# Awareness and Knowledge of Oral Cancer among Medical Students in Kathmandu University School of Medical Sciences

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## ABSTRACT

**Background**

Oral cancer is a major public health problem worldwide. It has high mortality rates and chances of survival is relatively superior when detected early. Lack of knowledge and awareness about oral cancer among medical students may contribute to delay in diagnosis and treatment.

**Objective**

To assess awareness and knowledge of oral cancer among medical students.

**Method**

A cross-sectional study conducted among 286 students by Department of Otorhinolaryngology and Head & Neck surgery, Kathmandu University School of Medical sciences between July to August 2016. A questionnaire with questions on socio-demographic profile, awareness and knowledge of oral cancer was used. Independent sample t test and Pearson Chi-square tests were used for statistical analysis.

**Result**

Out of 329 students approached, 286 participated in the study yielding a response rate of 86.9%. Symptoms of oral cancer as reported were ulceration in mouth (92.3%), oral bleeding (85.0%),whitish or reddish patch (84.3%), halitosis (75.5%) and swelling in neck (74.5%), trismus (69.2%), numbness (67.1%), loosening of teeth (49.3%) and tooth sensitivity (41.6%). The perceived risk factors were smoking (97.2%), tobacco chewing (96.5%), chronic irritation (86.7%), immunodeficiency (83.9%), poor oral hygiene (88.5%), human papilloma virus infection (82.5%), dietary factors (81.1%), alcohol (79.4%), ill-fitting dentures (72.4%), hot spicy food (65.4%) and hot beverages (58.0%). Significant differences were found between pre-clinical and clinical students for knowledge of risk factors, signs and symptoms of oral cancer (p<0.001).

**Conclusion**

There is deficiency of knowledge among medical students about some aspects of oral cancer. Active involvement while examining patients and taking biopsies of malignant and premalignant lesions may help in improving students' knowledge about oral cancer.

## KEY WORDS

*Awareness, knowledge, oral cancer, risk factors*

## INTRODUCTION

Oral cancer is a major public health problem especially in developing country like ours. It is the 6th most common cancer in the world, with estimated annual incidence of more than 405,000 cases.[1]

Predisposing factors for oral cancer are heavy use of tobacco, excess alcohol consumption, diet deficient in fruits and vegetables, betel leaf and betel nut chewing, poor dental hygiene, local trauma or irritation and human papilloma virus (HPV) infection.[2-5] Among all, tobacco and alcohol are the two strongest etiological factors for development of oral cancer, both independently and synergistically.[1,6]

Compared with most sites, the oral cavity is readily accessible to examination. Thus oral cancer should be amenable to early detection. Oral cancers have a high likelihood of cure when detected at an early stage.[7] It has also been reported that the five-year survival rate of oral cancer is only 50% and this improves to 80% when the lesion is detected at an early stage.[8]

Delay in treatment for oral cancer is associated with significant morbidity and mortality. Lack of awareness among health care professionals has also been shown to contribute to delays in diagnosis and treatment of oral cancer. Medical students are the backbone of health care of tomorrow. They play a very remarkable role in prevention, early detection, and referral of patients. Their attitudes, knowledge and practice play a direct role in the morbidity, mortality and the expenses of patient.

There has been paucity of data on awareness and knowledge of oral cancer in medical students in Nepal. Hence, our aim is to assess the awareness and knowledge of Oral Cancer among Medical students in Kathmandu University School of Medical Sciences.

## METHODS

This was a descriptive, cross-sectional study conducted among 286 medical undergraduate students by the Department of Otorhinolaryngology and Head & Neck surgery in Kathmandu University School of Medical Sciences between July to August 2016. Purposes and objectives of the study were explained in detail to all the participants and verbal consent was taken. Identity of the respondents was kept confidential to ensure privacy and for encouraging accurate responses for the questions. Students who were not willing to participate in the study were excluded. Participants for the study were selected by random sampling technique. There was no compensation for participating in the study. Students were approached in the classroom after finishing class after obtaining permission from program coordinators and lecturers. Data was collected by using a structured, self-administered questionnaire which included questions relating to socio-demographic profile, awareness and knowledge of oral cancer, symptoms, signs, predisposing factors of oral cancer along with premalignant conditions of the oral cavity. The questionnaire was in English language and was pre-tested with a group of 10 randomly selected male and female students to identify any problems in its comprehension. Necessary modifications were made accordingly. These students were not included in the analysis. Answers in the knowledge portion of the questionnaire were then scored. Each correct answer was given a score of one, and each wrong answer was scored as 0. Total score was computed by adding all the individual scores. Approval for this study was obtained from Kathmandu University School of Medical Sciences Institutional Review Committee prior to commencement of study. Collected data were entered and analyzed using IBM SPSS statistical software 21.0. The results were analysed by using Independent sample t test and Pearson Chi-square test with the level of significance set as p<0.001.

## RESULTS

Out of 329 students approached, 286 volunteered to participate in the study yielding a response rate of 86.9%. Among these, 157(54.9%) were male and 129(45.1%) were female. The age of students ranged from 17 to 26 years (mean age 21.57 years). The socio-demographic data are shown in Table 1. The symptoms of oral cancer as reported by students were ulceration in mouth (92.3%), oral bleeding (85.0%), whitish or reddish patch (84.3%), halitosis (75.5%) and swelling in the neck (74.5%), trismus (69.2%), numbness (67.1%), loosening of teeth (49.3%) and tooth sensitivity (41.6%). The risk factors for oral cancer identified by students were smoking (97.2%), tobacco chewing (96.5%), chronic irritation (86.7%),

**Table 1.** Sociodemographic and oral cancer related variables     N=286

| Variable | Category | N(%) |
|---|---|---|
| Sex | Male | 157(54.9) |
| | Female | 129(45.1) |
| Study level | Preclinical | 122(42.7) |
| | Clinical | 164(57.3) |
| Year of study | I | 51(17.8) |
| | II | 71(24.8) |
| | III | 64(22.4) |
| | IV | 48(16.8) |
| | V | 52(18.2) |
| Family history of oral cancer | Yes | 3(1) |
| | No | 283(99) |
| Smoking status of student | Yes | 10(3.5) |
| | No | 276(96.5) |
| Alcohol intake | Yes | 32(11.2) |
| | No | 254(88.8) |

**Table 2.** Risk factors for oral cancer reported by participants according to study level and smoking status

| Risk factors for oral cancer | Study level | | Smoking status | |
|---|---|---|---|---|
| | Preclinical n(%) | Clinical n(%) | Smoker n(%) | Non-smoker n(%) |
| Smoking | 118(96.7) | 160(97.6) | 10 | 268 |
| Tobacco chewing | 113(92.6) | 163(99.4) | 10 | 266 |
| Alcohol | 80(65.6) | 147(89.6) | 10 | 217 |
| Dietary factors | 90(73.8) | 142(86.6) | 10 | 222 |
| Hot spicy food | 84(68.9) | 103(62.8) | 10 | 177 |
| Poor oral hygiene | 104(85.2) | 149(90.9) | 10 | 243 |
| HPV infection | 103(84.4) | 133(81.1) | 10 | 226 |
| Chronic irritation | 100(82.0) | 148(90.2) | 10 | 238 |
| Hot beverages | 73(59.8) | 93(56.7) | 9 | 157 |
| Immunodeficiency | 98(80.3) | 142(86.6) | 10 | 230 |
| Ill fitting dentures | 98(80.3) | 109(66.5) | 10 | 197 |

immunodeficiency (83.9%), poor oral hygiene (88.5%), HPV infection (82.5%), dietary factors (81.1%), alcohol (79.4%), ill fitting dentures (72.4%), hot spicy food (65.4%) and hot beverages (58.0%). Floor of mouth was correctly identified as the commonest site for oral cancer by 81(28.3%) students. Respondents perceptions of relative importance of premalignant conditions of oral cavity in the etiology of oral cancer are shown in Table 3. The mean knowledge score for the clinical and preclinical students are listed in Table 4.

In our study, significant differences were found between pre-clinical and clinical students for the knowledge of risk factors, signs and symptoms of oral cancer (Table 5). One hundred and twenty two (42.7%) students were confident in examining of oral cavity whereas 57.3% students reported that they had received adequate training on examination of oral cavity.

## DISCUSSION

In this study, significant differences were found between pre-clinical and clinical students for the knowledge of risk factors, signs and symptoms of oral cancer. This was quite expected, because the clinical students who volunteered for the study had already finished taking lectures on oral cancers unlike the pre-clinical students who were found to have very minimal working knowledge about oral cancer. Our findings are consistent with previous studies.[9-12]

However, our results are in contrary to another study in which the authors found no association between knowledge and academic year of study.[13] This finding is worth noting and should not be accepted with ease. Medical students play a pivotal role in advancing the agenda of tobacco and alcohol control as they form the medium through which information on health consequences of these harmful substances is communicated to people.[14] They also act as

**Table 3.** Respondents perceptions of relative importance of premalignant conditions of oral cavity in the etiology of oral cancer

| Oral condition | Perceived importance Frequency (Percentage) | | | |
|---|---|---|---|---|
| | Very important | Important | Not important | Don't know |
| Chronic hypertrophic candiasis | 109(38.1%) | 131(45.8%) | 20(7.0%) | 26(9.1%) |
| Erythroplakia | 166(58.0%) | 78(27.3%) | 16(5.6%) | 26(9.1%) |
| Leukoplakia | 137(47.9%) | 102(35.7%) | 21(7.3%) | 26(9.1%) |
| Submucosal fibrosis | 168(58.7) | 82(28.7%) | 4(1.4%) | 32(11.2%) |

**Table 4.** Knowledge score of clinical and pre-clinical students

| Variable | Study level | N | Mean | Standard deviation |
|---|---|---|---|---|
| Knowledge score | Pre-clinical | 122 | 20.37 | 4.68 |
| | Clinical | 164 | 23.54 | 3.68 |

**Table 5.** Comparision between knowledge scores of clinical and pre-clinical students

| Variable | p | 95% confidence interval of the difference | |
|---|---|---|---|
| | | Lower | Upper |
| Knowledge score | <0.001 | 2.19 | 4.14 |

role models and may unintentionally affect the behavior of others. The increase in prevalence of oral cancer warrants medical students to expand the horizon of the subject which is not possible without including the lectures offering brief knowledge about cancer as a whole in the pre-clinical period itself.

Young adults of university age are known to engage in tobacco smoking and alcohol use, and may be frequently exposed to HPV infection, all of which are causal factors for oral cavity and oropharyngeal cancer.[1,3,6] The knowledge, attitudes and practices of cigarette and tobacco smoking alcohol abuse and health risks among medical students has been found to be predictive of their efficiency as agents for tobacco cessation campaigns. In the present study, a majority of students (96.5%) reported that they were non-smokers, while 88.8% were non-drinkers. Interestingly, only 3.5% (n=10) of students who participated in this study reported they were current smokers. Previous studies have revealed that between 14% and 62% of university students were smokers.[15-19] We note that this was self-reported data, and social desirability may lead to underreporting.

According to previously published studies, the knowledge of HPV among students remains quite low despite of the fact that the latter remains the most prevalent sexually transmitted infection worldwide.[20] However, in our study majority (83.5%) of students were aware of HPV as the etiological factor for development of oral cancer.

In this study, 42.7% students felt confident in examination of oral cavity. This may be due to the fact that 57.3% of the

students who were involved in this study had already taken a formal training in the Department of Otorhionolaryngology and head and neck surgery on how to examine the oral cavity which was done as a part of the medical curriculum. However, part of the students who were not confident in examination belonged to the pre-clinical phase of the curriculum where examination techniques were not taught. Our results are different from those of some other authors who found that 72% of the respondents did not feel confident in performing an oral examination.[14]

One hundred and sixty four (57.3%) of our students reported that they had received adequate training on examination of oral cavity. Another study involving 255 undergraduate medical students in the United Kingdom found that medical students had inadequate knowledge in risk factors and clinical signs and symptoms of oral cancer.[21]

Our study also has some limitations. The participants in this study were from a single university, yielding a relatively small sample size. Thus, we may not be able to generalize results in the context of medical university students in Nepal.

## CONCLUSION

The increase in prevalence of oral cancer warrants medical students to expand the horizon of the subject. This study revealed a need for a more structured teaching program with increased emphasis on the early signs and symptoms of oral malignancies and involvement of the students in the examination and biopsies of malignant and premalignant lesions.

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