



Knowledge, Attitude, and Practice of Precancerous Lesions Among the Undergraduate Dental Students in a Tertiary Hospital of Bhubaneswar City-Cross Sectional Survey

*Tarunika Jamuda¹, Atul Anand Bajoria^{*2}, Sangamesh NC², Silpiranjan Mishra², Sukriti Mukherjee², Ananya Narella²*

¹Kalinga Institute of Dental Sciences, KIIT Deemed to be University, Patia, Bhubaneswar – 751024, Odisha, India

²Department of Oral Medicine & Radiology, Kalinga Institute of Dental Sciences, KIIT Deemed to be University, Patia, Bhubaneswar – 751024, Odisha, India

Abstract

Precancerous lesions represent a crucial stage in the complex process of carcinogenesis, wherein cellular abnormalities precede the development of invasive cancer. The aim of this study was to evaluate undergraduate dentistry students' knowledge, attitudes, and practises about pre-cancerous lesions and early detection in order to measure oral cancer awareness among those students in a tertiary hospital in Odisha. This cross-sectional survey of the undergraduates was done using a self designed 17 item questionnaires. It includes 150 students who gave informed consent. Data were imported into an excel spreadsheet from Microsoft and examined with SPSS version 26.0. Chi-square and ANOVA was used to compare scores from different domains between groups. The cutoff point for statistical significance was 0.05. The majority of respondents were females (73.3%), and 15-24 years (74.7%). The knowledge and practice of the study participants was good in 34% and 15.3% of study participants respectively. Statistical significance was seen among attitude domain when compared with gender. When compared to the prevalence of precancerous lesions among oral health professionals, it was determined that the current level of knowledge, attitude, and practise is inadequate.

Keywords: Knowledge, Attitude, Practice, Precancerous Lesions, Survey

Full-length article *Corresponding Author, e-mail: atultink@gmail.com

1. Introduction

Based on variables like geographic location, population demographics, lifestyle choices, and access to healthcare, the incidence of oral cancer can vary dramatically [1]. Oral cancer, which can affect the lips, tongue, gums, cheeks, mouth's floor, and the hard and soft palate, is a serious public health issue [2]. It is more prevalent in older persons, especially those over 45, and is frequently linked to risk factors such tobacco use (smoking and smokeless tobacco) and binge drinking [3]. An additional known risk factor for some kinds of mouth cancer is human papillomavirus (HPV) infection. Cancer exposures are also caused by the interaction of genetic and environmental variables. Oral cancer is one of the human malignancies that is at elevated risk due to factors including diet.

The risk of several human malignancies, including precancerous lesions, can be increased by factors like nutrition and diet, environmental factors, growth and physical characteristics, and hereditary factors [4]. The prevention of oral cancer and early detection of the disease are crucial tasks for healthcare professionals, especially dentists. Encourage patients to cease injuring themselves by

engaging in actions that could cause oral cancer [5]. Undergraduates will practise dentistry in the future. Consequently, they need to regularly refresh their knowledge of oral cancer. Numerous countries have published studies on the knowledge and awareness of oral cancer among dentistry and medical students [6-14]. The aim of this study was to evaluate undergraduate dentistry students' knowledge, attitudes, and practises about precancerous lesions and early detection in order to measure oral cancer awareness among those students in a tertiary hospital in Odisha. The survey's findings will enable institutional review of the participants and point out areas where the existing curriculum needs improvement.

2. Methodology

A cross-sectional study between 6 May 2023 and 26 August 2023, involving dental undergraduate final year students and interns was undertaken at the Kalinga Institute of Dental Sciences in Odisha. The KIIT Ethics Committee, which is considered to be an academic body, independently examined and authorised the study before it was carried out.

The study participants were chosen using a convenience sampling procedure, and those who provided verbal consent were included. To a total of 150 students, the questionnaire was made available online through Google forms after class. Before giving out the questionnaire, the study's objectives were conveyed to the students. The students were made aware that there would be no financial rewards for taking part in the study and that their personal information would remain confidential. The questionnaire was delivered to participants with enough time to complete it.

A self-constructed 17-item questionnaire was used to gather information on oral cancer knowledge, awareness, and practise. Participants received a score of 1 for every correct response to a knowledge question and a score of 0 for every erroneous response. To establish the viability and validity of the questionnaire, a pilot research was carried out. Before the study began, the validity of the questionnaire was reviewed by a panel of five subject experts, and changes were made as necessary. Under the direction of the guide, the investigator and the assistant received training and calibration at the Department of Oral medicine and Radiology at the Kalinga Institute of Dental Sciences. The Cronbach's alpha value was determined to be 0.86, indicating very high dependability.

The questionnaire's first section asked about demographic details such age, gender, the second section asked about the participants' awareness of oral cancer prevention. To gauge knowledge, 11 statements with "yes" and "no" responses were employed. Questions on the list included "Two common areas of precancerous lesions are floor of the mouth and tongue?" "Precancerous lesions usually appear as a painless sore or red?" "Patients in the early stages of precancerous lesions are asymptomatic?" The overall knowledge score ranged from 0 to 11, and one point was awarded for each right response. Less than seven points indicated low knowledge, and more than seven points indicated high knowledge of oral cancer. The seven-point threshold accounted for 60% (7/11) of the overall average proficiency ratings.

Respondents were questioned about their opinions on mouth cancer prevention in the third section of the survey. Participants gave "yes" or "no" answers to seven statements. A rating of 1 represented favourable views towards avoiding the occurrence of malignancies in the mouth, whereas a rating of 0 suggested unfavourable views. A participant's attitude was evaluated using statements like "Early and timely diagnosis of precancerous lesions increases 5-year survival of patients" and "All patients older than 40 years must be examined for precancerous lesions on an annual basis." The attitude measure has a maximum score of 6, with higher scores suggesting more favourable attitudes towards the prevention of oral cancer. The 3.6-point cutoff reflected sixty percent of the mean mindset ratings; an unfavourable mindset was defined as < 3.6 and a favourable one as ≥ 3.6 .

The survey's last section asked ten questions regarding skill examinations of precancerous lesions. For instance, "Is your information about risk factors for precancerous lesions enough?" "Is your information about the signs of precancerous lesions enough?" "Is your information about the detection of precancerous lesions enough?" There were two possible answers: "yes" or "no." This scale has a maximum score of 10, with higher scores indicating more

practise. The cut-off value of 6 was defined as bad practise and good practise, respectively; it represented 60% of the overall mean.

Data were entered into a Microsoft Excel spreadsheet, and SPSS Statistics for Windows, version 26.0 (SPSS Inc., Chicago, IL, USA) was used for analysis. The Chi-square test was used to perform inferential statistics. Frequency and percentages were used to describe categorical variables. ANOVA was used to compare scores from different domains between groups. The cutoff point for statistical significance was 0.05.

3. Results

The majority of respondents were females (73.3%), and 15-24 years (74.7%). About 58.7% of the participants were interns and 41.3% were undergraduates of final year. Cytology was best method to confirm precancerous lesions among the study participants and majority of them also diagnosed pre-cancerous lesions (84.7%) (Table 1). The knowledge and practice of the study participants was good in 34% and 15.3% of study participants respectively. The attitude was favourable in 99.35% of the study participants (Table 2). Study participants responses to etiology factors is described in figure 1. Smokeless and smoke form of tobacco were the most marked factor. The mean knowledge was highest among 15-25 years of age group and the mean attitude was highest among 30-35 years of age group. Among gender, the mean knowledge and attitude was highest among females and practice was highest among males. Statistical significance was seen among attitude domain when compared with gender ($p=0.021$) (Table 3,4).

4. Discussion

As a dentist, we have the chance to find oral cancer in patients before it spreads to neighbouring tissues and causes symptoms. Therefore, it is the responsibility of dentistry schools to ensure that a generalist is formed who is educated about technology, theories, and moral principles, strives to promote welfare, and emphasises the concept of avoiding frequent mouth illnesses. Graduation is mandatory and must guarantee that students have the necessary fundamental knowledge on oral cancer prevention and early diagnosis. Postgraduate degrees are useful for the activity in this subject, but graduation is crucial. The present quantitative study's objectives were to establish a baseline for oral cancers knowledge and attitudes and to look at the variables affecting students, interns, in the Kalinga institute of dental sciences. This study is the first to examine dental students at a tertiary hospital in Bhubaneswar city about their knowledge, attitudes, and practices towards oral malignancies. The study population was made up of 73.3% women and 26.7% men, which is consistent with the fact that women predominately practise dentistry in India. According to statistical findings of the research's components, a perceived degree of oral cancer awareness among the participants in the survey is deemed to be low. This result conflicts with findings from other research conducted across the nation and Saudi Arabia that claimed dental educators, learners, and trainees in both countries had moderate to outstanding oral health knowledge [15, 16]. This result was consistent with those of other investigations conducted in Saudi Arabia by Alsaud [17] and Nazar et al. [18] along with Kuwaiti and in Jazan University [19].

Table 1. Socioeconomic status of study participants

AGE	FREQUENCY	PERCENTAGE
15-24	112	74.7
25-29	37	24.7
30-25	1	.7
GENDER		
Female	110	73.3
Male	40	26.7
QUALIFICATION		
Final year	62	41.3
Intern	88	58.7
COURSE		
Scientific Article	7	4.7
University Course	143	95.3
EXAMINE PATIENTS FOR PRECANCEROUS LESIONS		
Always	119	79.3
Sometimes	31	20.7
EXAMINE PATIENTS FOR SMOKING		
Always	138	92.0
Never	1	.7
Sometimes	11	7.3
EXAMINE PATIENTS FOR ALCOHOL		
Always	123	82.0
Never	1	.7
Sometimes	26	17.3
DIAGNOSE PRECANCEROUS LESION		
No	23	15.3
Yes	127	84.7
BEST METHOD TO CONFIRM PRECANCEROUS LESION		
Cytology	105	70.0
Excision	23	15.3
Incision	22	14.7
TOTAL	150	100.0

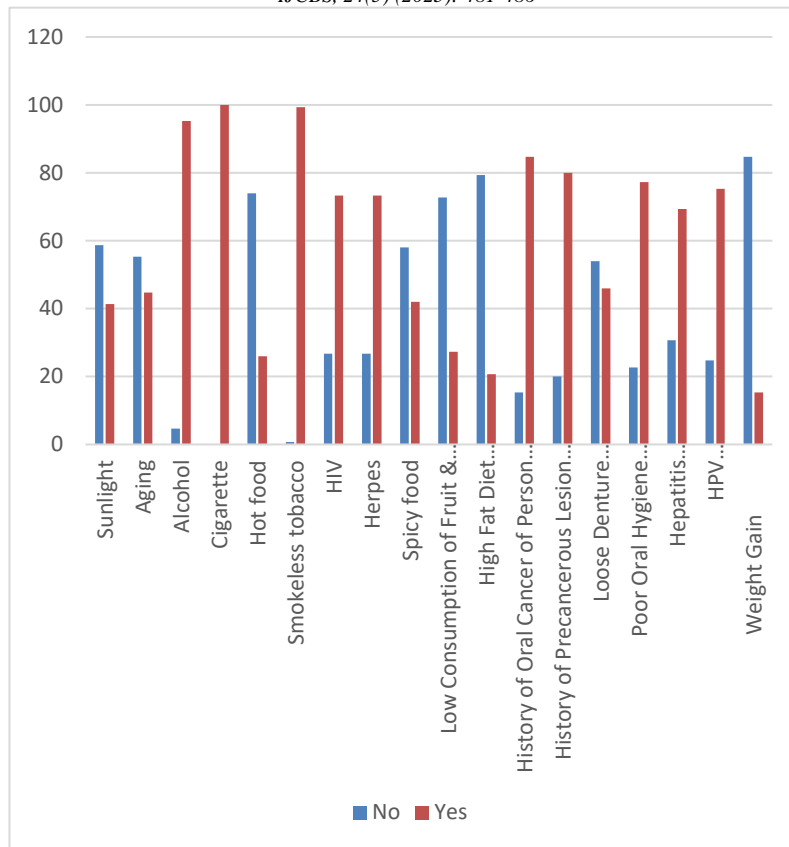


Figure 1: Etiology factors on precancerous lesions

Table 2. Knowledge, attitude and practice of study participants

KNOWLEDGE	FREQUENCY	PERCENTAGE
Poor	99	66.0
Good	51	34.0
ATTITUDE		
Favourable	149	99.3
Unfavourable	1	.7
PRACTICE		
Poor	127	84.7
Good	23	15.3

Table 3. Knowledge and attitude of study participants with different age group

	Age Group	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for mean		F	Sig.
						Lower bound	Upper bound		
Knowledge	15-24	112	6.9464	1.31409	.12417	6.7004	7.1925	.358	.700
	25-29	37	6.8919	1.26455	.20789	6.4703	7.3135		
	30-35	1	8.0000	-	-	-	-		
	Total	150	4.9667	.37393	.03053	4.9063	5.0270		
Attitude	15-24	112	4.9643	.42296	.03997	4.8851	5.0435	.011	.989
	25-29	37	4.9730	.16440	.02703	4.9182	5.0278		
	30-35	1	5.0000	-	-	-	-		
	Total	150	6.9400	1.29651	.10586	6.7308	7.1492		
Practice	15-24	112	1.1518	.36043	.03406	1.0843	1.2193	.101	.904
	25-29	37	1.1622	.37368	.06143	1.0376	1.2868		
	30-35	1	1.0000	-	-	-	-		
	Total	150	1.1533	.36152	.02952	1.0950	1.2117		

Table 4. Knowledge and attitude of study participants with different gender

	Gender	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for mean		F	Sig.
						Lower bound	Upper bound		
Knowledge	Male	40	6.9250	1.30850	.20689	6.5065	7.3435	.007	.932
	Female	110	6.9455	1.29810	.12377	6.7001	7.1908		
	Total	150	6.9400	1.29651	.10586	6.7308	7.1492		
Attitude	Male	40	4.8500	.48305	.07638	4.6955	5.0045	5.469	.021*
	Female	110	5.0091	.31754	.03028	4.9491	5.0691		
	Total	150	4.9667	.37393	.03053	4.9063	5.0270		
Practice	Male	40	1.2250	.42290	.06687	1.0897	1.3603	2.160	.144
	Female	110	1.1273	.33480	.03192	1.0640	1.1905		
	Total	150	1.1533	.36152	.02952	1.0950	1.2117		

*Significant

According to Honarmand et al., the average knowledge percentage among students was 81.9%, which indicates that their knowledge was excellent [20]. The study also discovered that practitioners had favourable attitudes of precancerous lesions at a high level. Our findings are consistent with those of research conducted in Saudi Arabia and India [16,17], both of which asserted that the majority of respondents who support this argument had a favourable perspective of precancerous lesions.

5. Conclusions

When compared to the prevalence of precancerous lesions among oral health professionals, it was determined that the current level of knowledge, attitude, and practise is inadequate. Within the limitations of the study, it may be concluded that participant attitudes were the only significant factor impacting precancerous lesions practises. Additional research should be done to identify the most effective teaching strategies in conjunction with educational programmes to encourage students, trainees, and educators to take initiative in preventing oral cancer.

References

- [1] P.Taneja., C.M.Marya., S.Jain., R.Nagpal, S.Kataria (2022). Assessment of Knowledge, Attitude, and Practice Regarding Oral Cancer among Dental Graduates-A Web-Based Survey. *J Cancer Educ.* 37(4):1194-1200.
- [2] A.B.More, A.Rodrigues, B.J.Sadhu (2021). Effects of smoking on oral health: Awareness among dental patients and their attitude towards its cessation. *Indian Journal of Dental Research.* 32(1):23-26.
- [3] C.R.Chowdhury., A.D. Chowdhury, K.Shahnawaz, A.F.Markus (2022). Level of oral cancer awareness among Indian rural population: A possible research model using knowledge, attitude and practice (KAP) intervention and its utilization in low resource settings of LMICs. *Journal of Oral Biology and Craniofacial Research.* 12(1):154-160.
- [4] B.S. Reddy, D. Doshi, M.P. Reddy, S.Kulkarni, A.Gaffar, V.R. Reddy. (2012). Oral cancer awareness and knowledge among dental patients in South India. *Journal of Craniomaxillofacial Surgery.* 40(6):521-4.
- [5] K.V.Kumar, V.Suresan. (2012). Knowledge, attitude and screening practices of general dentists concerning oral cancer in Bangalore city. *Indian Journal of Cancer.* 49(1):33-8.
- [6] V.Fotedar, S.Fotedar, M.Gupta, K.Manchanda, M.Sharma. (2015). Oral Cancer Knowledge, Attitudes and Practices: A Survey of Undergraduate Medical Students in Himachal Pradesh. *Indian Journal of Clinical and Diagnostic Research.* 9(8):XC05-XC08.
- [7] S.Mangalore, P.K.Venkata, J.S.Basavantappa, S.Preetha. (2013). Knowledge about prevention of oral cancer and gum disease among schoolteachers in Dharwad, India. *Indian Journal of Dental Research.* (3):279-83.
- [8] R.Sankeshwari, A.Ankola, M.Hebbal, S.Muttagi, N.Rawal. (2016). Awareness regarding oral cancer and oral precancerous lesions among rural population of Belgaum district. *Global Health Promotion.* 23(3):27-35.
- [9] M.Agrawal, S.Pandey, S.Jain, and S.Maitin. (2012). Oral cancer awareness of the general public in Gorakhpur city, India. *Asian Pacific Journal of Cancer Prevention.* 13(10):5195-9.
- [10] A.Prabhu, J.K.Jain, B.Sakeenabhi, P.G.N.Kumar, M.Imranulla, M.Ragher. (2017). Smoking Cessation Advice: Knowledge, Attitude, and Practice among Clinical Dental Students. *Journal of Pharmacy and Bio-allied Sciences.* 9(Suppl 1):S117-S120.
- [11] M. S.P. Shetty, A.M.Decruz, and P.Pai. (2013). The Self-Reported Knowledge, Attitude and the Practices Regarding the Early Detection of Oral Cancer and Precancerous Lesions among the Practising Dentists of Dakshina Kannada-A Pilot Study. *Journal of Clinical and Diagnostic Research.* 7(7):1491-4.
- [12] A.Binnal, G.Rajesh, C.Denny, J.Ahmed. (2012). Insights into the tobacco cessation scenario among dental graduates: an Indian perspective. *Asian Pacific Journal of Cancer Prevention.* 13(6):2611-7.
- [13] A.Jnaneswar, B.S.Goutham, J.Pathi, K.Jha, V.Suresan, and G.Kumar. (2017). A Cross-sectional Survey Assessing Knowledge, Attitude, and Practice Regarding Oral Cancer among Private Medical and Dental Practitioners in Bhubaneswar City. *Indian Journal of Medical and Paediatric Oncology.* 38(2):133-139.
- [14] G.Kumar, S.Jena, A.Jnaneswar, K.Jha, V.Suresan, and A.Singh. (2022). Advancements in diagnostic techniques for oral cancer detection. *Minerva Dental and Oral Science.* 71(3):192-198.
- [15] M.Jafer, R.Crutzen, A. Jafer, and B.V.D. Borne (2018). What do dental college clinicians know about oral cancer and its risk factors? An assessment among final year students, interns and faculty members in Saudi Arabia. *Journal of Clinical and Experimental Dentistry.* 10(9):e908.
- [16] S.Fotedar, V.Bhardwaj, K.Manchanda, V.Fotedar, A.D. Sarkar, and N.Sood. (2015). Knowledge, attitude and practices about oral cancers among dental students in HP Government Dental College, Shimla-Himachal Pradesh. *South Asian Journal of Cancer.* 4(2):65.
- [17] B.Alsaud. (2019). Knowledge, attitudes, and practices of dental undergraduates and practitioners regarding oral cancer in Jeddah, Saudi Arabia. *EC Dental Science.* 18:1944-1952.
- [18] H.Nazar, M. Shyama, J.Ariga, M.El-Salhy, P.Soparkar, and A.Alsuait. (2019). Oral cancer knowledge, attitudes and practices among primary oral health care dentists in Kuwait. *Asian Pacific Journal of Cancer Prevention.* 20(5):1531.
- [19] M.A.Shubayr, A.M.Bokhari, A.A.Essa, A.M.Nammazi, D.E.A.Agili. (2021). Knowledge, attitudes, and practices of oral cancer prevention among students, interns, and faculty members at the college of dentistry of Jazan University. *BMC Oral Health.* 21(1):612.
- [20] M.Honarmand, A.Hajhosseini, and F.Akbari. (2014). Oral cancer knowledge of senior dental students in Zahedan, South-East of Iran. *Asian Pacific Journal of Cancer Prevention.* 15:3017-20.