

Attitude and Knowledge toward Oral Cancer by the Dentists in Primary Health Care Centre of Bihar

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ABSTRACT

Background: The objective and aim of the current study was to assess knowledge of oral cancer, and dentist attitude toward oral cancer examination, and clinical practice among dentists practicing in the governmental health sector in the State of Bihar, including the influence of personal characteristics.

Materials and Methods: All 542 dentists practicing in Primary Health Care Centers (PHCC) were invited to participate in this cross-sectional study. Of these, 354 completed a self-administered, 40-item questionnaire. Based on the replies, knowledge of the risk factors for and clinical demonstration of oral cancer was categorized as high, medium, or low, and then further separated into satisfactory (medium/high) and unsatisfactory (low). Data on attitudes toward oral cancer examination and clinical practice was also taken from the questionnaire.

Results: The mean score for acquaintance of the clinical presentation of oral cancer was 7.59 (standard deviation [SD] = 2.40) out of 14. The mean score for knowledge of the risk factors for oral cancer was 8.96 (SD = 2.31) out of 16. Dentists with <10 years of experience were more likely to have reasonable knowledge of oral cancer compared to dentists with >15 years of experience. Attending a continuous professional development (CPD) course on oral cancer showed a trend with satisfactory clinical knowledge, although it was not statistically significant. Conclusion: This study identified gaps in dentists' knowledge of oral cancer; dentists verified unsatisfactory knowledge of the clinical presentation of and risk factors for oral cancer. The findings highlighted the need for educational interventions on oral cancer, which are vital to improving health care outcomes and delivery of care.

Keywords: Oral cancer; knowledge; attitude; practice; dentists.

INTRODUCTION

Oral cancer is a quiet, offensive disease, which usually presents as a persistent, painless ulcer on the side of the tongue, or an intra-oral, red lesion without any disturbing symptoms. These signs are usually neglected by the patient and are sometimes unnoticed by dentists. The prognosis of oral cancer depends on age, the general health of the patient, the type and location of the lesion, and the response to treatment [1,2]. Although there is inadequate

evidence about the usefulness of population-based visual screening on oral cancer mortality, a reduction in mortality among patients at high-risk for oral cancer has been reported [3]. Despite this limited evidence, it is important that dentists be on the lookout for any suspicious lesions while examining patients.

India, with a strong network of 22,380 primary health centers (PHCs) and 132,285 subcenters

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(SCs), is well placed or would do well to incorporate essential oral health services through its primary health care network to a vast majority of the rural population. The PHCs were envisaged to provide an integrated curative and preventive health care to the rural population with emphasis on the preventive and promotive aspects of health care.[4] The occurrence rate of oral cancer varies by country due to differences in the distribution of etiological factors. In 2015, in Bihar, head and neck cancers accounted for 4% of all malignant cancers; about 60% of these cases were diagnosed in late stages, In addition, there has been an annual increase in the incidence of oral cancer in the country, which has been linked to rapid population increases in the last decade. The population of Bihar consists of a high proportion of refugees, and there is an imbalance in sex distribution, with a 3:1 male-to-female ratio. The World Health Organization (WHO) Global Oral Health programs include two approaches to prevent oral cancer: Decrease of exposure to risk factors and early detection through screening [5]; dental professionals play a vital role in the latter. Several studies have evaluated healthcare professionals' knowledge of oral cancer and their clinical exercise regarding oral cancer examination [6–10]. Dentists in Bihar are from different educational and training backgrounds. The aim of this study was to evaluate the knowledge on oral cancer, and dentists' attitude and clinical practice toward oral cancer examination. And to analyse associations between oral cancer knowledge and the basic physiognomies of dentists practicing in the governmental health sector in the State of Bihar.

MATERIAL AND METHODS

542 dentists practicing in Bihar's Primary Health Care Centers (PHCC) were called upon, which mainly include general dental services to participate in this cross-sectional study. These practice settings were then divided into 5 clusters: PHCC-Eastern region, PHCC-Northern region PHCC-Southern region, PHCC-Central region, PHCC-Western region. Those dentists who chose to participate in the study were asked to complete a planned, self-administered questionnaire, which was written in English. Of the 542 invited dentists, 354 completed and returned the questionnaire and were included in the analysis (response rate 65.31%). Completed questionnaires were sealed in envelopes coded with serial numbers to ensure privacy. There were six

items in the personal characteristics' section of the questionnaire. There were 14 items on the knowledge of the clinical presentation of oral cancer and 16 items on the knowledge of risk factors for oral cancer. Participants received 1 point for each correct response and were categorized by the number of correct responses (knowledge of the clinical presentation of Oral Cancer : 0–9 low, 10–11 medium, 12–14 high; knowledge of the risk factors for Oral Cancer : 0–8 low, 9–10 medium, 11–16 high) according to a previously developed scale [7,8]. This category was then further separated into satisfactory (medium/high) and unsatisfactory (low). The section on attitude toward oral cancer examination consisted of 11 items meant to measure dentists' opinion about their role in oral cancer prevention. Responses were given on 5-point Likert scale (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree, 5 = don't know). The section on clinical practice regarding oral cancer consisted of three items on the appropriate technique to examine the oral cavity, factors dentists' probe when talking to patients about their medical history, and the type of instructive materials dentists had available for their patients. Answers to items in the attitude toward oral cancer examination and clinical practice regarding oral cancer sections of the questionnaire were measured as proportions. All questionnaire items were previously tested for validity and reliability [6,8].

RESULTS

All the character of 354 participant were given in Table 1.

Table 1: Personal characteristics of the participants.

Characteristics (n = 354)	Frequency (n)	(%)
sex		
Male	184	51.9%
female	170	48.1%
Age (Years)		
23–29	14	4.00%
30–39	166	47.4%
40–49	126	36%
50–59	44	12.6%
Practice Setting		
Northern Region	82	23.2%
Central region	90	25.4%
Western region	92	26%
Eastern region	66	18.6%
Southern region	24	6.8%

The usual score for knowledge of the clinical appearance of oral cancer was 7.59 (SD = 2.40, range: 0–14). The majority of dentists could correctly identify proper tongue examination steps (83.1%) for oral cancer. A high proportion of dentists (84.2%) appropriately replied that squamous cell carcinoma is the most common form of oral cancer, and (77.9%) and (54.2%) dentists correctly acknowledged the tongue and the floor of the mouth as the first and second most common sites of oral cancer, respectively. However, only 42.9% correctly identified both sites. Only (21.5%) dentists replied correctly that early-stage oral cancer is asymptomatic, and 56 (31.6%) dentists correctly replied that the majority of oral cancer is diagnosed in people aged 60 years or older. (75.7%) dentists replied correctly that the lymph nodes are an important site of oral cancer metastasis. oral cancer is diagnosed mainly in advanced stages, but only (39%) dentists were familiar with this. Leukoplakia and erythroplakia are conditions

associated The average score for knowledge of the risk factors for oral cancer was 8.96 (sd = 2.31, range: 2–14). a high percentage of dentists correctly identified older age (72.9%), alcohol use, (93.2%), tobacco use (97.7%), viral infection (85.3%), and prior oral cancer (94.4%) as risk factors for oral cancer. 28.3% dentists correctly identified low consumption of fruits and vegetables as a risk factor for oral cancer. although 74.6% correctly identified chewing betel quid as a risk factor for oral cancer, 23.2% did not know of its effect. This was also seen with Gutka use, with 49.2% correctly identifying it as a risk factor and 47.5% reporting that they did not know of its effect Most of the dentists 77.4% correctly identified mouth rinse use as a non-risk factor. However, only a low percentage of dentists appropriately replied that spicy food (29.9%) and poor oral hygiene (31.6%) are non-risk factors for oral cancer, and only 54 dentists (30.5%) correctly identified a poor fitting denture as a non-risk factor for oral cancer.

Table 2: Proportion of dentists that correctly identified the clinical presentation of oral cancer.

Clinical Presentation	Questions (n = 354)	Number (%)
Correctly identify tongue examination.	294	83.1%
Squamous cell carcinoma is the most common form of oral cancer.	298	84.2%
Tongue is the first most common site of oral cancer.	276	77.9%
Floor of the mouth is the second most common sites of oral cancer.	192	54.2%
Oral cancer early sign is asymptomatic.	76	21.5%
Erythroplakia and Leukoplakia are associated with oral cancer.	190	53.7%

To further discover patterns in the distribution of knowledge among dentists, knowledge of the clinical presentation of and risk factors for oral cancer were cross-classified. Only 15.8% of dentists had satisfactory (medium/high) knowledge for both of these aspects; 30.5% had unsatisfactory (low) knowledge of both aspects. One hundred and thirty-eight dentists (78%) had unsatisfactory knowledge of the clinical demonstration of oral cancer. When assessing clinical practice, a majority of dentists were acquainted with the proper physical oral examination steps 72.3%. Moreover, 96% of dentists said that when taking a patient's medical history, they ask about existing tobacco use, 89.2% said they ask about previous tobacco use, and 80% reported asking about the type and amount of tobacco used. To a lower extent, dentists reported asking patients about their existing alcohol use

(68%), past alcohol use (64.7%), and Moreover, 96% To type and amount of alcohol used (46.8%). Dentists also reported asking about their patients' history of cancer (86.8%) and family history of cancer (80.6%).

The distribution of low, medium, and high knowledge of the clinical presentation of and risk factors for oral cancer showed that dentists aged less than 39 years were more likely to have high knowledge of the clinical presentation of oral cancer when compared with older participants (adjusted $\chi^2 = 3.96$, degrees of freedom [df] = 4, p value = 0.411). dentists with less than 10 years of experience tended to have high knowledge of the risk factors for oral cancer when compared to dentists with more than 10 years of experience (Adjusted $\chi^2 = 11.38$, df = 4, p value = 0.023).

Cluster-adjusted univariate logistic analysis showed that dentists with less than 10 years of experience were 1.64 times more likely to have satisfactory knowledge of the clinical presentation of oral cancer when compared to dentists with more than 15 years of experience. Also, dentists with less than 10 years of experience were 1.73 times more likely to have satisfactory knowledge of the risk factors for oral cancer when compared to dentists with more than 15 years of experience, after adjusting for a clustering effect (Table 4). This significant association was not experiential after applying the adjusted Chi2 test in Table 3; this is explained by the small sample size and the amended categorization of the study outcomes. The odds for dentists in specialty practice to have satisfactory knowledge of the clinical presentation of oral cancer was 1.92 times that of dentists in general practice. The opposite was observed for knowledge about the risk factors for oral cancer, with dentists in specialty practice being 46% less likely to have satisfactory knowledge. dentists who attended a cpd course on oral cancer within the past 2 years were 2.23 times more likely to have satisfactory knowledge of the clinical presentation of oral cancer. No significant association was identified between attending cpd courses and knowledge of the risk factors for oral cancer.

DISCUSSION

In dental clinics and dental practice, extra- and intra-oral examination is an vital step in the checkup of a new patient [15]. In the present study, a high percentage of dentists, higher than percentages observed in other studies, correctly acknowledged the importance of lymph nodes in metastatic cancer [6,8]. This was reflected in their defiance, as most dentists agreed that they were comfortable palpating patients' necks for a lymph node inspection. An intra-oral examination includes a all-inclusive examination of the oral cavity and the tongue. In the present study, a large percentage of dentists verified knowledge about the specific steps of oral and tongue examinations. However, a low percentage of dentists were confident in performing oral cancer examinations. Moreover, only 48.6% of dentists felt that they had been sufficiently trained for this. Consequently, it is significant that dentist should get regular training to refresh their basic knowledge and improve their oral and tongue examination skills. This could increase their

confidence, and lead to a more optimistic attitude toward inclusive oral examinations for their patients.

Large percentage of contributing dentists properly recognized squamous cell carcinoma as the most common form of oral cancer, which is similar to the percentage observed among dentists in Yemen, Kuwait, and North Carolina [7,10,16]. However, some important breaches in information about the clinical features of oral cancer were identified. less than one-quarter (21%) of dentists correctly replied that oral cancer is asymptomatic in its early stages, which is lower than what has been reported in Iran (45%) and British Columbia and Nova Scotia (78%) [6,8]. Accordingly, a low percentage of dentists (39%) replied that oral cancer is mainly diagnosed at advanced stages, which is lower than what was observed in Kuwait (75%) and Yemen (66%) [10,16]. nearly half of the dentists (53.7%) were acquainted with erythroplakia and leukoplakia as vital signs of a premalignant lesion, but among them only 44 dentists (24%) correctly identified erythroplakia as a more grave premalignant condition. On the other hand, a higher percentage of dentists in Turkey (64.1%) and Kuwait (93%) correctly identified erythroplakia and leukoplakia as premalignant signs [10,17]. These are important signs of premalignancy that dentists need to know. The wide range in the level of dentists' knowledge by the country of practice might be related to different educational backgrounds, different training opportunities, and different shared educational environments, considering the differences in the study periods. The gaps we identified in clinical and diagnostic knowledge of oral cancer need to be addressed.

A high percentage of dentists correctly recognized tobacco, alcohol, and prior oral cancer as risks for oral cancer, which is consistent with other studies [6,16,18]. This was reflected in their practice of talking to patients about their medical history, as a majority of dentists properly assessed patients' present tobacco use, history of cancer, and, to a lower extent, patients' present alcohol use. Knowledge of the effect of chewing betel quid was poor, as almost half of the dentists did not know that Gutka use is a risk factor for oral cancer. More emphasis is needed to increase their knowledge about the risk of different types of tobacco use, including smokeless tobacco use, which is

widespread in Asian cultures. A high proportion of dentists believe that they should be trained to provide tobacco cessation education. Their knowledge that squamous cell carcinoma is directly linked to tobacco use showed their willingness to be actively involved in smoking cessation interference. Dentists had some problems distinguishing between risk factors and non-risk factors for oral cancer. therefore, more emphasis on the risk factors and non-risk factors for oral cancer is needed in CPD courses. Increasing dentists' knowledge of these factors would help to raise population awareness and play an important role in oral cancer prevention.

In the present study, nearly one-third of dentists had low knowledge of both the clinical presentation of and risk factors for oral cancer. moreover, 78% had low knowledge of the clinical presentation of oral cancer. this is surprisingly more than what was observed in clovis et al. (35%), patton et al. (59%), and in maryland (35.5%) [7,8,18]. although 66.7% of our study participants reported that their knowledge of oral cancer was current, this was not reflected in their level of knowledge on the clinical presentation of oral cancer, indicating the need for educational intervention in Bihar. Dentists who had attended a CPD course on oral cancer within the past 2 years were two times more likely to have satisfactory knowledge of the clinical presentation of oral cancer. Although this association did not reach statistical significance, it was consistent with previous studies, in which attending a CPD course on oral cancer significantly translated into better oral cancer examination practices, better knowledge of the risk factors for oral cancer among patients, and a higher level of clinical knowledge [19,20]. Furthermore, we observed no association between attending a CPD course and the level of knowledge on risk factors.

This suggests that oral cancer risk factors are not well addressed in the delivered courses, and that the focus is instead directed toward clinical knowledge. This is consistent with the results of Yellowitz et al., who showed that attending a CPD course on oral cancer is not significantly associated with knowledge of the risk factors for oral cancer [20]. This demonstrates that more emphasis is needed on the techniques used to deliver CPD courses and the importance of blended techniques of learning and education of experience were more

likely to have high knowledge of the clinical presentation of and the risk factors for oral cancer, compared to dentists with more than 15 years of experience, which is consistent with other studies [7,18]. Undergraduate studies have a positive impact on the level of knowledge, but this impact diminishes with time, reiterating the importance of CPD courses to update information. Currently, oral cancer screening in Bihar is not a separate reimbursement procedure [21].

The strong point of the current study is represented by its methods, a paper-based, self-administered questionnaire is used to make it easy for participants to complete., believing that it overcomes the accessibility barriers of the target population. The other strength of this study is the satisfactory response rate of 65.31%, which is enlightened by the strategy we used to maximize response, including initial invite well in advance of the study, followed by multiple additional invitations to non-responders. Non-response bias is one of the restrictions of this study. Indeed, non-respondents to this survey might have a different level of knowledge than respondents. However, there was a high proportion of respondents from the PHCC, and we believe there is no difference between the respondents and non-respondents from the PHCC, the response among dentists was poor, and thus respondents might be different than non-respondents. Another limitation is that dentists practicing in the private sector were not included; therefore, our results cannot be generalized to the private sector.

CONCLUSIONS

Assessing dentists' knowledge is one way to measure their performance. This study identified gaps in knowledge among dentists practicing in the governmental health sector, which strongly suggested that dentists in Bihar could benefit from educational interventions (i.e., CPD courses) about the main clinical features of oral cancer and the evidence-based risk factors. Our results showed that dentists with less than 10 years of practical experience had high knowledge of oral cancer, thus one solution could be for dentists who have recently completed their undergraduate studies to get involved and share their knowledge by providing lectures or educational courses to colleagues in their practice settings.

Dental offices are also a unique setting in which cost-effective tobacco cessation intervention could be provided. However, we recommend further research on the applicability of this type of intervention and the readiness of dentists to provide it. The results of this study can be used as baseline data for future CPD courses on oral cancer for dentists and could help evaluate the effectiveness of such courses in raising dentists' knowledge and awareness. Moreover, the study results can be used to plan future CPD courses aimed at improving the delivery of care in the health system.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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