

## Oral cancer awareness among students from Mumbai University

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### Abstract

**Background:** Oral cancer is among the top three types of cancers in India. Severe alcoholism, use of tobacco in the form of cigarettes, smokeless tobacco, and betel nut chewing are the most common risk factors for oral cancer. Often individuals with pre cancer even notice the alterations, such as reduced mouth opening in oral submucous fibrosis (OSMF), but they are not aware about the causes and consequences of these changes. Awareness about causes and features of oral cancers can be very helpful in prevention, control and early diagnosis of oral cancer. **Methods:** A cross-sectional study was carried out among students from Mumbai University, India during May-June 2017. Five hundred students were approached to participate in the study of which 400 agreed to participate. Pretested questionnaire was distributed and collected data was analyzed using IBM SPSS version 23. **Results:** There were 199 (49%) males and 201 (50%) females in the study and response rate was (80%). Respondents had good knowledge about oral cancer. Seventy four percent (268/362) respondents correctly identified smoking, and tobacco chewing as possible causes of oral cancer. Almost all (96%; 348/362) respondents correctly responded that oral cancer does not spread from person to person through touch or speaking. Seventy two percent (260/362) respondents believed that oral cancer is curable. Significantly higher number of male (98%) compared to female participants answered correctly to questions regarding spread of disease and occurrence of oral cancer in AIDS patients. **Conclusions:** Participants showed good knowledge about oral cancer. Female participants showed lesser knowledge compared to male counterparts. Details about oral cancer should be incorporated in the undergraduate curriculum and periodic awareness programs should be organized for students.

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**Oral cancer awareness among students from Mumbai University**

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**ABSTRACT**

**Background:** Oral cancer is among the top three types of cancers in India. Severe alcoholism, use of tobacco in the form of cigarettes, smokeless tobacco, and betel nut chewing are the most common risk factors for oral cancer. Often individuals with pre cancer even notice the alterations, such as reduced mouth opening in oral submucous fibrosis (OSMF), but they are not aware about the causes and consequences of these changes. Awareness about causes and features of oral cancers can be very helpful in prevention, control and early diagnosis of oral cancer.

**Methods:** A cross-sectional study was carried out among students from Mumbai University, India during May-June 2017. Five hundred students were approached to participate in the study of which 400 agreed to participate. Pretested questionnaire was distributed and collected data was analyzed using IBM SPSS version 23.

**Results:** There were 199 (49%) males and 201 (50%) females in the study and response rate was (80%). Respondents had good knowledge about oral cancer. Seventy four percent (268/362) respondents correctly identified smoking, and tobacco chewing as possible causes of oral cancer. Almost all (96%; 348/362) respondents correctly responded that oral cancer does not spread from person to person through touch or speaking. Seventy two percent (260/362) respondents believed that oral cancer is curable. Significantly higher number of male (98%) compared to female participants answered correctly to questions regarding spread of disease and occurrence of oral cancer in AIDS patients.

**Conclusions:** Participants showed good knowledge about oral cancer. Female participants showed lesser knowledge compared to male counterparts. Details about oral cancer should be incorporated in the undergraduate curriculum and periodic awareness programs should be organized for students.

**Keywords:** Knowledge, Oral cancer, Smoking, Tobacco, University students

**INTRODUCTION**

Cancers are the most common cause of death in adults. Oral cancer is any malignant neoplasm which is found on

the lip, floor of the mouth, cheek lining, gingiva, palate or in the tongue.<sup>1</sup> Oral cancer is a serious and growing problem in many parts of the world. Oral and pharyngeal cancer, grouped together, is the sixth most common cancer in the world.<sup>2</sup> The annual estimated incidence is around 275,000 for oral cancer, two-thirds of these cases occurring in developing countries.<sup>2</sup> There is a wide geographical variation (approximately 20-fold) in the incidence of this cancer. The areas characterized by high incidence rates for oral cancer (excluding lip) are found in the South and Southeast Asia (e.g. Sri Lanka, India, Pakistan and Taiwan), parts of western (e.g. France) and eastern Europe (e.g. Hungary, Slovakia and Slovenia), parts of Latin America and the Caribbean (e.g. Brazil, Uruguay and Puerto Rico) and in Pacific regions.<sup>3</sup> In high-risk countries such as Sri Lanka, India, Pakistan and Bangladesh, oral cancer is the most common cancer in men, and may contribute up to 25% of all new cases of cancer. On a visit to a cancer treatment centre in any of these high-risk countries in south Asia, one may find that at least up to a quarter of the patients warded are suffering from oral cancer.<sup>3</sup>

Cancer registration is not compulsory in India, so the true incidence and mortality may be higher, as many cases are unrecorded and without any follow up.<sup>4</sup> None of the national registry provides cancer incidence or mortality data for India. However, the National Cancer Registry Program provides population-based data from a selected network of 28 cancer registries located across the country.<sup>5</sup> Oral cancer is among the top three types of cancers in India.<sup>6</sup> Severe alcoholism, use of tobacco in the form of cigarettes, smokeless tobacco, and betel nut chewing are the most common risk factors for oral cancer.<sup>7,8</sup> Oral cancer may also occur due to poor dental care and poor diet.<sup>9</sup> The incidence of oral cancer is highest in India, south and Southeast Asian countries. In India, 90-95% of the oral cancers is squamous cell carcinoma.<sup>10</sup> The international agency for research on cancer has predicted that India's incidence of cancer will increase from 1 million in 2012 to more than 1.7 million in 2035.<sup>11</sup> In India, 20 per 100000 population are affected by oral cancer which accounts for about 30% of all types of cancer.<sup>12</sup> Over 5 people in India die every hour everyday because of oral cancer and the same number of people die from cancer in oropharynx and hypopharynx.<sup>5</sup>

The health care fraternity, chiefly the dentists, oncologists, ENT specialists and even physicians also have in depth knowledge of oral cancer. However general population remains largely unaware about the oral cancer. Often individuals with pre cancer even notice the alterations, such as reduced mouth opening in oral submucous fibrosis (OSMF), but they are not aware about the causes and consequences of these changes. Awareness about causes and features of oral cancers can be very helpful in prevention, control and early diagnosis of oral cancer. Young students could be educated to create an awareness in the society regarding oral cancer. It may be very helpful in prevention, control and early diagnosis of oral cancer.

The objective of this study was therefore to determine the awareness of oral cancer among students from Mumbai University, so as to know the kind of education and awareness strategies would be applicable to them.

## **METHODS**

**Study design and respondents:** This descriptive study was performed in May - June 2017, among students from Mumbai University, India. The study protocol was approved by V.V. Research Independent Ethics Committee, Mumbai, India. Five hundred students were contacted by study team member in their classrooms and were given a brief introduction about the research project. Those who desired to participate were explained the purpose and objectives of the study. On the basis of the eligibility criterion (those who gave a written informed consent and are registered students of Mumbai university) 400 students were selected for the present study.

### ***Study instrument***

The survey questionnaire was prepared in English after reviewing the literature for similar studies. The questionnaire was framed to gather information on demographics and awareness about oral cancer.

A pilot study was done with a sample of 30 students, to know the average time required for face to face interview for completing the questionnaire and to ensure that it is appropriate and understandable to students. Pilot population was not part of the final study.

### ***Collection of data***

Students were face to face interviewed in the student office with prior appointment by a study member from a team of 5 trained Bachelor of Pharmacy Students. The purpose of the research was explained to the respondents, anonymity and confidentiality were guaranteed and maintained. The researchers complied with the international ethical guidelines for research. The data was recorded into the predesigned data record form (DRF) by interviewers.

### ***Data entry and analysis***

Collected data from individual DRF was entered into Microsoft excel and was verified by the authors other than interviewers. Data were analyzed by using descriptive statistical methods and a bivariate analysis was conducted. P-value  $\leq 0.05$  was considered as significant. IBM SPSS version 23 was used for statistical analysis.

## **RESULTS**

Table 1 represents the participant details regarding gender, education, and awareness about oral cancer. It also shows the bivariate analysis to determine if any, the association between the awareness of oral cancer and the gender of the respondents. Response rate for this study was 80%

(400/500). There were total 400 respondents comprising of 199 (49%) males and 201 (50%) females. The first column of the table shows the input variables to measure the awareness about oral cancer. Second column gives all the expected answers, and next columns represent the gender wise responses to the questions. Rest of the columns show

bivariate analysis i.e. chi square and p-value. Highest number (91%; 366/400) of participants belonged to bachelor education category. Ninety percent (362/400) of the participants had heard about oral cancer. This number (362) was taken as the denominator for further calculations.

**Table 1: Association between gender and the knowledge of oral cancer.**

| Variable  | Expected answer   | Male<br>n (%) | Female<br>n (%) | Total<br>n (%) | $\chi^2$ value | p-value |
|---|---|---------------|-----------------|----------------|----------------|---------|
| Gender  |   | 199(49)       | 201(50)         | 400(100)       |                |         |
| Education   |   |               |                 |                |                |         |
| BS  |   | 188(94)       | 178(88)         | 366 (91)       | 4.813          | 0.090   |
| MS  |   | 6(3.5)        | 15(7)           | 21 (5)         |                |         |
| PhD   |   | 5(2.5)        | 8(5)            | 13 (4)         |                |         |
| Oral Cancer Knowledge   |   |               |                 |                |                |         |
| Have you heard about oral cancer?   | yes   | 176(88)       | 186(92)         | 362(90)        | 1.9            | 0.1627  |
| What do you think is the cause of oral cancer? Answer is  | Smoking tobacco, chewing  | 136(77)       | 132(71)         | 268(74)        | 1.8            | 0.17    |
| Do you think oral cancer spreads from person to person through touch or speaking?                       | no  | 173(98)       | 175(94)         | 348(96)        | 4.3            | 0.03    |
| It is true that sharing clothes and utensils with a oral cancer patient cause to spread of the disease? | No  | 168(95)       | 151(81)         | 319(88)        | 17.6           | 0.000   |
| Do you think oral cancer is mainly seen in the AIDS Patients?   | No  | 170(96)       | 112(60)         | 282(78)        | 69.5           | 0.000   |
| Have you come across anyone suffering from oral cancer?   | Yes   | 54(31)        | 39(21)          | 93(26)         | 4.5            | 0.03    |
| If yes, what was your reaction when you saw him/her first?  | Behaved normal  | 35(65)        | 26(66)          | 61(66)         | 0.03           | 0.85    |
| Has any of your family members died or suffering from oral cancer?                                      | Yes   | 15(8)         | 12(6)           | 27(7)          | 0.56           | 0.43    |
| Do you think oral cancer is curable?  | Yes   | 132(75)       | 128(69)         | 260(72)        | 1.7            | 0.19    |
| If yes, what are the treatment options available for oral cancer?                                       | Surgery, Radiotherapy, Chemotherapy, Immunotherapy, Targeted Therapy, Combination Therapy | 14(8)         | 12(6)           | 26(7)          | 0.3            | 0.58    |
| Being the general public, what should we do to help patients suffering from oral cancer?                | Do not know (this response is chosen for ease of calculation)                             | 10(6)         | 12(6)           | 22(6)          | 0.09           | 0.75    |
| Do you think this survey has created awareness in you regarding oral cancer?                            | Yes   | 126(71)       | 143(77)         | 269(75)        | 1.3            | 0.25    |

Seventy four percent (268/362) respondents correctly identified smoking, and tobacco chewing as possible causes of oral cancer. Almost all (96%; 348/362) respondents correctly responded that oral cancer does not spread from person to person through touch or speaking.

Twelve percent (43/362) respondent believed that sharing clothes and utensils with oral cancer patient can cause the spread of the disease. Twenty two percent (282/362) respondents believed that oral cancer is mainly seen in AIDS patients. Twenty six percent (93/362) respondents

had come across someone suffering from oral cancer and out of these 34% (301/362) respondents tried to avoid them or got scared. Seven percent (27/362) of the respondents had a family member either suffering with oral cancer or had lost a family member due to oral cancer. Seventy two percent (260/362) respondents believed that oral cancer is curable. Only 7% (26/362) respondents correctly identified all the treatment options (surgery, radiotherapy, chemotherapy, immunotherapy, targeted Therapy, combination Therapy) for oral cancer. Ninety four percent (340/362) respondents correctly identified (help to get required treatment from hospital, support them and get friendly) responses for helping oral cancer patients. Only 75% (269/362) respondents believed that present survey created awareness regarding oral cancer.

Bivariate analysis to find gender effect on the awareness about oral cancer showed that significantly higher number of male (98%) compared to female participants answered correctly to questions regarding spread of disease and occurrence of oral cancer in AIDS patients. Similarly significantly higher number of male compared to female participants had come across someone suffering from oral cancer.

## DISCUSSION

The wide prevalence of oral cancer in India and Southeast Asia necessitates adequate awareness about the risk factors, symptoms, and available treatments associated with this illness. This study aims to provide a general assessment of knowledge of oral cancer among Mumbai University students in order to emphasize areas where some of their background might be lacking and to further address an expansion of college education campaigns on oral cancer for preventative and safety measures. Additionally, this study seeks to shed light on whether an awareness gap exists between college males and females regarding this malady to assess a difference in exposure to general education on oral cancer between both groups.

The survey included 12 questions addressing oral cancer knowledge among university students, entails inquiries about what the disease is, contagiousness status, risk factors, curability, as well as student acquaintances with oral cancer patients.

Based on Table 1, 90% of respondents had heard of oral cancer, indicating that they have a fair idea of the existence of this disease. Additionally, 96.25% are aware that smoking and tobacco chewing are common risk factors, which represents knowledge regarding possible causes. These results are consistent with a study conducted in Malaysia where over 92% of respondents confirmed that they had heard of the disease. The same study revealed that 95.5% attribute tobacco as a predisposing factor, whereas less than 90% consider alcohol to be a contributing factor.<sup>13</sup> On the other hand, these percentages are not consistent with a similar study conducted among undergraduate medical students in Himachal Pradesh in

India, where only 52.1% identified tobacco and alcohol as risk factors.<sup>14</sup>

In terms of the spread of oral cancer among individuals, respondents showed a satisfactory knowledge as 96% answered no to spread of oral cancer from person to person through touch or speaking. Compared to this question, a smaller percentage of respondents, 88%, denied that sharing of utensils and clothes with a cancer patient can make the disease spread. However, only 78% of respondents think that oral cancer is not necessarily seen in AIDS patients.

These results are still better than the ones obtained from a study among the Siamese ethnic group in Malaysia in which roughly 67.7% had the misconception that oral cancer is contagious.<sup>15</sup> Although the mentioned study found that knowledge about oral cancer significantly changes with age and education level, the belief that this type of cancer can spread from simple physical contact should not exist among university students.<sup>15</sup> This partly reflects a weakness in differentiating cancers from regular oral infections, and partly represents a poor impact of existing educational campaigns regarding this matter. Despite oral cancer being a non-AIDS defining malignancy, the AIDS patient however, has a higher likelihood becoming diagnosed with it.<sup>16</sup> The low percentage (78%) might therefore be attributable to some of the respondents taking into consideration the mentioned likelihood due in part to a weakened immune response.<sup>17</sup>

Only 7% (26/362) respondents correctly identified all the treatment options (surgery, radiotherapy, chemotherapy, immunotherapy, targeted Therapy, combination Therapy) for oral cancer. This figure was very low as compared to a study done by Shenoy in Mangalore, India which showed that 41% students were aware of the oral cancer treatment options.<sup>18</sup> This result might have originated because of difference in the study population. As Shenoy study was done among medical students as compared to non-medical students in the present study.<sup>18</sup>

Correct answers were stratified between males and females, as shown in Table 1. Based on the results, there were significant difference between the percentage of males and females who answered correctly. Significantly more males answered questions related to knowledge correctly than females. This is contradictory to the study among medical students in Himachal Pradesh, India by Fotedar et al which showed knowledge of females was better than males.<sup>19</sup>

This result implies that oral cancer awareness between male and female students in Mumbai University is at an equivalent level, suggesting that both groups to have the same focus when it comes to leveraging their knowledge about this topic via future educational programs and campaigns.

Oral cancer is considered a healthcare burden in Southeast Asia, particularly India. Its commonality is associated with a failure to diagnose it at an early stage, lack of treatment affordability in patients with low socioeconomic status, and restricted access to trained healthcare providers and clinicians in rural areas. These factors therefore contribute to a delay in regular checkups which consequently amounts to progression of the disease to more advanced stages.<sup>17</sup> Despite rigorous scientific advances in early cancer detection, visual accessibility of the oral mucosa which facilitates physical detection of oral cancer symptoms, as well as abundant scientific knowledge available on risk factors, survival rate from oral cancer is still at a mere 50%.<sup>20</sup> One of the causative factors might be insufficient spread of information about consequences and risk factors involved.<sup>20</sup> Moreover, it is essential for educational campaigns to not only inform and educate college students about the burden of oral cancer, but to additionally motivate a sense of responsibility in them when it comes to eliminating the risk from happening through healthier lifestyle alternatives and frequent checkups, given the prevalence of this illness in India.

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