

# Assessing Awareness and Knowledge of Oral Cancer among Adult Dental Patients in Lahore, Pakistan

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## ABSTRACT

**Objective:** To determine the level of awareness and knowledge of oral cancer and its association with socio-demographic variables

**Study Design:** Observational study

**Place and duration of study:** The study was conducted at the Department of Prosthodontics, Lahore Medical and Dental College, Lahore from December 2014 to December 2015.

**Material and Methods:** 952 participants of age 18 years and above participated. Sociodemographic information was obtained and a structured questionnaire comprising of 8 closed-ended questions assessed the general awareness and knowledge regarding oral cancer. SPSS version 22 was used for statistical analysis.

**Results:** Majority had poor awareness (63.8%) and poor knowledge (82.88%) of oral cancer. A significant association was observed with age, gender, place of residence and education level.

**Conclusion:** The overall awareness and knowledge of the population is lacking. It is recommended that more effort and time should be invested in public educational programs

**Key words:** Oral cancer; knowledge; risk factors

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## INTRODUCTION

Oral cancer includes the cancers of the lips, tongue, buccal mucosa and rest of the oral cavity, but not cancers of the major salivary glands. Oral cancer continues to remain as a life-threatening disease and is one of the most debilitating and disfiguring of all malignancies. It is responsible for a significant amount of morbidity and mortality rates worldwide especially in developing countries<sup>1,2,3</sup>. Oral cancer is the 15<sup>th</sup> most common cancer globally<sup>4</sup>. While it is estimated that cancer incidence is 14 million new cases, oral cancer alone claims about 300,000 deaths (2.1%) annually with 1.8% mortality globally<sup>5,6</sup>.

Pakistan is facing double burden of the diseases like other developing countries of this region, there are un-

controlled infectious diseases with increasing graph of chronic disease like oral cancer as well. The most prevalent form of the oral cancer is the oral epithelial, mucosal malignant form called oral squamous cell carcinoma which constitutes around 90% of all the malignancies of the oral cavity<sup>7</sup>. According to WHO (World Health Organization) there will be a pronounced increase in trend of oral cancer patients especially in South Asian Countries where incidence of oral cavity cancers are found highest in all urban cancer registries, in comparison to global data. In developing Asian countries, the main carcinogenic factor are the betel quid areca nut, its substitutes and smoking<sup>8</sup>. According to Shaukat Khanum cancer registry Lahore in Pakistan, during the year 2016, oral cavity malignant neoplasm is the 6<sup>th</sup> most common cancer in adults while other types of cancers were slightly ahead of oral cancer<sup>9</sup>.

Majority of oropharyngeal cancers are oral squamous cell carcinomas, which account for 90-94% of all oral cancers<sup>10</sup>. The role of smoking, alcohol consumption and betel quid chewing as a potential risk factor of oral cancer has been established by numerous researchers<sup>11, 12</sup>. However, some patients develop oral squamous cell carcinomas without exposure to these risk factors. This suggests that genetic predisposition or oncogenic viruses may also play a role<sup>13, 14</sup>.

Delayed presentation of oral cancer results in increased treatment morbidity and reduced survival rates. Lack of public awareness and knowledge is the most significant factor in delaying diagnosis and treatment of oral

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cancer. Most of the oral cancers are preventable if people know which risk factors they must control or eliminate<sup>1, 15, 16</sup>.

**MATERIALS AND METHODS**

The descriptive observational study was performed in Lahore Medical & Dental College, Lahore. The duration of the study was from December 2014 to December 2015. Non-probability convenience sampling technique was used to collect requisite information. 952 participants, aged 18 years and above were included in the study. Patients attending the hospital on emergency basis, belonging to medical field and those with communication disabilities were excluded from study. Informed consent was obtained from the respondents. Socio-demographic information such as age, gender, marital status, place of residence, and educational level were recorded.

A structured questionnaire comprised of 8 closed-ended questions, assessed the general awareness and knowledge regarding oral cancer among the participants. Response categories for each knowledge of risk factors questions were ‘no’ coded as 1, and ‘yes’ coded as 2. Furthermore, average knowledge of risk factors mean scores were used for group comparisons. For overall awareness regarding oral cancer, mean score of three awareness questions were taken and labeled “poor awareness” for those with less than 1.5 mean score and “good awareness” for those with greater than 1.5 mean score. Similarly, for overall knowledge, the mean of five knowledge questions were taken and categorized as “poor knowledge” for those with less than 1.5 and “high knowledge” for those with greater than 1.5 mean score.

Data collected entered cleaned and analyzed in the SPSS version 22. The qualitative variables were presented in the form of mean ± standard deviation, frequencies and percentages while frequencies and percentages tables were used for quantitative variables. An independent t-test was used for group comparison of gender, marital status, and place of residence with respect to mean knowledge scores while One way ANOVA is used to compare education level of participants with mean knowledge scores. The P-value was significant at P<0.05.

**RESULTS**

The sociodemographic characteristics of the participants is presented in Table 1. As depicted; a total of 87% (830) of the participants were <60 years old. Majority were married 76.7% (730) & belonged to urban residence 71.7% (683). 81.4% (773) had education level less than higher secondary school.

Table 2 shows general awareness and knowledge of risk factors regarding oral cancer. The findings of this study revealed that less than half of the respondents 359 (37.7%) had heard about oral cancer. 811 (85.2%) had

the misconception that oral cancer is developed by chance. Only 313 (32.9%) responded that oral cancer can be prevented and cured if diagnosed early.

**Table No.1: Distribution of Respondents by Socio-demographic Profile**

Characteristics	Frequency %
<b>Gender:</b> Male	515 (54.1)
Female	437 (45.9)
<b>Age Groups:</b> 19-29 years	262 (27.5)
30-39 years	270 (28.4)
40-49 years	187 (19.6)
50-59 years	111 (11.7)
60-69 years	81 (8.5)
>70 years	41 (4.3)
<b>Marital status:</b> Single	222 (23.3)
Married	730 (76.7)
<b>Education:</b>	
No Formal Education	318 (33.4)
Primary School	136 (14.3)
Secondary School	319 (33.5)
Higher Secondary	113 (11.9)
Graduate & Above	66 (6.9)
<b>Residence:</b> Urban	683 (71.7)
Rural	269 (28.3)

**Table No.2: Frequency of Responses for Individual Questions**

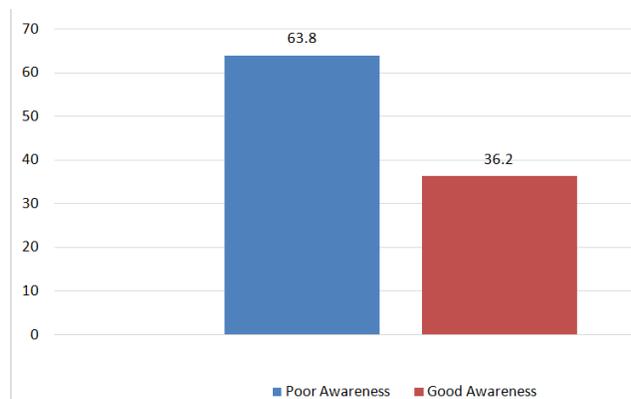
General Awareness Of Oral Cancer	Frequency (%)
<b>Have you heard of oral cancer?</b>	
Yes	359(37.7)
No	593(62.3)
<b>Does oral cancer develop as a matter of chance?</b>	
Yes	811 (85.2)
No	141 (14.8)
Is prevention & treatment of oral cancer possible?	
Yes	313 (32.9)
No	639 (67.1)
<b>Knowledge of Risk Factors</b>	
<b>Smoking:</b>	
Yes	329 (34.6)
No	623 (65.4)
Smokeless tobacco (e.g.Betel nut)	
Yes	211 (22.2)
No	741 (77.8)
<b>Alcohol consumption:</b>	
Yes	159 (16.7)
No	793 (83.3)
<b>Age:</b>	
Yes	76 (8.0)
No	876 (92)
<b>Family history of cancer:</b>	
Yes	58 (6.1)
No	894 (93.9)

Next section in Table 2 was regarding knowledge of risk factors. Of the 952 respondents 329 (34.6%) answered that smoking plays a role in oral cancer and 211 (22.2%) considered smokeless tobacco as a crucial risk factor. Few 159 (16.7%) participants viewed alcohol as a key risk factor in oral cancer. 876 (92%)

did not know that the risk of oral cancer increases with age. Only 58 (6.1%) of the respondents knew that family history of oral cancer is an important risk factor.

**Table No.3: Comparison of Oral cancer awareness and knowledge scores by Age, Gender, Marital status, Place of residence, and Education**

Variables	N	Awareness of oral cancer Mean (SD)	Knowledge of risk factors Mean(SD)
Age Groups			
19-29 years	262	4.76(0.79)	6.37(1.54)
30-39 years	270	4.48(0.74)	5.80(1.31)
40-49 years	187	4.45(0.73)	5.69(1.21)
50-59 years	111	4.39(0.72)	5.54(1.18)
60-69 years	81	4.41(0.73)	5.66(1.32)
>70 years	41	4.19(0.55)	5.29(0.87)
P-value		P<0.001*	P<0.001*
Gender			
Male	515	4.61(0.78)	6.04(1.44)
Female	437	4.43(0.72)	5.67(1.23)
P-value		P<0.001*	P<0.001*
Marital Status			
Single	222	4.76(0.79)	6.38(1.51)
Married	730	4.45(0.73)	5.71(1.28)
P-value		P<0.001*	P<0.001*
Place of residence			
Urban	683	4.62(0.78)	6.09(1.46)
Rural	269	4.27(0.63)	5.30(0.84)
P-value		P<0.001*	P<0.001*
Education			
No formal education	318	4.28(0.67)	5.37(0.96)
Primary School	136	4.28(0.60)	5.42(1.00)
Secondary School	319	4.62(0.78)	6.08(1.47)
Higher Secondary	113	4.79(0.80)	6.25(1.32)
Graduate and Above	66	5.22(0.60)	7.54(1.45)
P-value		P<0.001*	P<0.001*



**Figure No.1: Awareness of Oral Cancer%**

Table 3 shows the comparison of mean oral cancer awareness and knowledge scores by age, gender,

marital status, place of residence and education status. Younger respondents (19-29 Years), unmarried, males, individuals living in urban localities and participants with higher educational qualifications had better knowledge regarding the risk factors and the difference was statistically significant (P<0.001).

Figure 1 displays the overall awareness of participants regarding oral cancer. Out of 952 respondents, 608 (63.8%) had “poor awareness” and 344 (36.2%) had “good awareness” of oral cancer.

Figure 2 displays overall knowledge of participants regarding oral cancer. Out of 952 respondents, 789 (82.88%) had “poor knowledge” while 163 (17.12) participants had “good knowledge” of oral cancer.



**Figure No.2: Knowledge of Oral Cancer%**

## DISCUSSION

Oral cancer in most of the cases is a preventable disease by avoiding or controlling the known risk factors. Mass public education/information and early detection may result in reducing the oral cancer burden on the society. Lack of general awareness, misconceptions about risk factors and failure to detect early signs and symptoms is responsible for sizeable morbidity and mortality rates worldwide especially in developing countries. Data on the level of oral cancer awareness in Pakistan is scarce which makes the planning of public health policies very difficult.

The present study showed that the level of participant’s awareness about oral cancer was alarmingly low, with only 37.7% had heard of oral cancer. This figure is lower to that reported in previous studies in Jordan (45.6%)<sup>17</sup>, Turkey (48.9)<sup>18</sup>, Saudi Arabia (53.6%)<sup>19</sup>, Portugal (68.6%)<sup>16</sup>, Malaysia (84.2%)<sup>3</sup>, Sudan (85.6%)<sup>2</sup>, India (91.2%)<sup>15</sup>, Nigeria (72%)<sup>20</sup> and USA (84.5%)<sup>21</sup>. Countries in our region, having high prevalence of oral cancer, report higher level of public awareness. The fact that most of our study patient had not even heard of oral cancer shows the current lack of public health education programs focusing on this type of cancer.

Several socioeconomic factors may affect public awareness and knowledge. Several studies have reported that younger respondents were more aware and had higher knowledge as compared to older individuals which is comparable with the results of current

study<sup>3,4,15,22,23,24,25</sup>. This may be due to the fact that the younger generations had greater media exposure. As for the difference in awareness/knowledge between both the gender, males scored better and the results are similar to other studies<sup>24,25</sup>. Few studies have reported females to be more aware regarding cancer<sup>3,15</sup>. Few studies suggest no relation among gender with their level of knowledge<sup>4,19</sup>. Better awareness among males in current study may be attributed to the vast anti-cancer campaign on the cigarette packs as smoking is more prevalent among males than in females in Pakistan.

A significant difference in awareness/knowledge was observed between the urban and rural population with the former scoring significantly better. This finding is similar to another study conducted in India<sup>15</sup>.

It was observed that the awareness/knowledge scores among the various education groups was significantly more for those respondents whose education level was more than secondary school and lower among respondents who were illiterate or had only primary school education. This finding is consistent with the result of many other studies<sup>3,4,15,19,23,24,25</sup>.

## CONCLUSION

The overall awareness and knowledge regarding oral cancer was quite low in the participants of this study. Thus, educational programs on the national level are needed for the public such as mass media television programs, newspaper and radio advertisements. Brochures containing information regarding the early warning signs/symptoms, risk factors, harms of smoking, betel quid and alcohol should be distributed as well. Dentists can also play a key role by updating their patients to address the problems in awareness and knowledge as identified in this study

### Author's Contribution:

Concept & Design of Study: Abdul Razzaq Ahmad  
 Drafting: Muhammad Usman Muneer  
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 Final Approval of version: Abdul Razzaq Ahmad

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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