

# ASSESSING KNOWLEDGE OF MEDICAL AND DENTAL PERSONNEL ABOUT ORAL CANCER

<sup>1</sup>FIZZA TAHIR

<sup>2</sup>FATIMA HAFEEZ

<sup>3</sup>HAMZA AHMAD SAHAF

<sup>4</sup>AMBREEN SHABBIR

<sup>5</sup>HIRA BUTT

## ABSTRACT

*The objective of the study was to determine awareness and knowledge of oral cancer among medical and dental personnel of Pakistan.*

*Study was conducted in Combined Military Hospital (CMH) Lahore Medical College. In this cross-sectional study 600 self administered questionnaires comprising of 24 questions on risk factors of oral cancer, screening of oral cancer, premalignant lesions and precursor tissue changes were distributed. Data were analyzed by SPSS version 21. ANOVA significance level was considered as  $p < 0.05$ .*

*Large percentage of respondents were able to identify smoking (95.1%), betel quid (82.4%), family history (76.6%) and occupation (77.6%) as risk factors of oral cancer whereas only 59.1% of respondents correctly identified HPV (human papilloma virus) a risk factor of oral cancer with higher awareness among medical personnel as compared to dental personnel ( $p$  value  $< 0.05$ ). Only 15.9% of the respondents were aware of indirect mode of transmission of oral cancer (risk factor through sexual contact).*

*There is a dire need to increase awareness. As medical physicians are most easily accessible by general population in this country, so they should be adequately educated and trained in performing screening examinations to detect oral and pharyngeal cancers in their early stages.*

**Key Words:** Oral squamous cell carcinoma (OSCC), oral cancer awareness, oral cancer and human papilloma virus.

## INTRODUCTION

Cancer is the abnormal and uncontrolled proliferation of cells in a tissue or organ.<sup>1</sup> Oral cancer is a serious health issue that has a world-wide occurrence.<sup>2</sup> Oral cancer is ranked as second most common cancer in males and is ascribed to the regional custom of excessive use of smokeless tobacco products such as betel nut with accessories.<sup>3,4</sup> The most common histological type of oral cancer is squamous cell carcinoma

(OSCC) which attributes to 80-90% of malignant oral neoplasms.<sup>5</sup> Oral cancer has a multifactorial aetiology with contributions of heavy use of alcohol, tobacco both smokeless and smoked form, paan or betel quid both chewing, infections, genetic factors and ionizing radiations.<sup>6</sup> An inadequate serving of fruits and vegetables is also considered a potential risk factor especially in younger population.<sup>5,7</sup> In Asians most prevalent site is buccal mucosa while in western population floor of mouth is the most prevalent site.<sup>5,8,9</sup> Oral cancer is on rise in a younger population due to putative role of human papilloma virus (HPV).<sup>10,11,12</sup>

Mortality rate due to oral cancer is high owing to lack of awareness of the disease among patients and primary health care providers, leading to delayed diagnosis.<sup>12</sup> Its early diagnosis and treatment planning can markedly enhance survival rate of oral cancer.<sup>3,13</sup> This is only possible if primary health care provides are well aware of risk factors and early signs of pre-malignant lesions. Knowledge regarding causative factors of oral cancer helps in its prevention and diagnoses.<sup>14</sup>

<sup>1</sup> Fizza Tahir, BDS, **Address:** House # 346; Sector A, Askari 10, Lahore Cantt. Email: fizza-t@hotmail.com

<sup>2</sup> Fatima Hafeez, BDS, **Address:** House # 285 Sector C, Askari 10, Lahore Email: fatimahafeez19@hotmail.com

<sup>3</sup> Hamza Ahmad Sahaf, BDS, **Address:** House # 07, Street 24, Out of Fall Road, Lahore Email: hamzasahaf@gmail.com Cell: 0322-4300428

<sup>4</sup> Ambreen Shabbir, BDS, **Address:** Prince Sultan Military College of Health Sciences, Dhahran, Kingdom of Saudi Arabia Email: ambreen\_anjum@hotmail.com

<sup>5</sup> Hira Butt, BDS

**Received for Publication:** March 2, 2017

**Revised:** June 7, 2017

**Approved:** June 9, 2017

The rationale of this study was to assess knowledge of physicians and dentists regarding oral cancer as in developing countries like Pakistan, access to dental care is limited; however, there is relatively better access to medical physicians.<sup>15</sup> Therefore, physicians could play a vital role in prevention of oral cancer by efficient identification of high-risk patients and referring them to oral and maxillofacial surgeon.<sup>16</sup>

**METHODOLOGY**

A descriptive cross sectional study was conducted at the Institute of Dentistry, Combined Military Hospital Lahore Medical College. 600 self-administered questionnaires were distributed to the final year students (BDS, MBBS), house officers, dentists and physicians. Ethical approval was obtained from the ethical review board of the institute. Informed consent was obtained from respondents.

Demographics like age, gender, public or private sector of practice, designation, field BDS or MBBS was collected, along with 24 questions on risk factors of oral cancer, screening of oral cancer, premalignant lesions and precursor tissue changes. Other questions were included to assess their opinions on incidence of oral cancer in Pakistan, most prevalent site in oral cavity, and whom to refer the suspected patients.

Data were collected and analyzed by SPSS version 21. ANOVA was applied and level of significance was kept  $p < 0.05$ . Key features of questionnaire are given in Table 1.

**RESULTS**

Analysis included 465 respondents, 158 male and 307 female. Age range was from 21-69 years. This study included 77.2% undergraduates and 22.8% graduates (physicians and dentists). Greater numbers of respondents were from dental field (65.8%). Majority did not know (51.4%) that oral cancer is second most common cancer in Pakistan.

Most of the respondents (82.4%) were able to identify betel quid as risk factor. Smoking was identified by 95.1% of respondents as a causative factor. Occupation and family history was identified as etiological factor in oral cancer by 77.6% and 77.6% respectively respondents where as less awareness about role of HPV

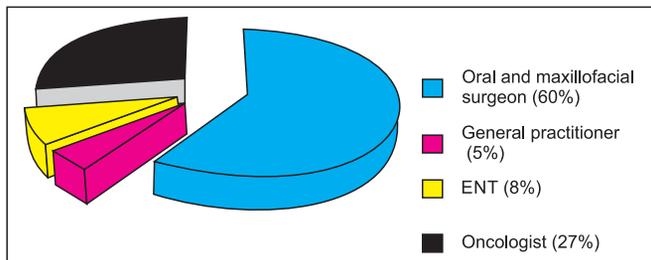


Fig 1: Where do you refer you patient if you see any suspicious oral lesion?

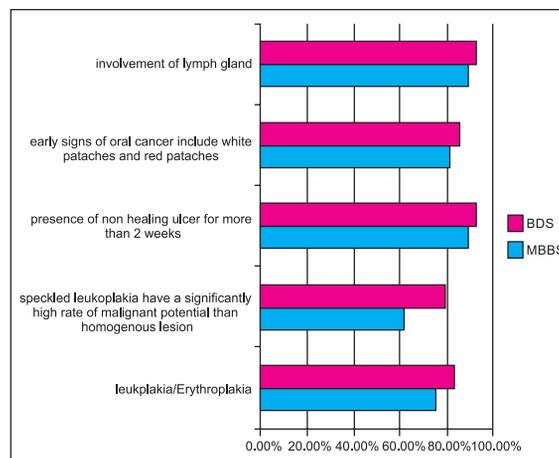


Fig 2: Percentage of respondents identifying changes associated with oral cancer

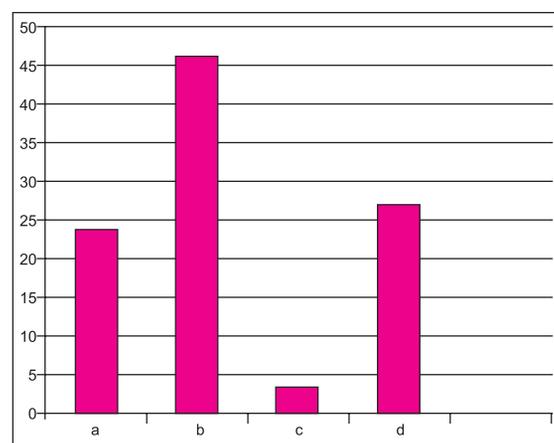


Fig 3: Recommended course of action for clinical suspicious lesion

- a-Immediate scalpel biopsy
- b-Remove potential irritants and follow up
- c-Laser vaporization of the lesion
- d-Brush biopsy of the lesion

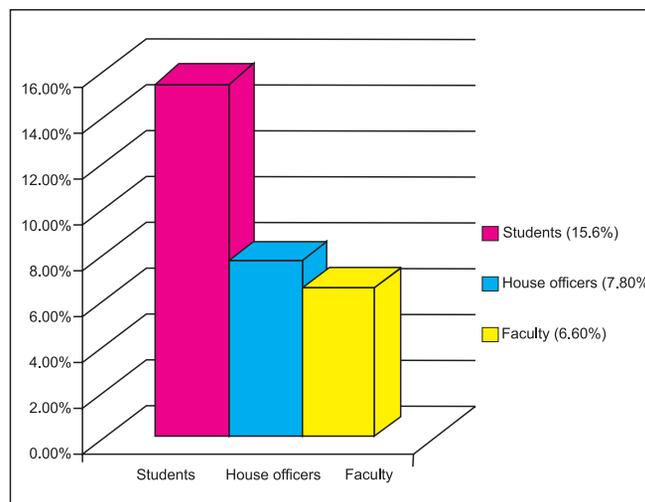


Fig 4: For Oral cancer diagnosis biopsy is not primary tool in diagnosing oral cancer

TABE 1: QUESTIONNAIRE

<b>Case Scenario For Suspicious Oral Lesion</b>	
<b>Age:</b> 41	<b>Gender:</b> Male Smoking history: Yes (20 year history of smoking 2 per day)
<b>Alcohol consumption:</b> No <b>Family history:</b> Spouse was diagnosed with human papilloma virus infection at age of 32.	
<b>Chief complaint:</b> Lesion on left side of tongue for 3 months duration. However it was diagnosed as traumatic lesion by physician.	
Oral squamous cell carcinoma (OSCC) is the 2nd most common oral malignancy in Pakistan. <b>Yes / no / not sure</b>	
Oral squamous cell carcinoma (OSCC) is associated with betel quid (tobacco) chewing. <b>Yes / no / not sure</b>	
Leukoplakia and erythroplakia have malignant potential for oral cancer production. <b>Yes / no / not sure</b>	
Biopsy is the primary tool in diagnosing oral cancer. <b>Yes / no / not sure</b>	
Oral cancer may be transmitted through sexual contact. <b>Yes / no / not sure</b>	
Daily intake of recommended servings of fruits and vegetables may reduce the risk of oral cancer. <b>Yes / no / not sure</b>	
Annual oral cancer screening examinations performed by a dental hygienist are critical to the early discovery of oral cancer. <b>Yes / no / not sure</b>	
Presence of non-healing ulcer for more than 2 weeks	<b>relevant / not relevant / do not know</b>
Spouse diagnosed with Human papilloma virus (HPV) infection	<b>relevant / not relevant / do not know</b>
Involvement of lymph gland	<b>relevant / not relevant / do not know</b>
Smoking history.	<b>relevant / not relevant / do not know</b>
Family history of cancer.	<b>relevant / not relevant / do not know</b>
Occupation of a person	<b>relevant / not relevant / do not know</b>

(59.1%) in oral cancer development was observed with more awareness in medical respondents as compared to dental respondents with p value<0.05. Only 16.6% respondents were aware about its increased occurrence in younger population who do not smoke or drink alcohol. 15.9% of the respondents were aware of indirect mode of transmission of oral cancer risk factor through sexual contact.

Respondents reported lack of adequate training (44.3%) as most common barrier in oral cancer screening followed by lack of interest (24.7%), Shortage of specialist to whom you could refer patient and lack of time (6.2%).

Majority of respondents (57.8%) correctly identified lateral surface of tongue as most prevalent site. 18.3% and 16.3% respectively, selected floor of mouth and buccal mucosa to be most prominent site for cancer occurrence. Only few respondents (7.7%) identified lip as highest prevalent site.

**DISCUSSION**

Oral cancer is a serious health issue ranked as second most common cancer in Pakistan in males.<sup>2,4</sup>

Results of this study have revealed important information concerning the awareness of oral cancer among dental and medical professionals. Tobacco (betel quid) and alcohol were reported as etiological factors for oral cancer by majority of dental and medical practitioners, and this is in accordance with the results of British studies.<sup>14,17</sup> In the present study, the least reported causative factor for oral cancer were dietary habits. Color changes like white and red patches and ulcerations were reported as signs and symptoms of oral cancer by most participants with lymphadenopathy being the most reported signs of oral cancer. Majority of medical and dental practitioners believed that tongue is the most common site of oral cancer which is in agreement with the results of a Nigerian study.<sup>17,18</sup> The prevalence of OSCC in the Asian countries is highly associated with tobacco and alcohol. Smoking tobacco as a risk factor was identified well by both medical and dental students however, significantly more dental students identified this risk factor. Oral cancer awareness was better among dental personnel as compared to medical personnel.<sup>14</sup> Workshops and seminars should be con-

ducted after every 6 months to educate medical and dental personnel about risk factors of oral cancer and screening protocols.

Risk factors like lack of fruits and vegetables have been investigated in previous studies which demonstrate to have a positive influence in preventing oral cancer.<sup>8</sup> Vegetables and fruits may exert their influence through antioxidant effect of various nutrients as Vitamins A, C, E, iron, folic acid. Increased intake of Vitamin C, Vitamin A and  $\beta$ -carotene is associated with a reduced risk of oral cancer.<sup>8,19</sup> Alcohol is a major risk factor associated in developing OSCC.<sup>20</sup> Majority of dental practitioners were unaware of role of Human Papilloma Virus (HPV) in developing oral cancer, however increased awareness was seen in medical practitioners. Awareness about role of HPV was almost same in students and faculty. HPV-16 is the most common type associated with OSCCs and oral premalignant lesions.<sup>20</sup> HPV-18 is involved in only 14% of the cases of oral cancer while HPV 16 is involved in developing oral cancer in 50% of the cases.<sup>21</sup> Trends observed for HPV-associated oropharyngeal cancers were similar between males and females.<sup>22</sup> HPV infects the epithelial cells of skin and mucosa. Most susceptible sites are mouth, throat, tongue, tonsils, vagina, cervix, uvula, penis (the urethra - the opening), and anus. Virus can be transmitted when the following areas come into contact with a virus. While it is established now that, both conventional and oral means of sexual contact can transfer the virus.<sup>12,22</sup>

Dental students identified more risk factors than medical students. Despite the malignant potential of these lesions, erythroplakia was not frequently identified by medical students. Increased number of dental students identified erythroplakia and leukoplakia as oral changes. Most of the participants agreed on referring a patient with non-healing ulcer to an oral and maxillofacial surgeon, these results were in accordance with a study published in 2007 by M Carter and R Ogden.<sup>14</sup> 27% of respondents would refer to oncologist. Definitive diagnosis can be delayed if not timely referred to oral and maxillofacial surgeon who is competent enough to screen for oral cancer. Lack of adequate training was considered the most important barrier in oral cancer screening by the participants of our research.

There were some limitations in this study. Oral cancer displays a regional variance in site prediction. In present study we did not mention the most susceptible site according to regions. Participants on the medical side were not categorized during data collec-

tion according to their designations. Stratification in categories is not done. Multiple categories create bias in their level of knowledge as the level of knowledge among undergraduates/ physicians and dentists must be different.

## CONCLUSION

According to the results of this study, large number of health care providers were well aware of the risk factors associated with oral cancer. There is a dire need to increase public awareness against the aggressive role played by tobacco, areca nuts, and other substitutes which are very commonly use in south Asian region. As medical physicians are most easily accessible by general population in this country and they more often see a patient with high risk of oral cancer, so they should be adequately educated and trained in performing screening examinations to detect oral and pharyngeal cancers in their early stages as the prognosis of the oral cancer is grave when diagnosed later a advanced stage.

## REFERENCES

- 1 Sharma JD, Kalit M, Nirmolia T, Saikia SP, Sharma A, Barman D. Cancer: scenario and relationship of different geographical areas of the globe with special reference to North East-India. *Asian Pac J Cancer Prev*. 2014; 15(8):3721-29.
- 2 Moore SR, Johnson NW, Pierce AM, Wilson DF. The Epidemiology of Mouth Cancer: A Review of Global Incidence. *Oral Dis* 2000, 6: 65-74.
- 3 Coelho KR. Challenges of the Oral Cancer Burden in India. *Journal of Cancer Epidemiology Volume* 2012; 2012 :1-17.
- 4 Ali TS, Baig S. Evaluation of a cancer awareness campaign: experience with a selected population in Karachi. *Asian Pac J Can Pre* 2006; 7(3):391-95.
- 5 Saadia Akram, Talat Mirza, M Aamir Mirza, and Masood Qureshi, Emerging Patterns in Clinico-pathological spectrum of Oral Cancers. *Pak J Med Sci*. 2013 May-Jun; 29(3): 783-87.
- 6 Fábio Ramôa PIRES, Amanda Barreto RAMOS, Jade Bittencourt Coutinho de OLIVEIRA, Amanda Serra TAVARES, Priscilla Silva Ribeiro da LUZ, and Teresa Cristina Ribeiro Bartholomeu dos SANTOS. Oral squamous cell carcinoma: clinicopathological features from 346 cases from a single Oral Pathology service during an 8-year period. *J Appl Oral Sci*. 2013 Sep-Oct; 21(5): 460-67.
- 7 Bhawna Gupta,\* and Newell W. Johnson. Systematic Review and Meta-Analysis of Association of Smokeless Tobacco and of Betel Quid without Tobacco with Incidence of Oral Cancer in South Asia and the Pacific. *PLoS One*. 2014; 9(11): 113385.
- 8 Pavia M, Pileggi C, Nobile CG, Angelillo IF. Association between fruit and vegetable consumption and oral cancer: a meta-analysis of observational studies. *Am J Clin Nutr* 2006;83(5): 1126-34.
- 9 Krishna Rao SV1, Mejia G, Roberts-Thomson K, Logan R. Epidemiology of oral cancer in Asia in the past decade--an update (2000-2012). *Asian Pac J Cancer Prev*. 2013;14(10):5567-77.

- 10 Johnson NW, Jayasekara P, Amarasinghe AA. Squamous cell carcinoma and precursor lesions of the oral cavity: epidemiology and etiology. *Periodontol* 2000. 2011;57:19-37.
- 11 Zygogianni AG, Kyrgias G, Karakitsos P, Psyri A, Kouvaris J, Kelekis N, Kouloulis V. Oral squamous cell cancer: early detection and the role of alcohol and smoking. *Head Neck Oncol*. 2011 Jan 6;3:2. doi: 10.1186/1758-3284-3-2.
- 12 Soung Min Kim. Human papilloma virus in oral cancer. *J Korean Assoc Oral Maxillofac Surg*. 2016 Dec; 42(6): 327-36.
- 13 Agrawal M, Pandey S, Jain S, et al. (2012). Oral cancer awareness of the general public in Gorakhpur City, India. *Asian Pac J Cancer Prev*, 13, 5195-99.
- 14 Carter LM, Ogden GR. Oral cancer awareness of undergraduate medical and dental students. *BMC Med Edu*. 2007; 7:44.
- 15 Ariyawardana A, Ekanayake L. Screening for oral cancer/pre-cancer: knowledge and opinions of dentists employed in the public sector dental services of Sri Lanka. *Asian Pac J Cancer Prev*. 2008 Oct-Dec; 9(4):615-18.
- 16 Sohn, W., Ismail, A. I. and Kolker, J. L. (2005), Knowledge of Oral Cancer and Screening Practices of Primary Care Providers at Federally Qualified Health Centers. *Journal of Public Health Dentistry*, 65: 160-65.
- 17 Halawany HS, Jacob V, Abraham NB, Al-Maflehi N. Oral cancer awareness and perception of tobacco use cessation counseling among dental students in four Asian countries. *Asian Pac J Cancer Prev*. 2013; 14(6):3619-23.
- 18 Uti OG, Fashina AA. Oral cancer education in dental schools: knowledge and experience of Nigerian undergraduate students. *J Dent Educ* 2006; 70:676-80.
- 19 Ibrahim K, Jafarey NA, Zuberi SJ. Plasma vitamin "A" and carotene levels in squamous cell carcinoma of the oral cavity and oro-pharynx. *Clin Oncol* 1977; 3: 203-07.
- 20 Petti S, Scully C. Oral cancer: the association between nation-based alcohol-drinking profiles and oral cancer mortality. *Oral Oncol*. 2005; 41(8):828-34.
- 21 Reddout N, Christensen T, Bunnell A et al. High risk HPV types 18 and 16 are potent modulators of oral squamous cell carcinoma phenotypes in vitro. *Infectious Agents and Cancer* 2007; 2: 21.
- 22 Hocking JS, Stein A, Conway EL, Regan D, Grulich A, Law M, Brotherton JM. Head and neck cancer in Australia between 1982 and 2005 show increasing incidence of potentially HPV-associated oropharyngeal cancers. *Br J Cancer*. 2011 Mar 1; 104(5):886-91.

**CONTRIBUTIONS BY AUTHORS**

<b>Fizza Tahir, Hamza Ahmad Sahaf, Fatima Hafeez,</b>	Study conception and design.
<b>Ambreen Shabbir, Hira Butt,</b>	Acquisition of data
<b>Fizza Tahir, Hamza Ahmad Sahaf, Fatima Hafeez, Hira Butt:</b>	Analysis & interpretation of data
<b>Fizza Tahir, Hamza Ahmad Sahaf:</b>	Drafting of manuscript
<b>Fizza Tahir, Fatima Hafeez:</b>	Critical revision
<b>Fizza Tahir Ambreen Shabbir:</b>	Final approval of version to be published
<b>Ambreen Shabbir Fizza Tahir:</b>	