

## Knowledge and Attitude regarding Oral Cancer among Proficiency Certificate Level General Medicine Students in Bharatpur, Chitwan, Nepal

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### ABSTRACT

**Introduction:** Oral cancer is one of the most common cancer worldwide. Medical students can play a major role in recognizing oral mucosal changes that may lead to cancer. The objective of the study is to find out the knowledge and attitude among General Medicine (GM) students in Bharatpur, Chitwan, Nepal.

**Methods:** A descriptive cross-sectional study was conducted among General Medicine (GM) students in Bharatpur, Chitwan, Nepal. was used. A self-administered structured questionnaire was distributed to collect data among 114 students. Data were analyzed by using SPSS version 22. Descriptive and inferential statistics were calculated.

**Results:** The age of respondents ranged from 17 to 35 years, with a mean and standard deviation  $20.01 \pm 2.455$ . Most of the respondents were male 58.8%, from Madhesh province 62.3%, unmarried 95.6%, followed by Hindu religion 91.2% and of Madhesi ethnicity 69.3%. The majority (83.3%) of respondents know the meaning of oral cancer. The overall level of knowledge towards oral cancer was good among 56.1% and a positive attitude was 57.9%. There is no association between level of knowledge and level of attitude ( $p=0.526$ ). Respondents with a low level of knowledge demonstrated an equal distribution of positive and negative attitudes toward oral cancer. However, a majority of respondents with high and moderate levels of knowledge exhibited a positive attitude, accounting for 62.5% and 52.4% respondents, respectively.

**Conclusion:** knowledge and attitude of General Medicine students towards oral cancer is just over the half, so, it needs to be improved and the concerned authority needs to pay more attention on education of students who are considered to be the future primary health care providers.

**Keywords:** Attitude, Knowledge, Oral cancer

### Introduction:

Oral cancer is one of the most common cancers taking away many lives worldwide.<sup>1</sup>

Tobacco, alcohol and areca nut are the leading causes of oral cancer. In North America and Europe, human papilloma-virus infections are also responsible for a growing percentage of oral cancers among young people.<sup>2</sup>

The incidence of oral cancer increases with age, particularly for adults aged 65 years and older.<sup>3</sup> Overall, the lifetime risk of developing oral cavity

and oropharyngeal cancer is about 1 in 59 for men and 1 in 139 for women.<sup>4</sup> It is the most common type of cancer in South Asian Countries like India, Srilanka, Pakistan and Bangladesh and contributes nearly one-fourth of all new cases of cancer.<sup>5</sup> In Nepal, Lip and oral cavity cancer is 7<sup>th</sup> most common with 959 new cases and 497 deaths.<sup>6</sup>

Knowledge, attitude, opinion and skill of oral cancer among medical students play a pivotal role in cancer prevention, early detection, and management. But only 22.0% medical students were found confident on their knowledge and skill required to diagnose,

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treat, and prevent the oral cancer.<sup>7</sup> Early detection of oral cancers makes more amenable to treatment and allows the greatest chance of cure.<sup>8</sup> One hundred and twenty-four (66.6%) of the subjects disagreed/strongly disagreed that their knowledge regarding the prevention and detection of oral cancer is adequate in India.<sup>9</sup> In Nepal, delivering health care service in a rural setting is a major challenge.<sup>10</sup> Oral health promotion strategy should involve on basic education.<sup>11</sup> One hundred and fifteen (99.1%) nursing students demanded more education on oral cancer.<sup>12</sup> There is a deficiency of knowledge among medical students about some aspects of oral cancer.<sup>13</sup>

In Nepal, the Proficiency Certificate Level in General Medicine (GM) program prepares mid-level health professionals to support rural health care, including prevention, screening, and diagnosis of oral cancer. Therefore, this study assesses their knowledge and attitude regarding oral cancer.

### Methodology

A descriptive analytical cross-sectional study was conducted among PCL in General Medicine students in Bharatpur Metropolitan City, Chitwan. There are total 8 colleges where PCL in General Medicine (GM) program is conducted currently in Bharatpur Metropolitan City. Among them only 4 colleges have their final year students. They are; School of Health Science, Nepal Polytechnic Institute (NPI), NPI Narayani Samudayik Health Institute and Vinayak Health Care System. Structured questionnaire was used to collect data. Data was collected by using non-probability, purposive sampling technique among final year students. Validity of the instrument was maintained by extensive reviewing of the literature and consulting with subject expert. Pre testing was done and necessary modification was made in research instrument. Administrative approval was obtained from related colleges of Bharatpur metropolitan city. Ethical approval was obtained from IRC of BPKMCH. Objective of the study was explained and written informed consent was obtained from each and every participants and subject's anonymity and confidentiality were maintained during as well as after data collection. The researcher herself distributed the questionnaire to the respondents and collect the instrument. The collected data was checked, reviewed and

organized for completeness and accuracy. Then all the collected data were coded, enter and analyzed in statistical package for social science (SPSS) version 22. Data was analyzed by using descriptive and inferential statistics. P-value <0.05 was considered as statistically significant.

### Results

**Table 1: Respondents' Demographic Information**

n =114

Characteristics	Frequency(n)	Percentage (%)
<b>Age (in years)</b>		
≤20	86	75.4
21-25	23	20.2
≥26	5	4.4
Mean±SD	20.01±2.455	
Minimum/Maximum age	17/35	
<b>Gender</b>		
Male	67	58.8
Female	47	41.2
<b>Place of residence</b>		
Koshi Province	1	0.9
Madhesh Province	71	62.3
Bagmati Province	24	21.1
Gandaki Province	4	3.5
Lumbini Province	4	3.5
Karnali Province	5	4.4
Sudurpashchim Province	5	4.4
<b>Marital status</b>		
Married	5	4.4
Unmarried	109	95.6
<b>Name of studying college</b>		
School of Health Science	26	22.8
Vinayak Health Care System	38	33.3
Nepal Polytechnic Institute	34	29.8
NPI-Narayani Samudayik Health Institute	16	14.0
<b>Having training related to oral cancer</b>		
Yes	0	0
No	114	100

Table 1 shows that, majority (75.4%) of the respondents belong to the age group of ≤20 years. The Mean±SD of age was 20.01±2.455 years. Likewise, 58.8% were male. Geographically, most of the respondents (62.3%) were from Madhesh Province. Moreover, majority (95.6%) respondents were unmarried. Highest number (33.3%) of the respondents were from Vinayak Health Care System

followed by 29.8% from Nepal Polytechnic Institute, 22.8% from School of Health Science and 14% from NPI Narayani Samudayik Health Institute. None of them had had family history of oral cancer.

**Table 2: Respondents' Knowledge regarding Concept of Oral Cancer**

Variables	Correct Response	
	Frequency(n)	Percentage (%)
Any abnormal and uncontrolled cell growth in oral cavity	95	83.3
Confirmatory diagnosis of oral cancer is Biopsy	107	93.9
<b>Common sites</b>		
Tongue	94	82.5
Gum	92	80.7
Palate/top of mouth	85	74.6
Floor of mouth	94	82.5
Cheek	75	65.8
Lip	77	67.5
Oropharynx	76	66.7
Buccal mucosa	85	74.6
Tonsils	65	57.0

Table 2 shows that, majority (83.3%) of respondents answered correctly that oral cancer is any abnormal and uncontrolled cell growth in oral cavity. Likewise, 93.9% correctly responded confirmatory diagnosis is biopsy. Regarding common sites, 82.5% responded tongue as well as floor of mouth are common sites of oral cancer.

**Table 3: Respondents' Knowledge regarding Risk Factors of Oral Cancer**

Variables	Correct Response	
	Frequency(n)	Percentage (%)
<b>Risk factors</b>		
Tobacco	112	98.2
Pan	88	77.2
Gutka	112	98.2
Khaini	110	96.5
Smoking	97	85.1
Poor oral hygiene	97	85.1
Oral sex associated with HPV virus	93	81.6
Family history of oral cancer	84	73.7
Male gender	50	43.9
Sun exposure (for lip cancer)	40	35.1

Table 3 shows, majority (98.2%) of respondents answered that, tobacco as well as gutka is the risk factors of oral cancer followed by 110(96.5%) Khaini, 97(85.1%) smoking as well as poor oral hygiene, 93( 81.6%) oral sex associated with HPV virus, 88(77.2%) pan, 84(73.7%) family history of oral cancer, 50(43.9%) male gender and 40(35.1%) sun exposure (for lip cancer) respectively.

**Table 4: Respondents' Knowledge regarding Clinical Features of Oral Cancer**

Variables	Correct Response	
	Frequency(n)	Percentage (%)
<b>Tongue</b>		
Red or white patch on tongue	106	93.0
Lump on the tongue	92	80.7
Tongue bleeding without any injury	87	76.3
Difficulty in movement of tongue	101	88.6
<b>Gum</b>		
A white or red patch around the gum line	94	82.5
Teeth loosening	78	68.4
Tooth extraction wound that does not heal	91	79.8
Unusual bleeding from gums	91	79.8
<b>Floor of mouth</b>		
Sore in the mouth that won't heal	94	82.5
Pain with swallowing	99	86.8
Red or dark patches inside the mouth	102	89.5
Lump or swelling in the neck	91	79.8
<b>Oropharynx</b>		
Sore throat	100	87.7
A lump on back of mouth	93	81.6
Continuous voice changes	87	76.3
Difficulty in opening mouth fully	96	84.2
<b>Lip</b>		
A sore on lip	94	82.5
Pain	99	86.8
Red or white patch on lips	98	86.0
Unusual bleeding from lips	85	74.6

Table 4 show that, majority (93.0%) of the respondents answered the red or white patch is the clinical feature of tongue cancer. While, white or red patch around the gum line is the symptom of gum cancer 94(82.5%). Moreover, for floor of mouth cancer, most of the respondents (89.5%) answered

red or dark patches inside the mouth is the symptoms of floor of mouth cancer. For oropharyngeal cancer, majority of respondents answered that sore throat was the most common feature of oropharyngeal cancer 100(87.7%). For lip cancer most of the respondents answered pain is the symptoms of lip cancer 99(86.8%).

**Table 5: Respondents' Knowledge regarding Treatment and Prevention of Oral Cancer**

n=114

Variables	Correct Response	
	Frequency(n)	Percentage (%)
<b>Treatment</b>		
Chemotherapy	104	91.2
Radiation therapy	85	74.6
Immunotherapy	60	52.6
Surgery	106	93.0
<b>Preventive measures</b>		
Avoid tobacco	113	99.1
Avoid alcohol	99	86.8
Avoid smoking	106	93.0
Maintain oral hygiene	112	98.2
Regular dental check-up	112	98.2

Table 5 shows that, majority (93.0%) of the respondent answered surgery is the treatment of OC. Regarding prevention, the majority (99.1%) of the respondents answered avoiding tobacco could prevent oral cancer.

**Table 6: Respondents' Attitude regarding Oral Cancer**

n=114

Statement	SA	A	U	D	SD
Early detection of oral cancer leads effective treatment.	63(55.3)	40(35.1)	-	3(2.6)	8(7.0)
Only dentist are responsible for examining the oral lesion.*	5(4.4)	32(28.1)	18(15.8)	45(39.5)	14(12.3)
Annual oral examination should be done those of 40 years and above.	11(9.6)	51(44.7)	31(27.2)	13(11.4)	8(7.0)
Patient's risk factors should not be reviewed during clinical examinations.*	3(2.6)	30(26.3)	14(12.3)	41(36.0)	26(22.8)
Patients who are suspicious for oral cancer should be referred to specialist.	49(43.0)	43(37.7)	14(12.3)	3(2.6)	5(4.4)
Knowledge gained from PCL general medicine curriculum is adequate to detect oral cancer.*	14(12.3)	52(45.6)	12(10.5)	23(20.2)	13(11.4)

Statement	SA	A	U	D	SD
Oral examination must be done for all patient using tobacco and alcohol.	39(34.2)	40(35.1)	11(9.6)	12(10.5)	12(10.5)
Getting oral cancer is matter of luck and cannot be prevented.*	7(6.1)	13(11.4)	13(11.4)	37(32.5)	44(38.6)
Routine screening for oral cancer should be advised to friends and family.	51(44.7)	46(40.4)	5(4.4)	6(5.3)	6(5.3)
Routinely oral examination is not helpful for timely diagnosis of oral cancer.*	13(11.4)	15(13.2)	6(5.3)	34(29.8)	46(40.4)

\**Negative Statement.* NOTE: SA-Strongly Agree, A-Agree, U-Uncertain, D-Disagree, SD-Strongly Disagree

Table 6 shows that, highest percentage (55.3%) of the respondents strongly agree that, early detection of oral cancer leads effective treatment, highest number 51 (44.7%) of respondents agree that annual oral examination should be done those of 40 years and above, forty nine (43%) of respondents strongly agree that patients who are suspicious for oral cancer should be referred to specialist, most of the respondents 40(35.1%) agree that oral examination must be done for all patient using tobacco and alcohol and nearly half 51(44.7%) of the respondents strongly agree that routine screening for oral cancer should be advised to friends and family.

Regarding the negative statements, highest number of the respondents 45(39.5%) disagree that only dentist are responsible for examining the oral lesion, 41(36.0%) of respondents disagree about risk factors should not be reviewed during clinical examinations, 52(45.6%) agree that knowledge gained from PCL general medicine curriculum is adequate to detect oral cancer, 44(38.6%) strongly disagree that getting oral cancer is matter of luck and can not be prevented and 46(40.4%) strongly disagree that routinely oral examination is not helpful for timely diagnosis of oral cancer.

**Table 7: Respondents' Level of Knowledge regarding Oral Cancer**

n= 114

Level of knowledge	Frequency(n)	Percentage(%)
Low	8	7.0
Moderate	42	36.8
High	64	56.1

Table 7 shows that out of 114 respondents, 56.1% had high level of knowledge followed by 36.8% moderate knowledge and only 7.0% had low level of knowledge.

**Table 8: Respondents' Level of Attitude regarding Oral Cancer**  
n=114

Level of Attitude	Frequency (n)	Percentage (%)
Positive Attitude	66	57.9
Negative Attitude	48	42.1
Mean Value = 36.76		

Table 8 shows that out of 114 respondents, more than half (57.9%) of the respondents had positive attitude and 42.1% had negative attitude towards oral cancer.

**Table 9: Association between Level of Knowledge and Selected Variables**

Variables	Level of Knowledge			Chi Square	P value
	Poor	Moderate	Good		
<b>Age</b>				3.016	0.555
≤20	7(8.1)	34(39.5)	45(52.3)		
21-25	1(4.3)	7(30.4)	15(65.2)		
≥26	0.0	1(20)	4(80)		
<b>Sex</b>				2.110	0.348
Male	5(7.5)	21(31.3)	41(61.2)		
Female	3(6.4)	21(44.7)	23(48.9)		
<b>Marital status</b>				0.745	0.689
Married	0.0	2(40)	3(60)		
Unmarried	8(7.3)	40(36.7)	61(56)		
<b>Studying college</b>				21.633	0.001
School of Health Science	0.0	6(23.1)	20(76.9)		
Vinayak Health Care System	3(7.9)	10(26.3)	25(65.8)		
Nepal Polytechnic College	5(14.7)	19(55.9)	10(29.4)		
NPI Narayani Samudayik Health Institute	0.0	7(43.8)	9(56.3)		

Level of significance=<0.05

Table 9 showed that there is association between knowledge of oral cancer with studying colleges (p=0.001) and there is no association with age, sex, religion, ethnicity and marital status of respondents.

**Table 10: Association between Attitude towards Oral Cancer and Selected Variables**

Variables	Attitude		Chi Square	P value
	Poor	Good		
<b>Age</b>			8.969	0.011
≤20	34(39.5)	52(60.5)		
21-25	14(60.9)	9(39.1)		
≥26	0.0	5(100)		
<b>Sex</b>			0.007	0.935
Male	28(41.8)	39(58.2)		
Female	20(42.6)	27(57.4)		
<b>Marital status</b>			3.803	0.061
Married	0.0	5(100)		
Unmarried	48(44)	61(56)		
<b>Studying Colleges</b>			3.458	0.326
School of Health Science	8(30.8)	18(69.2)		
Vinayak Health Care System	19(50)	19(50)		
Nepal Polytechnic College	16(47.1)	18(52.9)		
NPI Narayani Samudayik Health Institute	5(31.3)	11(68.8)		

Level of significance=<0.05

Table 10 showed that there is association between attitude towards oral cancer and age of the respondents (p =0.011) while there is no association between attitude towards oral cancer and sex, religion and ethnicity, marital status and studying colleges of respondents.

**Table 11: Association between Knowledge and Attitude of Oral Cancer**

Level of Knowledge	Level of Attitude		Chi square	P value
	Negative	Positive		
Low level	4(50)	4(50)	1.284	0.526
Moderate level	20(47.6)	22(52.4)		
High level	24(37.5)	40(62.5)		

Table 11 shows that respondents with low level of knowledge have equal negative and positive attitude. However, respondent with the moderate level of knowledge have positive attitude 22(52.4%) and with high level of knowledge also have positive attitude 40(62.5%) towards oral cancer. There is no association between level of knowledge and level of attitude (p=0.526).

## Discussion

Regarding concept of oral cancer, this study shows that majority (83.3%) of respondent answered correctly that oral cancer is any abnormal and uncontrolled cell growth in oral cavity. While another study conducted in Kathmandu, Nepal among dental and medical students shows that 78.0% of respondents correctly answered, mass describes the clinical appearance of early lesion of oral cancer.<sup>7</sup>

This study shows that, majority (93.9%) of respondents answered that confirmatory diagnosis is biopsy. Another study conducted in Palestine among dental students and interns shows 34.2% of respondents were instructed how to perform incision or punch biopsy of a suspicious lesion in the oral cavity.<sup>14</sup> Finding of this study showed that, majority (82.5%) of the respondents answered that tongue as well as the floor of the mouth are the common sites of OC. While another similar study conducted in Saudi Arabia among dental students showed that most common location for oral cancer is posterior lateral margins of the tongue 42.9%.<sup>13</sup>

This study showed that, majority (98.2%) of respondents answered tobacco as well as gutka are the major risk factors of OC followed by smoking as well as poor oral hygiene (85.1%), oral sex associated with HPV virus (81.6%) and sun exposure (35.1%). Similar study conducted in Palestine among dentist showed that use of tobacco products (97.2%), poor oral hygiene (31.1%), human papilloma virus (74.8%), sun exposure for lip cancer (86.2%) are the risk factors of OC.<sup>15</sup>

This study showed that the majority (93.0%) of respondents knew that the clinical features of tongue cancer included a red or white patch on the tongue, followed by difficulty in moving the tongue (88.6%), a lump (80.7%), and tongue bleeding (76.3%). Another study conducted in Georgia among public health students shows, persistent white or red spot (93.0%), mouth sore (ulcer) that does not heal (90.7%), difficulty in mouth opening (62.0%), lump or tissue overgrowth (91.5%), bleeding from mouth (80.6%) and difficulty in swallowing (71.3%) are the symptoms of oral cancer.<sup>16</sup>

This study shows that the majority (93.0%) of the respondent answered that surgery is the treatment of OC. While another study conducted in Sudan

shows that the majority (39.9%) of respondents answered chemotherapy.<sup>17</sup> This study also shows that majority (99.1%) of respondent answered that avoiding tobacco can prevent from OC. Similar study conducted in Saudi Arabia among dental and medical students shows the quitting tobacco (12.8%).<sup>18</sup>

This study shows, majority (55.3%) of the respondents strongly agree that early detection of oral cancer is effective in its treatment. While another study conducted in Iran shows highest percentage (53.2%) of respondent strongly agree that early detection of oral cancer is effective in its treatment and highest (58.4%) of respondents agree that regular dental examinations are helpful for timely diagnosis of oral cancer statement.<sup>19</sup>

This study shows most of the respondents (44.7%) agree that annual oral cancer examination should be done those of 40 years and above and highest percentage of respondents (43.0%) strongly agree that patient who are suspicious for oral cancer should be referred to specialist. Similar study conducted in India among undergraduate medical students shows, majority (87.6%) of respondents strongly agree that annual oral cancer examination should be done those of 40 years and above and the highest percentage (95.6%) of respondents strongly agree that patient with suspected oral cancer lesions should be referred to a specialist.<sup>9</sup>

This study shows majority (45.6%) of respondents agree that, knowledge gained from PCL General Medicine (HA) curriculum is adequate to detect oral cancer. Similar study conducted in Kuwait among medical and dental students shows different finding that most (56.9%) of the respondents disagree that the curriculum provides sufficient knowledge about oral cancer that can be applied.<sup>20</sup>

This study shows that, highest (35.1%) of respondents agree that oral examination most be done for all patient using tobacco and/or alcohol and majority (44.7%) of respondents strongly agree that routine screening for oral cancer should be advised to friends and family. While another similar study conducted in Chitwan Nepal among medical and dental students shows that majority (54.16%) of respondents agree that screen the oral mucosa if the patients are in high-risk categories of oral cancer

and highest (94.44%) percentage of respondents agree that routine screening for oral cancer should be advised to friends and family.<sup>1</sup>

This study shows that highest percentage (38.6%) of the respondents strongly disagree that getting oral cancer is a matter of luck and cannot be prevented. Similar study conducted in Southeast Georgia among public health students shows similar finding that majority (61.2%) of respondent strongly disagree the statement.<sup>16</sup>

Regarding the level of knowledge of respondents, more than half (56.1%) of the respondents had high level of knowledge while another study conducted in India among undergraduate medical students which shows nearly similar finding that, 63.3% respondents had good knowledge on oral cancer.<sup>9</sup> Likewise, this study shows that, highest percentage (57.9%) of respondents had positive attitude. Other study shows nearly similar finding that 49.1% students have positive attitudes towards early detection of oral cancer.<sup>27</sup> Furthermore, this study findings shows that there is association between level of knowledge and studying college ( $p=0.001$ ). Another study conducted in Kuwait among dentists shows, knowledge scores were significantly correlated with age ( $p < 0.001$ ).<sup>22</sup>

Likewise, this study shows there is significant association between level of attitude with age of respondents ( $p=0.011$ ). Another study conducted in Kuwait among dentists shows, there was no significant difference in attitude scores based on age, gender.<sup>22</sup> This study shows, there is no association between level of knowledge and level of attitude towards oral cancer ( $p=0.526$ ). Another similar study conducted in Kathmandu Nepal among dental and medical students shows that no association between knowledge and attitude towards pre-cancerous and cancerous lesion ( $p= 0.06$ ).<sup>7</sup>

### Conclusion

The present research, aimed to assess the level of knowledge and attitude regarding oral cancer among proficiency certificate level general medicine (GM) students at colleges of Bharatpur, Chitwan. Based on the study findings it was concluded that just more than half of respondents had good level of knowledge and positive attitude towards oral cancer. Hence, the

knowledge of students needs to be improved and concerned authority needs to pay more attention on education.

### Limitations

This study was limited only on 114 participants. Non probability technique limits generalization.

### Recommendations

This type of research can be conducted in large scale among large sample. Similar type of study can be conducted in different setting. Comparative study can be done among government and private colleges.

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