

ORIGINAL RESEARCH ARTICLE

ASSESSMENT OF AWARENESS OF ORAL CANCER AMONG NURSING STUDENTS AT BPKIHS, NEPAL

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ABSTRACT

Background: Early recognition of oral cancer is essential for higher cure rate and better prognosis. Nurses can play a significant role in the early diagnosis of cancers. The study aimed to assess the awareness of oral cancer among nursing students.

Methods: A cross-sectional survey was conducted among Bachelor of Nursing Students at College of Nursing, B.P. Koirala Institute of Health Sciences. A semi-structured questionnaire was used to collect the sociodemographic data and awareness of cancer. Descriptive statistics were calculated using Statistical Package for Social Sciences version 22.0.

Results: Out of 116, 89 (76.7%) students were of age 21-25 years. One hundred and twelve students (96.6%) were aware that various form of tobacco increases risk of oral cancer; however, only 55 (47.4%) students knew alcohol drinking as a risk factor. Only 29 (25.0%) students were aware of loose-fitting denture as a risk factor for oral cancer. Ninety-six (82.8%) students knew white or red patch as possible signs of oral cancer; however, only six (5.2%) students were aware of the most common site of oral cancer. Only 16 (13.8%) students considered that they are adequately trained to screen oral cancer. One hundred and fifteen (99.1%) students demanded more education on oral cancer.

Conclusions: This study revealed that nursing students' awareness of risk factors and the importance of screening of oral cancer is suboptimal. It highlights a need for basic education on oral cancer to make them more aware and further competent toward oral cancer screening and referral.

INTRODUCTION

About 354,864 new cases of oral cancer are detected with 177,384 death annually worldwide.¹ Prognosis at the early stage of oral cancer is significantly better as compared to an advanced stage with metastasis.² Therefore, early recognition of oral cancer using visual inspection of the mouth is advocated in many countries.³ The oral cavity is easily accessible for routine examination and it can also be examined directly.⁴

Admission to hospital provides a 'window of opportunity' for the screening of oral cancer.⁵ Being the largest group of health-care professionals, nurses can play a significant role in the early diagnosis of oral cancers and oral potentially malignant disorders. They can refer the patients for further evaluation and can help to raise awareness.⁶ Knowledge of cancer and cancer risk factors, signs and symptoms among nurses in many South Asian countries is not adequate.⁷ Visual screening of oral cavity in high-risk patients can alone prevent around 40000 deaths from oral cancer worldwide every year.⁸ There are various studies on awareness of oral cancer among dental and medical students;⁹⁻¹² however the data on awareness of oral cancer in nursing students are scarce.

The objective of the study was to assess the awareness of oral cancer among nursing students.

METHODS

A cross-sectional study was conducted among undergraduate nursing students at College of Nursing, B.P. Koirala Institute of Health Sciences (BPKIHS), Dharan, Nepal during March 2019-April 2019. The students studying in 1st to 4th year of Bachelor of Nursing and giving consent were enrolled in the study. The sample size was calculated for a finite study population of 130 with a reference to the finding of a study in which 55% of the respondents were aware of the most common site of occurrence of oral cancer.¹³ With a prevalence of 55%, permissible error of 10% at 95% confidence interval and 80% power and adding 10% as non-responder, the final sample size was 99. Convenience sampling method was used. A semi-structured proforma was designed based on the literature reviews and the experts' recommendations.^{5,9-12} It consisted of sociodemographic details and closed-ended questions for assessing awareness of risk factors, sign and symptoms of oral cancers. For validity and reliability, the questionnaire was pilot tested among 10% sample for clarity of the questions and those samples were not included in the analysis.

The data was collected by visiting the lecture theatres in the College of Nursing. The objective of the study was explained to the participants and written consent was taken. The self-administered questionnaire was distributed and collected on the same day from the students. The filled questionnaire was rechecked for its correctness. Any unfilled area of the questionnaire was regarded as "incorrect answer". No personal information was collected to maintain the confidentiality of the participants.

The study was approved by Institutional Review Committee, BPKIHS (IRC/1475/018). The data were entered in Microsoft Excel 2010 and descriptive statistics were calculated using Statistical Package for Social Sciences (Version 22.0).

RESULTS

Out of 130 students, 116 participated in the study giving a response rate of 89.2%. Most of the students were of age between 21-25 years (76.7%) and in second year (29.3%) of their academic stream. The mean age of the respondents was 21.47±1.48 years (Table 1).

Table 2: Awareness related to risk factors of oral cancer (n=116)

S.N.	Questions on awareness of risk factors of oral cancer	Correct response (%)
1.	Does use of tobacco, pan, Gutkha, pan-masala or Khaini increase risk of oral cancer?	112 (96.6)
2.	Does cigarette smoking increase risk of oral cancer?	99 (85.3)
3.	Does eating less fruit and vegetable increase risk of oral cancer?	42 (36.2)
4.	Does sun/ultraviolet ray exposure increase risk of oral cancer?	44 (37.9)
5.	Does heavy alcohol drinking increase risk of oral cancer?	55 (47.4)
6.	Is oral cancer more frequent in people of age 40 years and above?	81 (69.8)
7.	Which one of the following virus increases risk of oral cancer?	30 (25.9)
8.	Is loose fitting denture a risk factor of oral cancer?	29 (25.0)

Table 3: Awareness related to clinical features of oral cancer (n=116)

S.N.	Questions on awareness of clinical features of oral cancer	Correct response (%)
1.	Is a white/red patch in the mouth a possible initial sign of oral cancer?	96 (82.8)
2.	Is a mass/swelling/ulcer in the mouth a possible sign of oral cancer?	110 (94.8)
3.	Which area of oral cavity is most likely to develop oral cancer?	6 (5.2)
4.	Is erythroplakia an oral potentially malignant disorder?	75 (64.7)
5.	Is leukoplakia an oral potentially malignant disorder?	72 (62.1)
6.	The most common form of oral cancer is squamous cell carcinoma.	73 (62.9)

Table 3 represents the awareness related to clinical features of oral cancer. Ninety-six (82.8%) students recognized white or red patch as possible signs of oral cancer.

Awareness related to the importance of oral cancer screening is shown in Table 4. One hundred fourteen (98.3%) respondents were aware of the fact that early detection of oral cancer leads to better prognosis/outcome and 91 (78.4%) were aware that oral cancer is not contagious. Only 46 (39.7%) accepted that they assess the oral cavity of patients on admission to hospital.

Table 1: Sociodemographic characteristics of the students (n=116)

Variables	Frequency (%)	
Age group (years)	18-20	27 (23.3)
	21-25	89 (76.7)
Academic year	First-year	27 (23.3)
	Second-year	34 (29.3)
	Third-year	27 (23.3)
	Fourth-year	28 (24.1)

Awareness related to risk factors of oral cancer is presented in Table 2. One hundred twelve (96.6%) respondents were aware of tobacco, pan, gutkha, pan-masala and khaini increase the risk of oral cancer but only 44 (37.9%) were aware of the fact that ultraviolet rays are the risk factor while only 55 (47.4%) respondents were aware of the fact that heavy alcohol drinking is also a risk factor for oral cancer.

DISCUSSION

Prevention has long been a part of nursing's scope of practice and therefore nurses can support individuals and communities in the prevention and early detection of oral cancer.¹⁴ Lack of awareness of oral cancer may be a barrier to implementing patient education and also prohibit them from delivering preventive advice to the patient. The current study has assessed the awareness of oral cancer among undergraduate nursing students. The age of the students ranged from 18-25 years. A

Table 4: Awareness related to Importance of oral cancer screening (n=116)

S.N.	Questions on awareness of importance of screening of oral cancer	Responses	Frequency (%)
1.	Do you think that early detection of oral cancer leads to better prognosis/outcome?	Yes	114 (98.3)
		No	2 (1.7)
2.	Do you think oral cancer is preventable?	Yes	113 (97.4)
		No	3 (2.6)
3.	Do you think oral cancer is contagious?	Yes	25 (21.6)
		No	91 (78.4)
4.	Do you think it is important to examine a patient's mouth on admission to hospital?	Yes	113 (97.4)
		No	3 (2.6)
5.	Have you received any training or teaching on oral health care?	Yes	60 (51.7)
		No	56 (48.3)
6.	Are you adequately trained to detect early sign and symptoms of oral cancer	Yes	16 (13.8)
		No	100 (86.2)
7.	Do you ask your patient about current use of tobacco, betel quid or related products?	Yes	103 (88.8)
		No	13 (11.2)
8.	Do you assess oral cavity of patients on admission?	Yes	46 (39.7)
		No	70 (60.3)
9.	Have you referred any high risk patient to dental OPD for screening of oral cancer?	Yes	31 (26.7)
		No	84 (72.4)
10.	Is it necessary for nurses to advise and refer the patients with suspicious oral lesions?	Yes	115 (99.1)
		No	1 (0.9)
11.	Do you need more education on oral cancer?	Yes	115 (99.1)
		No	1 (0.9)

similar finding was also reported by Mittal et al.¹³ Almost all students (96.6%) were aware of tobacco, pan, gutkha, pan-masala, khaini as risk factors of oral cancer. The finding was in consistent to the study by Mittal et al.¹³ Smoking and alcohol are considered major risk factors and are present in 90% of cases of oral cancers.¹⁵ The risk for developing oral cancer is three times higher in smokers compared with nonsmokers.¹⁶ Tobacco smoke contains more than 4000 chemicals including at least 60 carcinogens. Its cytotoxic and mutagenic properties contribute to the death of millions of people every year.¹⁷ Tobacco is currently the second major cause of death and the single largest preventable cause of disease in the world.¹⁸

Approximately half of the students (52.6%) were not aware of the fact that alcohol drinking increases the risk of oral cancer. Alcohol increases the permeability of oral mucosa due to which lipids components of the epithelium are dissolved and epithelial atrophy occurs. It also interferes DNA synthesis and tissue repair. Due to its genotoxicity and mutagenic effects, the liver's ability to deal with toxic or potentially carcinogenic compounds is affected. Its chronic use is associated with an impairment of innate and acquired immunity resulting in increased susceptibility to infection and neoplasm.¹⁹ The risk of developing oral cancer is higher in people who use both tobacco and alcohol.¹⁸ Eliminating the use of tobacco in various forms through health education can reduce the incidence of oral cancer. As a health professional, the nursing student has a major responsibility in providing adequate health information about the ill effects of alcohol and tobacco use.

Oral cancer is considered as a multi-factor disease.¹⁵ Less than two-fifth students knew that eating less fruit and vegetable and ultraviolet ray exposure increases the risk of oral cancer. Very few students were aware of the fact that human papilloma

virus (HPV) and loose-fitting denture increases the risk of oral cancer. Similar findings were also reported in another study.¹³ HPV causes squamous cell carcinoma of tonsils and base of the tongue within the oropharynx. HPV contributes to carcinogenesis by two virus-encoded proteins (E6 and E7) that promote the degradation of p53 and Rb tumour suppressor gene product.²⁰ More than two-third students agreed that oral cancer is more frequent in people of age 40 years and above. This may be the result of increased exposure to risk factors such as smoking, alcohol consumption and lack of fruit and vegetables in the diet in this age group.¹⁵

The nursing student lacks the awareness regarding risk factors and symptoms of oral cancers and these aspects should be reinforced in future teaching of undergraduate nursing students. Being future nursing practitioners, they can play an important role in the prevention and early detection of oral cancers if they are aware of the risk factors as well as signs and symptoms.

Most of the students were aware of white/red patch, swelling and ulcer in the mouth as a possible sign of oral cancer. However, less than half of the students were aware of ulcer as a sign of oral cancer in another study.¹³ White or red patches, non-healing ulcer, oral bleeding, loose teeth, earache, and dysphagia are common symptoms of oral cancer.²¹ Very few (5.2%) students were aware of the tongue as the most common site to develop oral cancer. In contrast to this finding, more than half of the students were aware of the tongue as the most common site in other studies.^{9,13} This highlights a need for continuing education on oral cancer. Tongue, floor of the mouth and buccal mucosa are the common sites of oral cancer.²² More than half of the students were aware of erythroplakia and leukoplakia as oral potentially malignant disorders (OPMD). These are the two most common OPMD of the oral cavity. The prognosis and

overall survival of a patient with oral cancer are dependent on the early detection of these lesions.²³ Nearly two-third students were aware of squamous cell carcinoma (SCC) as the most common form of oral cancer. SCC is the most prevalent among oral malignancies.²² Its early recognition and diagnosis might improve patient survival and reduce treatment-related morbidity.

Majority of the students thought that it is important to examine a patient's mouth on admission to the hospital. This finding was consistent with Carter et al.⁵ An early diagnosis can make a difference in oral cancer management and prognosis.²⁴ Most of the students thought that oral cancer is preventable. Preventing tobacco and alcohol use and increasing the consumption of fruits and vegetables can potentially prevent the majority of oral cancers.²⁵ One-fifth students thought that oral cancer is contagious. We have to educate the students that oral cancer is not contagious. Cancer is a non-communicable disease and it does not spread through the air or physical contact.²⁶

Half of the students agreed that they had received some form of training or teaching on oral health care. These findings were in line with Patton et al where less than 40% of nurse practitioners were adequately trained to examine oral cavity for potential cancerous lesion.²⁷ In contrast to this finding, a high percentage of the participants were trained to examine oral cavity in another study.⁵ Their study had included practising staff and hence they have more experiences and training regarding oral cancer in comparison to the participants in our study. Lack of awareness of oral cancer risk and clinical signs may also prohibit nurses from delivering preventive advice to patients. The results of this study indicate that whilst there is a desire to increase patient total care, teaching is required to enhance awareness of risk factors and signs of oral cancer.

Although most of the students used to ask the patient about current use of tobacco, betel quid or related products, less than two-fifth (39.7%) students used to assess the oral cavity of the patients on admission. A higher percentage of students used to perform oral check-ups in studies by Carter et al (49%) and Mittal et al (53.7%).^{5,13} Early detection of oral cancer is of prime importance as survival rates for oral cancer are poor and have not improved markedly in recent decades despite advances in therapy. Detecting oral cancer at an early stage is believed to be one of the most effective means of reducing rates of death, morbidity and disfigurement.²⁸

One-fourth of the students (26.7%) had referred the high-risk patient to the dental outpatient department for the screening of oral cancer. A higher fraction of students had referred patients to a dentist in another study.¹³ The habit of seeing oral cavity for early symptoms of oral cancer and referring them to the dentist should be encouraged among nursing students from time to time. Very few students responded that they are adequately trained to screen oral cancer. Similar findings were also reported by Carter et al.⁵ Education on basics of oral cancer to the nursing student may allow them to identify high-risk patients. Majority of the students responded that they need more education on oral cancer and similar findings were also reported in other studies.^{13,29}

The current study showed that there is scarcity of awareness on oral cancer among nursing students. It is essential to reinforce basic education and training on oral cancer to make them more aware so that early detection and treatment of oral cancer is possible. The study has some limitations like lack of generalizability beyond the specific school and cohorts involved. It was a cross-sectional study with no ability to link the findings to other factors.

CONCLUSION

The study showed that awareness of oral cancer among majority of the nursing students was suboptimal. There is a need for improved undergraduate nursing education on oral cancer with regards to its signs and symptoms, risk factors and the importance of screening. This study highlights the need to emphasize on additional oral cancer education to make nursing students competent and more aware. Educators and policy-makers need to place greater emphasis on oral cancer education in nursing colleges. A similar study in a large sample involving other nursing colleges needs to be conducted to generalize and sustain the findings of the study.

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