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Pathology

Oral Cancer Awareness and Knowledge among Nurses/Paramedical Staff and Undergraduate Medical Students at ESIC Medical College and Hospital, NIT-3, Faridabad, Haryana

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Original Research Article

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Abstract: Oral cancer is one of the most lethal health problems faced by the human race today. In India, because of varying cultural, ethnic, geographic diversities and the indiscreet popularity of addictive habits, the frequency of oral cancer is very high. Early recognition and referral is essential as less treatment is needed and cure rates and 'quality of life' are much better. The study emphasizes on oral cancer awareness and knowledge among undergraduate medical students, nursing students and paramedical staff (lab technicians) as there is a dearth of information regarding the same in an Indian medical set up especially regarding medical students and paramedical staff. An institution based cross sectional, observational and descriptive survey was conducted among 137 undergraduate medical students, 67 nurses and 10 paramedical staff (lab technicians). Knowledge and attitude based questions were included in the questionnaire distributed among the study groups and were evaluated using Likert's scale. A decent percentage of participants from all the three study groups had a good knowledge score and positive attitude regarding oral cancer. However, most of the participants agreed with the need for more awareness programs. The outcomes of the study underline the tireless efforts the medical fraternity needs to put in to train our present and future health care providers to win the battle against oral cancer.
Keywords: Oral cancer, questionnaire, Likert's scale, cross sectional, observational.

INTRODUCTION

Oral cancer is one of the most lethal health problems faced by the human race today. In India, because of varying cultural, ethnic, geographic diversities and the indiscreet popularity of addictive habits, the frequency of oral cancer is very high. It ranks number one in terms of incidence among men and third among women[1]. Despite its role in systemic health, oral health care is an aspect that is often neglected[2,3]. Oral cancer mainly affects individuals in the 6th and 7th decades of life with a history of smoking and, or alcohol consumption. Early recognition and referral is essential as less treatment is needed and cure rates and 'quality of life' are much better[4-7] Previous studies have established that oral cancer can be asymptomatic with awareness of early signs being more beneficial in diagnosis[8].

The four cardinal signs of oral cancer are erythroplakia, leukoplakia, mixed (erythroleukoplakia), and ulceration. Of these the commonest presenting sign is ulceration. In a study by Scully *et al*. it was reported that general medical practitioners and general dental practitioners refer similar proportions of patients to maxillofacial units [9] and patients often consult their general medical practitioner rather than their general dental practitioner regarding oral lesions[10].

Oral cancer is prevalent among the elderly population and affecting the younger age group as well [11]. Surgical techniques and non-surgical management of oral cancer have become more advanced in recent years but this has had little effect on 5-year survival. 95% oral cancers are Squamous cell carcinomas and the associated risk factors can be easily avoided[12].

Scarcity of public awareness has been primarily responsible for the delay in referral and treatment of oral cancer[13,14]. Some cases of oral cancer can remain asymptomatic[15] therefore awareness needs to be increased to detect the earliest signs and avoid delay. Lack of proper knowledge regarding oral cancer among medical practitioners also contributes to the delay in treatment[16]. This increases the importance of oral cancer awareness among MBBS students, future health care providers. Undergraduate dental student awareness of oral cancer and pre-malignant oral lesions has been documented[17] but there is not enough data analyzing the medical students for the same.

Secondly as nursing staff spends the maximum time for in-patient care in a hospital especially the elderly patients who are susceptible to suffer from oral cancer, it is essential that they are well informed about the risk factors and clinical signs of oral cancer. Admitted patients are provided with a favorable opportunity for oral cancer screening.

Lastly the present study also includes the oral cancer awareness among paramedical staff i.e. laboratory (lab) technicians keeping in mind their interaction with patients during procedures like sample collection, fine needle aspiration cytology (FNAC) etc and the contribution they can provide in reducing the time interval between recognition of the disease and beginning of treatment.

The study emphasizes on oral cancer awareness and knowledge among undergraduate medical students, nursing students and paramedical staff (lab technicians) as there is a dearth of information regarding the same in an Indian medical set up especially regarding medical students and paramedical staff.

Objectives

- To measure awareness of risk factors and clinical signs for oral cancer among undergraduate medical students, nurses and paramedical staff at ESIC Medical College and Hospital, Faridabad, Haryana.
- To compare the knowledge and awareness about oral cancer in the study groups.
- The objective of the present study is also to evaluate how the awareness and knowledge can contribute in early detection and prevention of oral cancer.

MATERIALS & METHODS

An institution based cross sectional, observational and descriptive survey was conducted among 137 1st and 2nd year MBBS students, 67 nurses and 10 paramedical staff (lab technicians) at ESIC Medical College and Hospital, Faridabad, Haryana. Only consenting/interested individuals were included in the study.

The study groups were divided into Group I – Undergraduate medical students and Group II – Nurses and Group III – paramedical staff. The questionnaires prepared (Annexure A) were distributed among 1st and 2nd year MBBS students, nurses and paramedical staff. The questionnaire had questions divided into two main categories. Category I, to assess the knowledge among the study groups and Category II, to assess the attitude based questions, further the answers in both the categories were assessed in various age, gender and Kuppuswamy socio economic groups (according to updated socioeconomic class, 2014, May, current price index)[18]. Each question answered correctly received a score of 1 and each wrong answer received a score of 0 thus making a maximum score of 5 for a subject. The scores were transformed into percentages of correct answers. Hence, a participant's total score ranges from 0 (no answers correct) to 100 percent (all five answers correct). Participants with a score less than 25 percent were considered to have weak knowledge, between 25 and 50 percent to have moderate knowledge, between 50 and 75 percent to have good knowledge and more than 75 percent to have excellent knowledge. The answers to these questions were given on a five-point Likert scale [19] (strongly agree, agree, neutral, disagree, and strongly disagree). The attitude questions were calculated as percentages for different questions and categorized as positive and negative attitude. Further a mean score and standard deviation of both the knowledge and attitude based questions was calculated. Also a correlation of knowledge and attitude scores was established among MBBS students, nurses and paramedical staff.

The study was conducted within a time period of three months, July, August and September 2017. The ethical clearance was obtained from the Institutional ethical committee. A questionnaire comprising of 16 questions (6 knowledge based and 10 attitude based) was distributed among the interested participants and the time allotted to complete it was 10 minutes after which the questionnaires were collected and assessed accordingly.

STATISTICAL METHODS

Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean ± SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance. The following assumptions on data are made, **Assumptions: 1.**Dependent variables

should be normally distributed, 2.Samples drawn from the population should be random, Cases of the samples should be independent[20].

Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups, Non-parametric setting for Qualitative data analysis. Fisher Exact test used when cell samples are very small [21].

Significant figures

+ Suggestive significance (P value: 0.05<P<0.10)
* Moderately significant (P value: 0.01<P ≤ 0.05)
** Strongly significant (P value: P≤0.01)

Statistical software

The Statistical software namely SPSS 18.0, and R environment ver.3.2.2 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc [22].

RESULTS

The questionnaire completed by 137 MBBS students, 67 nurses and 10 para medical staff was evaluated and the results were as follows.

Group I included majority male participants, predominantly in the age group of 18-20 years and maximum belonged to Upper middle II category. Majority participants had good knowledge score and a positive attitude (Table1).

Group II and III had similar findings i.e. it included majority female participants, predominantly in the age group of 21-30 years and maximum belonged to Upper middle II category. Majority participants had good knowledge score and a positive attitude. (Table 1)

Table 2 shows comparison of responses on knowledge based questionnaire among MBBS students, Nurses and Paramedical staff.

When it came to finding the earliest signs of oral cancer on oral examination only 19.7%, 28.35% and 10% MBBS students, nurses and paramedical staff respectively (Figure 1) however a good percentage of individuals i.e. 83.9%, 77.61% and 100% MBBS students, nurses and paramedical staff respectively could easily spot non healing ulcers raising suspicion for oral cancer. 79.56%, 64.17% and 60% of the Group I, II and III respectively had knowledge about the metastatic activity of oral cancer (Figure 2). A small percentage of all the three groups I, II and III (32.8%, 34.3% and 10%) could identify the features of a metastatic lymph node i.e. hard, painless and fixed (Figure 3).

Table-1: Characteristics of the study population

Variable	Status	No. of MBBS students (percentage) (n=137)	No. of Nurses (n=67)	No. of paramedical staff (n=10)	P value
Age	18-20 years	108(78.83%)	1(1.29%)	0(0%)	<0.001**
	21-30 years	29(21.16%)	62(92.53%)	7(70%)	
	31-40 years	0(0%)	4(5.97%)	2(20%)	
	41-50 years	0(0%)	0(0%)	0(0%)	
	>50 years	0(0%)	0(0%)	1(10%)	
Gender	Male	72(52.55%)	21(31.34%)	4(40%)	0.016*
	Female	65(47.44%)	46(68.65%)	6(60%)	
Kuppuswamy's socioeconomic class	Upper (I)	22(16.05%)	2(2.59%)	0(0%)	<0.001**
	Upper-middle (II)	98(71.53%)	55(82.08%)	4(40%)	
	Lower-middle (III)	15(10.94%)	9(13.43%)	5(50%)	
	Upper-lower (IV)	2(1.45%)	1(1.29%)	1(10%)	
Score on knowledge based questions	Excellent	4(2.91%)	1(1.29%)	1(10%)	0.664
	Good	77(56.2%)	37(55.22%)	5(50%)	
	Average	54(39.41%)	29(43.28%)	4(40%)	
	Poor	2 (1.45%)	0(0%)	0(0%)	
Mean Knowledge Score ± SD	Excellent	6.00±0.00	6.00±0.00	6.00±0.00	
	Good	4.31±0.49	4.16±0.37	4.00±0.00	
	Average	2.79±0.40	2.56±0.50	2.75±0.50	
	Poor	0.50±0.70	-	-	
Type of attitude based on questionnaire	Positive	77(56.2%)	37(55.22%)	8(80%)	0.320
	Negative	60(43.79%)	30(44.77%)	2(20%)	
Mean Attitude Score ±SD	Positive	5.46±0.89	5.86±0.88	5.62±1.18	
	Negative	3.23±0.78	3.51±0.78	4.00±0.00	

Questions related to identifying the earliest signs of oral cancer, metastatic capacity of oral cancer and features of a metastatic lymph node turned out to have strongly significant p values of 0.001, <0.001 and 0.004 respectively.

Table 3 shows comparison of responses on attitude based questionnaire among MBBS students, nurses and paramedical staff. Figure 4 shows the various difficulties to carry out oral care in ward. Figure 5 shows how many are interested in enrolling for training programs related to oral health care (strongly significant p value <0.001). Figure 6 shows the importance of being aware of oral cancer risk factors.

Effect of various parameters on Knowledge about Oral cancer among MBBS Students, nurses and paramedical staff is depicted in table 4 and effect of various parameters on Attitude towards oral cancer among MBBS Students, nurses and paramedical staff is shown in table 5

On establishing a correlation of knowledge and attitude scores among MBBS students, nurses and paramedical staff a strongly significant p value (0.005) was obtained between all the three groups with a good knowledge score and positive/negative attitude. (Table 6)

Table-2: Comparison of Responses on knowledge based questionnaire among MBBS students, Nurses and Paramedical staff

Question	Options	MBBS student response (n=137)	Nurses response (n=67)	Paramedical response (n=10)	P value
Is tobacco use and volume of alcohol consumed per day related to oral cancer?	Yes	133(97.08%)	60(89.55%)	9(90%)	0.222
	No	3(2.18%)	6(8.95%)	1(10%)	
	No response	1(0.72%)	1(1.49%)	0(0%)	
Main etiology of oral cancer is?	Chronic use of tobacco products	84(61.31%)	32(47.76%)	10(100%)	0.204
	Chronic alcohol use	3(2.18%)	4(5.97%)	0(0%)	
	Sun exposure	1(0.72%)	1(1.49%)	0(0%)	
	Old age	1(0.72%)	0(0%)	0(0%)	
	All of the above	47(34.3%)	30(44.77%)	0(0%)	
	No response	1(0.72%)	0(0%)	0(0%)	
What are the earliest signs that make you suspicious of oral cancer?	Bad oral hygeine	27(19.7%)	19(28.35%)	1(10%)	0.001**
	Bad odour	15(10.94%)	5(7.46%)	0(0%)	
	Ulcers	32(23.35%)	24(35.82%)	9(90%)	
	White patches in mouth	61(44.52%)	17(25.37%)	0(0%)	
	No response	2(1.45%)	2(2.98%)	0(0%)	
Do you feel that presence of non-healing ulcers is suspicious of oral cancer lesion?	Yes	115(83.94%)	52(77.61%)	10(100%)	0.329
	No	18(13.13%)	14(20.89%)	0(0%)	
	No response	4(2.91%)	1(1.49%)	0(0%)	
Can oral cancer metastasize/spread to other parts of the body?	Yes	109(79.56%)	43(64.17%)	6(60%)	<0.001**
	No	26(18.97%)	20(29.85%)	1(10%)	
	No response	2(1.45%)	4(5.97%)	3(30%)	
Which of the following is a feature of lymph node metastasis in neck?	Hard, painful, mobile	43(31.38%)	25(37.31%)	0(0%)	0.004**
	Hard, painless, fixed	45(32.84%)	23(34.32%)	1(10%)	
	Soft, painful, mobile	32(23.35%)	11(16.41%)	8(80%)	
	Soft, painless, fixed	13(9.48%)	6(8.95%)	0(0%)	
	No response	4(2.91%)	2(2.98%)	1(10%)	

Table-3: Comparison of Responses on Attitude based questionnaire among MBBS students, nurses and paramedical staff

QUESTION	Options	MBBS student response (n=137)	Nurses response (n=67)	Paramedical response (n=10)	P value
Do you think it is important to examine a patient's mouth on admission?	Strongly disagree	0(0%)	4(5.97%)	0(0%)	0.007**
	Disagree	7(5.1%)	7(10.44%)	0(0%)	
	Neither agree nor disagree	18(13.13%)	2(2.98%)	0(0%)	
	Agree	83(60.58%)	37(55.22%)	10(100%)	
	Strongly agree	28(20.43%)	17(25.37%)	0(0%)	
	No response	1(0.72%)	0(0%)	0(0%)	
Does every patient require special oral care in a ward?	Yes	70(51.09%)	52(77.61%)	3(30%)	<0.001**
	No	67(48.9%)	1(1.49%)	6(60%)	
	No response	0(0%)	14(20.89%)	1(10%)	
Who should firstly carry out oral care in your ward? ?	Doctor	37(27%)	8(11.9%)	1(10%)	<0.001**
	Dentist	57(41.6%)	5(7.46%)	7(70%)	
	Nursing staff	43(31.38%)	54(80.59%)	2(20%)	
Are there any practical difficulties in carrying out regular oral health care for patients in your ward?	Strongly disagree	5(3.64%)	8(11.9%)	0(0%)	<0.001**
	Disagree	31(22.62%)	15(22.38%)	0(0%)	
	Neither agree nor disagree	38(27.73%)	3(4.47%)	0(0%)	
	Agree	57(41.6%)	30(44.77%)	10(100%)	
	Strongly agree	3(2.18%)	9(13.43%)	0(0%)	
	No response	3(2.18%)	2(2.98%)	0(0%)	
Should basic oral health care education be included in medical/nursing curriculum?	Strongly disagree	3(2.18%)	2(2.98%)	0(0%)	0.914
	Disagree	6(4.37%)	2(2.98%)	0(0%)	
	Neither agree nor disagree	7(5.10%)	2(2.98%)	0(0%)	
	Agree	81(59.12%)	44(65.67%)	9(90%)	
	Strongly agree	39(28.46%)	17(25.37%)	1(10%)	
	No response	1(0.72%)	0(0%)	0(0%)	
Would you like training in oral health care?	Strongly disagree	6(4.37%)	2(2.98%)	0(0%)	<0.001**
	Disagree	14(10.21%)	2(2.98%)	0(0%)	
	Neither agree nor disagree	26(18.97%)	2(2.98%)	0(0%)	
	Agree	76(55.47%)	38(56.71%)	8(80%)	
	Strongly agree	13(9.48%)	23(34.32%)	2(20%)	
	No response	2(1.45%)	0(0%)	0(0%)	
Is it necessary to be aware of risk factors for oral cancer?	Strongly disagree	1(0.72%)	4(5.97%)	0(0%)	<0.001**
	Disagree	3(2.18%)	5(7.46%)	0(0%)	
	Neither agree nor disagree	1(0.72%)	3(4.47%)	1(10%)	

	Agree	51(37.22%)	31(46.26%)	9(90%)	
	Strongly agree	79(57.66%)	24(35.82%)	0(0%)	
	No response	2(1.45%)	0(0%)	0(0%)	
Should patients be regularly advised about risk factors for oral cancer?	Strongly disagree	0(0%)	1(1.49%)	0(0%)	0.082+
	Disagree	1(0.72%)	1(1.49%)	0(0%)	
	Neither agree nor disagree	7(5.10%)	4(5.97%)	0(0%)	
	Agree	72(52.55%)	42(62.68%)	10(100%)	
	Strongly agree	54(39.41%)	17(25.37%)	0(0%)	
	No response	3(2.18%)	2(2.98%)	0(0%)	
Would you be willing to participate in a network to promote early screening for oral cancer?	Strongly disagree	0(0%)	1(1.49%)	0(0%)	0.034*
	Disagree	9(6.56%)	4(5.97%)	0(0%)	
	Neither agree nor disagree	17(12.4%)	1(1.49%)	0(0%)	
	Agree	84(61.31%)	40(59.7%)	10(100%)	
	Strongly agree	25(18.24%)	20(29.85%)	0(0%)	
	No response	2(1.45%)	1(1.49%)	0(0%)	
Do you think tobacco products sale should be banned in India?	Strongly disagree	5(3.64%)	4(5.97%)	0(0%)	0.222
	Disagree	3(2.18%)	4(5.97%)	0(0%)	
	Neither agree nor disagree	9(6.56%)	2(2.98%)	1(10%)	
	Agree	70(51.09%)	33(49.25%)	9(90%)	
	Strongly agree	48(35.03%)	23(34.32%)	0(0%)	
	No response	2(1.45%)	1(1.49%)	0(0%)	

Chi-Square/Fisher Exact Test

Table-4: Effect of various parameters on Knowledge about Oral cancer among MBBS Students, nurses and paramedical staff

Parameter	Status	Score	MBBS Students (n=137)	Nurses (n=67)	Paramedical staff (n=10)	P value
Gender	Male	Excellent	3(74.18%)	2(2.98%)	0(0%)	0.488
		Good	52(37.95%)	15(22.38%)	2 (20%)	
		Average	17(12.40%)	8(11.94%)	2 (20%)	
		Poor	0(0%)	0(0%)	0(0%)	
	Female	Excellent	1(0.72%)	0(0%)	1 (10%)	0.027*
		Good	25(18.24%)	27(40.29%)	3 (30%)	
		Average	37(27%)	15(22.38%)	2 (20%)	
		Poor	2(1.45%)	0(0%)	0(0%)	
Age	18-20 years	Excellent	3(2.18%)	0(0%)	0(0%)	0.505
		Good	54(39.41%)	0(0%)	0(0%)	
		Average	49(35.76%)	1(1.49%)	0(0%)	
		Poor	2(1.45%)	0(0%)	0(0%)	
	21-30 years	Excellent	1(0.72%)	1(1.49%)	1(10%)	0.168
		Good	23(16.78%)	38(56.71%)	4(40%)	
		Average	5(3.64%)	20(29.85%)	2(20%)	
		Poor	0(0%)	0(0%)	0(0%)	
	31-40 years	Excellent	0(0%)	0(0%)	0(0%)	1.000

		Good	0(0%)	4(5.97%)	1(10%)	
		Average	0(0%)	3(4.47%)	1(10%)	
		Poor	0(0%)	0(0%)	0(0%)	
	41-50 years	Excellent	0(0%)	0(0%)	0(0%)	1.000
		Good	0(0%)	0(0%)	0(0%)	
		Average	0(0%)	0(0%)	0(0%)	
		Poor	0(0%)	0(0%)	0(0%)	
	>50 years	Excellent	0(0%)	0(0%)	0(0%)	1.000
		Good	0(0%)	0(0%)	0(0%)	
		Average	0(0%)	0(0%)	1(10%)	
		Poor	0(0%)	0(0%)	0(0%)	
Kuppuswamy's socioeconomic class	Upper (I)	Excellent	2(1.45%)	0(0%)	0(0%)	0.341
		Good	13(9.48%)	0(0%)	0(0%)	
		Average	6(4.37%)	2(2.98%)	0(0%)	
		Poor	1(0.72%)	0(0%)	0(0%)	
	Upper-middle (II)	Excellent	2(1.45%)	1(1.49%)	1(10%)	0.283
		Good	56(40.87%)	32(50.74%)	2(20%)	
		Average	40(29.19%)	22(47.76%)	1(10%)	
		Poor	0(0%)	0(0%)	0(0%)	
	Lower-middle (III)	Excellent	0(0%)	0(0%)	0(0%)	1.000
		Good	7(5.10%)	4(5.97%)	2(20%)	
		Average	8(5.83%)	5(7.46%)	3(30%)	
		Poor	0(0%)	0(0%)	0(0%)	
	Upper-lower (IV)	Excellent	0(0%)	0(0%)	0(0%)	1.000
		Good	1(0.72%)	0(0%)	1(10%)	
		Average	1(0.72%)	1(1.49%)	0(0%)	
		Poor	0(0%)	0(0%)	0(0%)	

Chi-Square/Fisher Exact Test

Table-5: Effect of various parameters on Attitude towards oral cancer among MBBS Students, nurses and paramedical staff

Parameter	Status	Attitude	MBBS students (n=137)	Nurses (n=67)	Paramedical staff (n=10)	P value
Gender	Male	Positive	44(32.11%)	17(25.37%)	2(20%)	0.633
		Negative	28(20.43%)	8(11.94%)	2(20%)	
	Female	Positive	33(24.08%)	28(41.79%)	6(60%)	0.063+
		Negative	32(23.35%)	24(35.82%)	0(0%)	
Age	18-20 years	Positive	56(40.87%)	1(1.49%)	0(0%)	1.000
		Negative	52(37.95%)	0(0%)	0(0%)	
	21-30 years	Positive	21(15.32%)	35(52.23%)	6(60%)	0.086+
		Negative	8(5.83%)	31(46.26%)	1(10%)	
	31-40 years	Positive	0(0%)	0(0%)	1(10%)	1.000
		Negative	0(0%)	0(0%)	1(10%)	
	41-50 years	Positive	0(0%)	0(0%)	0(0%)	1.000
		Negative	0(0%)	0(0%)	0(0%)	
	>50 years	Positive	0(0%)	0(0%)	1(10%)	1.000
		Negative	0(0%)	0(0%)	0(0%)	
Kuppuswamy's socioeconomic class	Upper (I)	Positive	8 (5.83%)	1(1.49%)	0(0%)	1.000
		Negative	14(10.21%)	1(1.49%)	0(0%)	
	Upper-middle (II)	Positive	57(41.60%)	32(47.76%)	4(40%)	0.302
		Negative	41(29.92%)	23(34.32%)	0(0%)	
	Lower-middle (III)	Positive	7(5.10%)	4(5.97%)	3(30%)	1.000
		Negative	8(0.58%)	5(7.46%)	2(20%)	
	Upper-lower (IV)	Positive	1(0.72%)	0(0%)	1(10%)	1.000
		Negative	1(0.72%)	1(1.49%)	0(0%)	

Chi-Square/Fisher Exact Test

Table-6: Correlation of Knowledge and Attitude Scores among MBBS students, nurses and paramedical staff

Status	Attitude	MBBS students (n=137)	Nurses (n=67)	Paramedical staff (n=10)	P value
Excellent	Positive	3(2.18%)	1(1.49%)	1(10%)	1.000
	Negative	1(0.72%)	1(1.49%)	0(0%)	
Good	Positive	44(32.11%)	29(43.28%)	4(40%)	0.005**
	Negative	32(23.35%)	4(5.97%)	1(10%)	
Average	Positive	30(21.89%)	15(22.38%)	3(30%)	0.580
	Negative	24(17.51%)	17(25.37%)	1(10%)	
Poor	Positive	0(0%)	0(0%)	0(0%)	1.000
	Negative	2(1.45%)	0(0%)	0(0%)	

Chi-Square/Fisher Exact Test

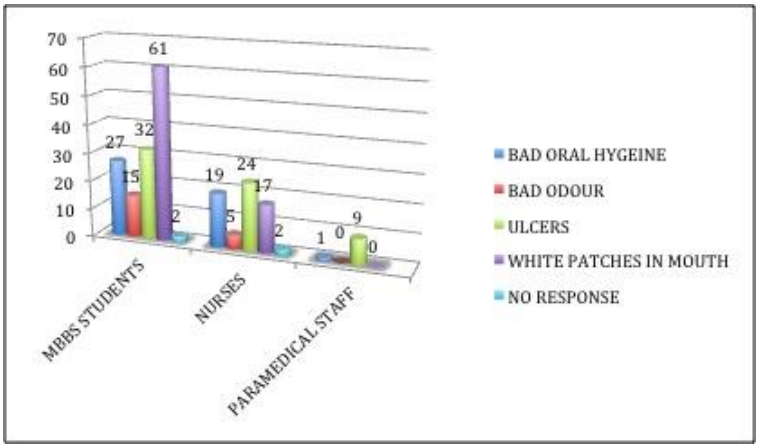

Fig-1: Response to the question relating to identifying the earliest signs to raise suspicion For oral cancer (p=0.001)

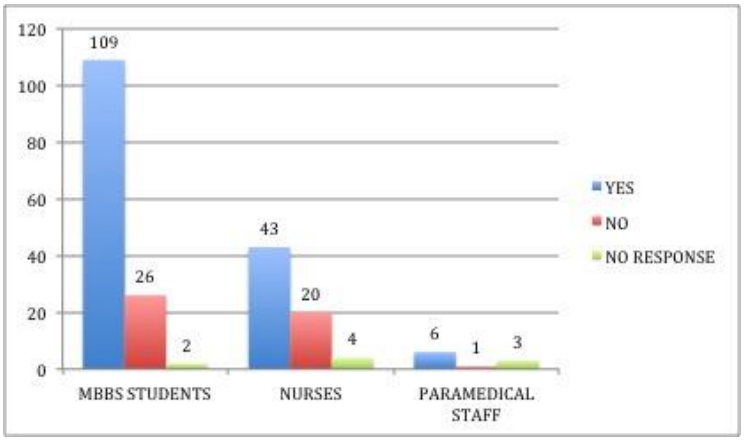

Fig-2: Response to knowledge about metastasis of oral cancer (p<0.001)

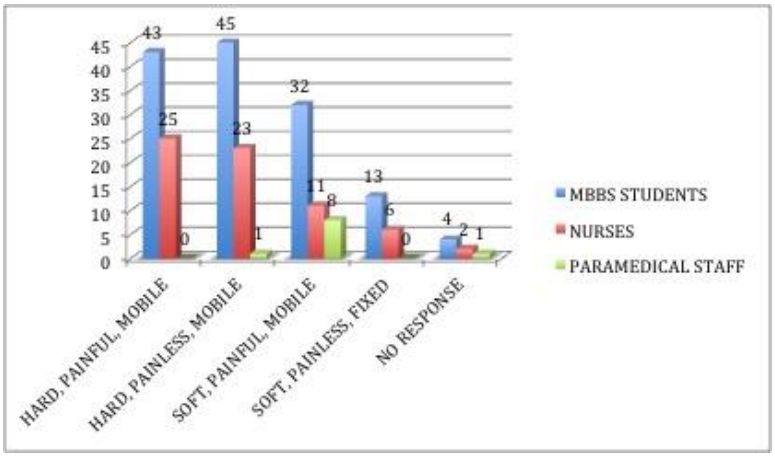

Fig-3: Response to the lymph node presentation indicating metastasis (p=0.004)

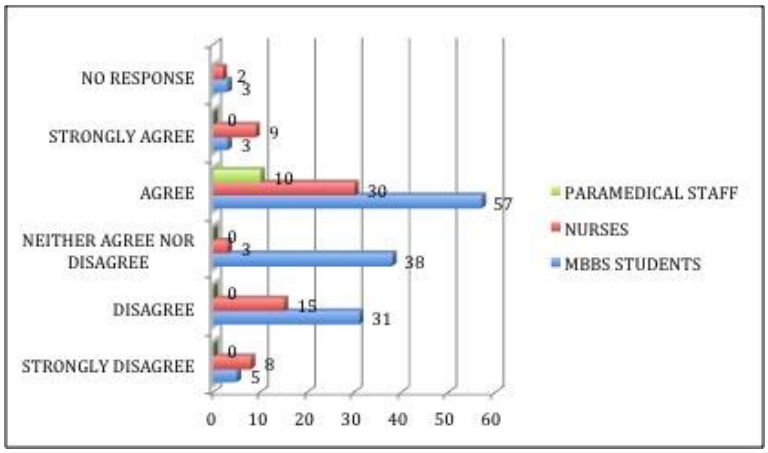

Fig-4: Response when asked about any difficulties regarding performing oral examination in wards (p <0.001)

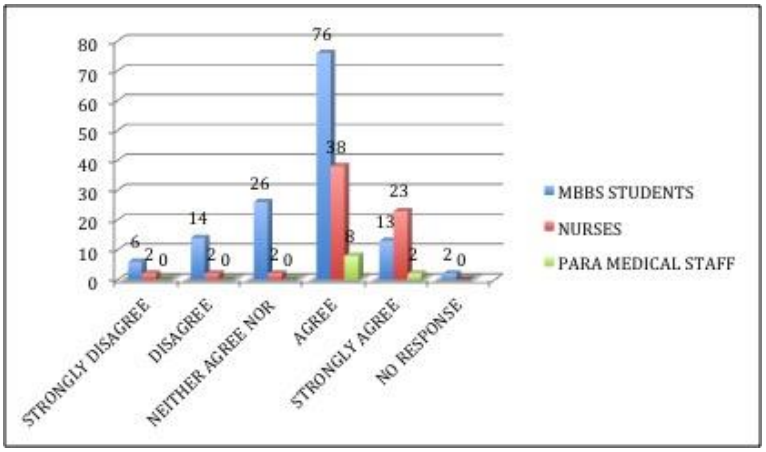

Fig-5: Attitude evaluation on being asked for willingness to participate in oral cancer awareness training programs (<0.001)

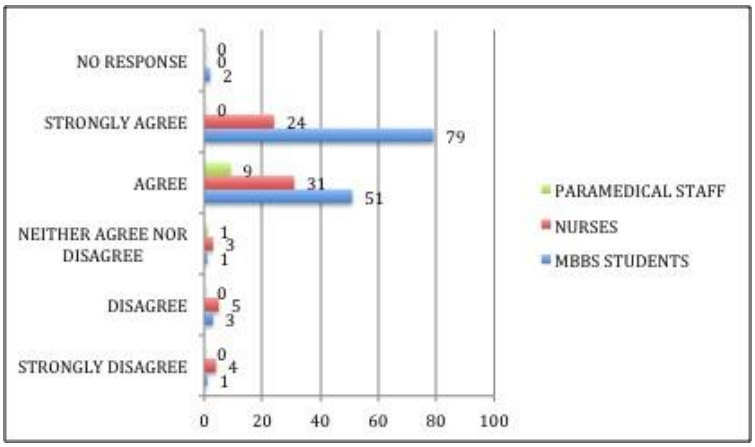

Fig-6: Attitude evaluation on being asked whether it's necessary to be aware of oral cancer risk factors (p<0.001)

DISCUSSION

Our study is one of the few studies with more number of male participants among the group undergraduate MBBS students. It is in accordance with a study conducted in 2017 by Kumar H *et al.* conducted at KIIT University Bhubaneswar, Odisha, among MBBS students [23]. The study group included 95(63.3%) male and 55(36.67%) female participants. In the present study a total of 72(52.5%) males and 65(47.4%) females were present among MBBS students.

Whereas a study by Kujan O *et al*. which, included a study population of 4th, 5th, and 6th year undergraduate medical students, conducted in the year 2013 had a total of 87 (46.7%) male and 99 (53.3%) female participants [24].

The gender group findings were similar to a study conducted in 2013 by Mittal S *et al*. amongst 300 undergraduate nursing students at 4 nursing colleges at Davangere city, India. There were a total of 231 (77%) females and 69 (23%) male nurses in the study [25]. Also a study conducted in the year 2017 by Shivakumar KM *et al*. in various hospitals/nursing schools in Karad city, Maharashtra found that out of 400 nursing staff, 300 (75%) were females and 100 (25%) were males [26]. In the present study there were 46 (68.6%) and 21 (31.3%) female and male nurses respectively.

Majority population of MBBS students belonged to the age group 18-20 years i.e. 108(78.83%) in our study. These findings were consistent with that of a questionnaire-based study by Awan KH *et al*. the study was titled "Assessing oral cancer knowledge and attitude among Malaysian dental and medical students". The study was conducted in the year 2014 and included 302 MBBS students (out of a total of 482 participants). It included 187(61.9%) students to be ≤21 years of age [27].

Maximum number of nurses in the present study belonged to the age group 21-30 years i.e. 62(92.53%). This data was parallel to work undertaken by Asif N et al in the year 2014 among final year undergraduate nursing students at College of nursing, King Khalid University, Abha, Saudi Arabia. The mean age of participants in the present study was 22 years ± 0.48986. Our results were different from a study performed across selected hospitals in Udupi and Dakshina Kannada district, Karnataka, India by Pai RR *et al*. They found that 86(54.4%) individuals fell in the age group of 18-25 years of age group[28].

The study by Fotedar V *et al*. done in the year 2015 assessed oral cancer knowledge, attitudes and practices among undergraduate MBBS students in Himachal Pradesh, India showed similar findings to our study with a good knowledge score among majority MBBS students regarding oral cancer[29].

A major percentage of participants in the present study could identify tobacco consumption as a risk factor for oral cancer i.e. 133(97.08%), 60(89.55%) in groups I, II respectively. These findings were consistent with a majority (65.8%) of MBBS students who could correctly identify tobacco as the leading risk factor in a study conducted by Murugesan A *et al*. titled awareness of oral cancer among medical students in Chennai, which included 500 medical students [30]. The results were also compatible with a study showing 63% nurses could correctly identify tobacco as the leading risk factor conducted by Carter ML et al in 2009 in United Kingdom [31]. MBBS students and nurses knew that tobacco chewing/smoking is the most common risk factor for oral cancer in our study.

Identification of the metastatic potential of oral cancer was done by 109(79.56%), 43(64.17%) and 6(60%) individuals from groups I, II and III respectively which was a good percentage. Our data in was different from a study by Rehman S *et al*. in 2013 at Khyber Medical and dental colleges, Peshawar, Pakistan, wherein only 30% of MBBS students could identify oral changes associated with oral cancer, which included lymph node involvement[32].

On comparison, a slightly greater percentage of MBBS individuals performed better in knowledge-based questions when compared with nurses and paramedical staff. These results emphasize on educating our nurses more through various means like training programs and including oral cancer in more detail in their curriculum.

Our data regarding response towards agreeing to the significance of oral examination [83(60.58%)] among MBBS students was consistent with that of Fotedar V *et al.* in a similar study conducted among undergraduate MBBS students in Himachal Pradesh i.e. 163(87.6%) [29]. Similarly, 91.7% of nurses agreed to the same question in a study by Mittal S et al among BSC nursing students in Davangere, Maharashtra, India [25]. These were consistent with our results for nurses i.e. 55.22% (majority).

41.6% MBBS students and 44.77% nurses in our study felt there are difficulties to perform oral exam in wards. These findings were similar to a study by Shivakumar KM *et al*. carried out among nurses at Karad, Maharashtra. In this study 62.5% nurses agreed to this[26]. This presses upon the requirement to improve oral examination facilities for in patient departments.

In the present study 76(55.47%) and 38(56.71%) MBBS students and nurses agreed when asked if they would you like training in oral health care. 61.31% and 59.7% of MBBS students and nurses were willing to participate in programs related to early screening of oral cancer. These results were consistent with A Maharashtra based study among nurses Shivakumar KM *et al*. i.e. 87.5%. 176(94.6%)[26]. MBBS students agreed to the same question in a study by Fotedar V *et al*. carried out among undergraduate MBBS students in Himachal Pradesh [29]. This reflects that medical professionals be it MBBS students or nurses accept the lack of thorough knowledge and awareness regarding oral cancer and are willing to improve through training programs.

The present study included a group of 10 paramedical staff (lab technicians) that volunteered to participate in the study. To the best of our knowledge ours is one of the first studies to include lab technicians as a study group to assess oral cancer awareness among them. 50% obtained a good knowledge score and 80% had a positive attitude. 100% participants were aware of the risk associated with tobacco consumption, importance of oral examination among in patients admitted to wards and the relevance of not neglecting non-healing ulcers. 80% agreed to participate in oral cancer training programs, 90% felt the need to include basic oral health care in medical/nursing curriculum and the necessity to be aware of oral cancer risk factors. 100% of them wanted to participate in training programs which help increase awareness regarding early screening for oral cancer. Through these results we want to throw light upon the fact that lab technicians have a decent amount of knowledge regarding oral cancer and have a good percentage of positive attitudes towards oral cancer awareness. They are willing to contribute to fight against oral cancer in their own small ways. Also they have daily patient interaction during procedures like sample collection. All of this combined explains the significant role every individual belonging to the medical fraternity can play in helping fight against oral cancer.

As a p value of 0.664 and 0.320 was obtained on assessing the knowledge and attitude scores among all the three study groups in our study, on a whole it signifies that all the three groups i.e. MBBS students, nurses and paramedical staff need to be more aware of oral cancer. There is a need to introduce more text on oral cancer in medical curriculums across all courses. All the groups ranging from MBBS students being future health care providers, nurses spending maximum time with the patients to lab technicians/paramedical staff interacting with patients on day to day basis are willing and should be encouraged to participate in oral cancer awareness programs to become well stocked with knowledge. Through these training programs, medical personals can be also taught to take the help mass media, television, radio and social networking platforms in spreading oral cancer awareness by discouraging tobacco use/sale and identify earliest signs of oral cancer among general population.

CONCLUSION

A decent percentage of participants from all the three study groups had a good knowledge score and positive attitude regarding oral cancer. Having knowledge does not guarantee that it will be executed well. To combat oral cancer more awareness needs to be generated to increase the knowledge and improve the attitude towards it as is agreed upon by all the study groups in expressing their desire to be educated and trained in better ways through various means. To conclude it's incumbent upon every individual related to patient care to be completely aware of oral cancer and oral health and implement that knowledge in fighting against oral cancer.

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Annexure A
QUESTIONNAIRE

ESIC MEDICAL COLLEGE AND HOSPITAL, NIT-3, FARIDABAD, HARYANA
DEPARTMENT OF PATHOLOGY

ORAL CANCER AWARENESS AMONG NURSES/PARAMEDICAL STAFF & UNDERGRADUATE MEDICAL STUDENTS

AGE: GENDER: NURSE/PARAMEDICAL STAFF/MBBS STUDENT

FATHER'S EDUCATION: MOTHER'S EDUCATION:

FATHER'S OCCUPATION: MOTHERS OCCUPATION:

MONTHLY INCOME:

(This is an anonymous survey. Information provided will be kept confidential.)
1) Do you think it is important to examine a patient's mouth on admission?
a) Strongly disagree
b) Disagree
c) Neither agree nor disagree
d) Agree
e) Strongly agree

2) Does every patient require special oral care in a ward?
a) Yes b) No

3) Who should firstly carry out oral care in your ward?
a) Doctor
b) Dentist
c) Nursing staff

4) Are there any practical difficulties in carrying out regular oral health care for patients in your ward?
a) Strongly disagree
b) Disagree
c) Neither agree nor disagree
d) Agree
e) Strongly agree

5) Should basic oral health care education be included in medical/nursing curriculum?
a) Strongly disagree
b) Disagree
c) Neither agree nor disagree
d) Agree
e) Strongly agree

6) Would you like training in oral health care?
a) Strongly disagree
b) Disagree
c) Neither agree nor disagree
d) Agree
e) Strongly agree

7) Is tobacco use and volume of alcohol consumed per day
related to oral cancer?
a) Yes b) No

8) Do you think tobacco products sale should be banned in India?
- a) Strongly disagree
- b) Disagree
- c) Neither agree nor disagree
- d) Agree

9) Is it necessary to be aware of risk factors for oral cancer?
- a) Strongly disagree
- b) Disagree
- c) Neither agree nor disagree
- d) Agree
- e) Strongly agree

10) Should patients be regularly advised about risk factors for oral cancer?
- a) Strongly disagree
- b) Disagree
- c) Neither agree nor disagree
- d) Agree
- e) Strongly agree

11) Main etiology of oral cancer is
- a) Chronic use of tobacco products
- b) Chronic alcohol use
- c) Sun exposure
- d) Old age
- e) All of the above

12) What are the earliest signs that make you suspicious of oral cancer?
- a) Bad oral hygiene
- b) Bad odour
- c) Ulcers
- d) White patches in mouth

13) Do you feel that presence of non-healing ulcers is suspicious of oral cancer lesion?
- a) Yes b) No

14) Can oral cancer metastasize/spread to other parts of the body?
- a) Yes b) No

15) Which of the following is a feature of lymph node metastasis in neck?
- a) Hard, painful, mobile
- b) Hard, painless, fixed
- c) Soft, painful, mobile
- d) Soft, painless, fixed

16) Would you be willing to participate in a network to promote early screening for oral cancer?
- a) Strongly disagree
- b) Disagree
- c) Neither agree nor disagree
- d) Agree
- e) Strongly agree