
Knowledge on HPV as a risk factor	Yes	20	5%	0.041*
	No	386	95%	
Awareness of early signs (ulcers, patches, etc.)	Yes	24	6%	0.029*
	No	382	94%	

*Statistically significant at $p < 0.05$

Table 2: Attitudes Towards Oral Cancer Prevention and Screening (n=406)

Variable	Response	Frequency (n)	Percentage (%)	p-value
Do you visit the dentist regularly?	Yes	81	20%	0.019*
	No	325	80%	
Have you ever undergone an oral cancer screening?	Yes	60	14.9%	<0.001*
	No	356	85.1%	
Do you perform self-examination of the oral cavity?	Yes	61	15%	0.034*

Variable	Response	Frequency (n)	Percentage (%)	p-value
	No	345	85%	
Would you undergo screening if recommended?	Yes	323	79.6%	<0.001*
	No	83	20.4%	
Do you think quitting smoking reduces oral cancer risk?	Yes	182	45%	0.021*
	No	224	55%	
Would you encourage family to avoid tobacco/betel nut?	Yes	291	71.7%	0.015*
	No	115	28.3%	

Table 3: Sources of Information on Oral Cancer (n=406)

Variable	Response	Frequency (n)	Percentage (%)	p-value
Have you ever received information about oral cancer?	Yes	73	18%	0.027*
	No	333	82%	
Primary source of information	TV	115	28.4%	<0.001*
	Newspaper	70	17.2%	
	Internet	100	24.7%	
	Health professional	79	19.6%	
	Family friends &	41	10.1%	

Variable	Response	Frequency (n)	Percentage (%)	p-value
Have you discussed oral cancer with a doctor?	Yes	129	31.8%	0.031*
	No	277	68.2%	
Do you trust health professionals as a reliable source?	Yes	276	67.9%	0.011*
	No	130	32.1%	
Would you prefer more awareness programs?	Yes	345	85%	<0.001*
	No	61	15%	

Discussion:

Oral Cancer is the one of the most prevalent cancers in Pakistani population⁹. A large proportion of the population which was included in the current research lacked knowledge of oral cancer, its risk factors and prevention. In addition, significantly many of them were ignorant of the relationship of oral cancer with smoking, chewing betel nut and consumption of alcohol. Oral Cancer symptoms may present early; however patients lack recognition of the clinical signs early, that can delay diagnosis and treatment¹⁰.

Indeed, these results align with a study which show public knowledge regarding oral cancer to be limited, particularly concerning the symptoms and risk factors⁹. In China, a research study reported an awareness rate of oral cancer is only 52.9% which is not so far from what we found here, indicating that it is a problem for public health education in this domain all around the world¹⁰. In studies conducted in Western countries, those with high levels of awareness were more likely, and this may be due to the differences in culture and regions affecting public knowledge regarding oral cancer¹¹. For example, a study conducted in Portugal found subjects had an overall 89.5% awareness of the oral cancer–smoking related process, whereas awareness surrounding the process associated with the misuse of alcohol was recorded at 63.3%⁴. The findings of our study could be attributed to three possible reasons inefficacious health campaigns, low literacy rate and cultural practices in Pakistan^{12,13}. In a study conducted in india there was strong association (86.7%) was found between tobacco and alcohol intake with oral and pharyngeal cancers, awareness of public regarding tobacco and alcohol as risk factor for these cancers was not very significant¹⁴. It evidently accentuates the necessity of meticulous educational programs to create awareness about oral cancer in the local community. Community based programs along with oral cancer education as part of routine dental visits might be an

effective way to improve public awareness and early detection of this condition^{15,16}. Most of the oral cancer arise from premalignant lesions¹⁶. Awareness about the early signs of oral cancer also plays a key role in seeking immediate medical care. In our study only 6 % of participants were aware of early signs (ulcer, patches, swelling) which align with previous study in which only 8% of participants were aware of these signs¹⁷. Electronic and social media can play a crucial role in sensitizing patients about early signs of oral cancer, and the importance of regular dental checkups. In a study conducted in Italy 44.3 % of the patients received information about oral cancer signs and pros of early detection which aligns with our study in which 42% of the patients heard about oral cancer through electronic and print media¹⁸. Well organized campaigns should be run frequently to sensitize patients about oral cancer. Most of the people were not aware of the diagnostic tools and treatment options for oral cancer in patients coming from rural areas¹⁹. Education level also plays a vital role in understanding the risk factors associated with Oral cancer, Importance of regular dental checkups, benefits of early diagnosis and timely management²⁰.

Future research should also include longitudinal studies and research in many various settings to confirm and enhance the findings. Finally, the study highlights the knowledge and awareness of the oral cancer among patients which is significantly lacking in the tertiary care dental hospital. Comparative analysis with international studies also proves that the problem is not Pakistan specific rather global. Such gaps could only be bridged through education by concentrating on early detection and prevention of oral cancer.

Conclusion:

There are obvious knowledge and awareness gaps exist in patients regarding causative factors, early signs and preventive methods of oral cancer. A considerable number of participants were unaware of tobacco use, betel nut chewing, and alcohol consumption as the major risk factors for oral cancer. This study encourages a coordinated multi-disciplinary effort to improve awareness among the public and promote preventive behavior because of the rapidly increasing burden of oral cancer in Pakistan.

Limitations of the Study:

A limitation of this study is that it is cross-sectional and therefore provides a snapshot in time of knowledge and awareness but no causation¹⁴. The study was conducted at only 1 Dental Hospital in Lahore, which may limit the transferability of the results to other settings or populations

Ethical Considerations:

Ethics: This study is approved by the Institutional Review Board (IRB) of Azra Naheed Medical and Dental College. All participants provided written informed consent prior to data collection. All patient records were treated anonymously to protect patient privacy.

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Disclosure:

The authors declare no competing interest.

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