

Assessment of Knowledge, Attitude and Practice Toward Oral Cancer Screening Among Dental Practitioners in Chengalpattu Population – A cross sectional study

UNDER PEER REVIEW

Abstract

Background: Oral cancer is a significant public health issue in India, especially in areas with high tobacco use. Early detection through routine oral screening significantly improves survival outcomes. Dental professionals are essential for diagnosing the disease early.

Aim: To evaluate the knowledge, attitude, and practice toward oral cancer screening among dental practitioners in the Chengalpattu population.

Materials and Methods: A cross-sectional questionnaire-based study was conducted among 105 dental practitioners practicing in and around Chengalpattu. Data were analyzed using descriptive statistics, Chi-square test, one-way ANOVA, and Pearson correlation.

Results: Most dental practitioners in the Chengalpattu population showed good knowledge of the risk factors and early signs of oral cancer. They had a Positive attitude toward screening, but their routine screening practices were inconsistent.

Conclusion: Knowledge levels among dental practitioners in the Chengalpattu population were satisfactory; however, training programs are needed to improve clinical practice.

Keywords: Oral cancer, screening, knowledge, attitude, practice, chengalpattu, dental practitioners.

Introduction

Oral cancer is one of the most common types of cancer in the head and neck area, and it continues to be a major public health challenge worldwide. India accounts for a significant proportion of global oral cancer burden due to high prevalence of tobacco chewing, smoking, alcohol consumption, and betel quid usage. Early detection of oral cancer is crucial because survival rates drastically decrease when the disease is diagnosed at advanced stages.

Oral cancer often develops from oral potentially malignant disorders such like leukoplakia, erythroplakia, oral submucous fibrosis, and lichen planus. These lesions are usually asymptomatic in early stages, which contributes to delayed diagnosis[7]. Routine oral screening by dental practitioners plays a vital role in early detection and prevention of disease progression[6]. Dental practitioners are usually the first healthcare professionals to examine the oral cavity regularly. Therefore, they are in a unique position to identify suspicious lesions, counsel patients regarding risk factor modification, and ensure early referral for biopsy and histopathological examination. Effective screening requires adequate knowledge, positive professional attitude, and consistent clinical practice[4,5].

The Chengalpattu population represents a semi-urban and developing healthcare setting where tobacco and smokeless tobacco usage remains common. Lack of awareness, delayed healthcare seeking behaviour, and socioeconomic factors may contribute to late diagnosis of oral cancer in this region. Hence, dental practitioners in Chengalpattu play an essential role in early identification and prevention strategies. Previous studies conducted in various parts of India have shown that although dental practitioners generally possess adequate theoretical knowledge, routine screening practices are not always consistently performed[10,11,12]. Factors such as time constraints, lack of training programs, patient compliance issues, and referral system limitations may influence screening practices[13,14].

Assessment of knowledge, attitude, and practice (KAP) helps in identifying gaps between theoretical knowledge and clinical implementation. Understanding these gaps among dental practitioners in the Chengalpattu population will help in designing targeted training programs, continuing dental education, and public health awareness initiatives.

Therefore, this study aimed to assess the knowledge, attitude, and practice toward oral cancer screening among dental practitioners in the Chengalpattu population.

Materials and Methods:

Study design and Setting: This study was designed as a cross-sectional analytical questionnaire-based study conducted among dental practitioners in the Chengalpattu population. The study used convenience sampling, where eligible dental practitioners practicing were invited to participate. The study was conducted among dental practitioners working in private dental clinics, dental hospitals, academic institutions, Government dental centers in Chengalpattu and nearby regions.

Study Population: Registered dental practitioners (BDS and MDS) practicing in Chengalpattu population during the study period.

Inclusion Criteria: Dental practitioners currently practicing in Chengalpattu, Willing to participate and provide consent has completed the questionnaire fully.

Exclusion Criteria: Incomplete questionnaire responses and Practitioners who are not currently practicing in Chengalpattu.

Sample Size: A total of 105 dental practitioners from Chengalpattu population were included in the study.

Data Collection Procedure: Data were collected using a pre-validated structured questionnaire distributed physically and/or digitally to dental practitioners in Chengalpattu. The questionnaire consisted of three sections:

1. Demographic details
2. Knowledge regarding oral cancer risk factors, signs, and diagnosis
3. Attitude and practice toward oral cancer screening

Statistical Analysis: Data were entered into Microsoft Excel and analysed. Descriptive statistics were used to summarise the data, with categorical variables presented as frequencies and percentages, and continuous variables such as knowledge, attitude, and practice (KAP) scores expressed as mean and standard deviation. The association between categorical variables, such as knowledge level and qualification, was assessed using the Chi-square test. Differences in mean knowledge scores across years of clinical experience were evaluated using one-way ANOVA. Correlations between knowledge, attitude, and practice scores were examined using Pearson's correlation coefficient. Potential confounding by demographic variables such as age, gender, qualification, and years of experience was considered during analysis through subgroup comparisons.

Subgroup analyses were performed based on demographic variables including gender, qualification, and years of clinical experience to explore variations in KAP scores. Interaction effects between variables were not specifically modeled as the primary objective was to assess overall KAP levels. The dataset was checked for completeness prior to analysis, and responses with missing data were minimal; incomplete responses were excluded from relevant analyses using list-wise deletion. This cross-sectional study employed convenience sampling of dental practitioners, and no weighting adjustments were applied.

Results:

Participants: A total of 105 dental practitioners participated in this cross-sectional study. All practitioners who were approached and met the eligibility criteria consented to participate and completed the questionnaire. Therefore, 105 participants were included in the final analysis. As this was a questionnaire-based cross-sectional survey, there was no follow-up period. Non-participation was minimal and primarily due to time constraints or lack of interest.

Descriptive data: The study participants included dental practitioners with varying demographic and professional characteristics in terms of gender, qualification, and years of clinical experience. The majority were MDS graduates and had diverse clinical experience levels. There were no substantial missing data for the primary variables, and all completed responses were included in the analysis.

Regarding knowledge items, nearly all participants recognised oral cancer as a major public health concern and correctly identified major risk factors and early signs. Biopsy and histopathology were the most commonly identified diagnostic methods. Attitude responses indicated that most practitioners agreed that early detection improves survival and that oral cancer screening is a professional responsibility. Willingness to attend additional training programs was comparatively lower. Practice responses showed that many practitioners screened patients and recorded tobacco/alcohol history, although routine screening was not consistently performed. Patient cooperation and referral limitations were the most commonly reported barriers.

Outcome data: The mean knowledge score was 4.70 ± 0.57 (range 3–5), indicating generally good knowledge levels. Chi-square analysis showed no significant association between knowledge level and qualification ($p > 0.05$). One-way ANOVA revealed no statistically significant difference in knowledge scores across years of clinical experience ($p > 0.05$). Pearson correlation analysis demonstrated a mild positive correlation between knowledge and attitude, a weak positive correlation between knowledge and practice, and a moderate positive correlation between attitude and practice. The strongest association was observed between attitude and practice, indicating that a more positive attitude toward oral cancer screening was associated with better clinical practices.

Table 1: Participant Characteristics

	Category	n (%)
Gender	Female	58 (55.2%)
	Male	47 (44.8%)
Qualification	MDS	85 (81.0%)
	BDS	20 (19.0%)
Years of Experience	<5 years	63 (60.0%)
	5–10 years	18 (17.1%)

	>10 years	24 (22.9%)
Type of Practice	Private	62 (59.0%)
	Academic	38 (36.2%)
	Government	5 (4.8%)

Table 2: Knowledge Responses

Question	Response	n (%)
Oral cancer = public health concern	Yes	105 (100%)
Risk factors	All of the above	105 (100%)
Common site	All of the above	98 (93.3%)
Buccal mucosa	6 (5.7%)	
Floor of mouth	1 (1.0%)	
Aware of early signs	Yes	105 (100%)
Diagnostic method	Biopsy & histopathology	81 (77.1%)
Visual exam	24 (22.9%)	

Table 3: Attitude Responses

Question	Response	n (%)
Early detection improves survival	Agree	68 (64.8%)
Strongly agree	37 (35.2%)	
Responsibility to screen	Agree	59 (56.2%)
Strongly agree	43 (41.0%)	
Neutral	3 (2.9%)	
Training willingness	Yes	46 (43.8%)
No	47 (44.8%)	
Maybe	12 (11.4%)	
Routine screening needed	Yes	95 (90.5%)
Not sure	10 (9.5%)	

Table 4: Practice Responses

Question	Response	n (%)
Examine for oral cancer	Sometimes	83 (79.0%)
	Always	20 (19.0%)
	Often	1 (1.0%)
	Rarely	1 (1.0%)
Record tobacco/alcohol history	Yes	100 (95.2%)
Identified lesion	Yes	105 (100%)
Action taken	Referred	69 (65.7%)
	Biopsy	33 (31.4%)
	Counseled	3 (2.9%)
Cessation counseling	Sometimes	86 (81.9%)
	Rarely	10 (9.5%)
	Always	9 (8.6%)
Barriers	Lack of patient cooperation	95 (90.5%)
	Poor referral system	10 (9.5%)

Table 5: Association Between Knowledge Level and Qualification (* not significant)

Qualification	Moderate Knowledge n (%)	Good Knowledge n (%)	Total	Chi-square (χ^2)	p value
BDS	2 (10%)	18 (90%)	20		
MDS	4 (4.7%)	81 (95.3%)	85		
Total	6	99	105	0.15	0.70

Table 6: Comparison of Knowledge Score by Years of Experience (* not significant)

Years of Experience	Mean \pm SD Significant

<5 years	4.65 ± 0.60	
5–10 years	4.72 ± 0.55	p = 0.29

Discussion: The present study assessed the knowledge, attitude, and practice toward oral cancer screening among dental practitioners in the Chengalpattu population. Oral cancer remains a significant public health problem worldwide and is particularly prevalent in developing countries like India due to widespread tobacco use and related habits [1,8].

In the present study, dental practitioners from the Chengalpattu population demonstrated good overall knowledge regarding oral cancer risk factors, early signs, and diagnostic procedures. Most participants recognised oral cancer as a major public health concern and were aware of common risk factors such as tobacco and alcohol consumption. Similar findings have been reported in previous studies conducted among Indian dental practitioners, which showed adequate knowledge regarding oral cancer risk factors and early detection methods [10,11].

The majority of practitioners correctly identified common anatomical sites and biopsy as the confirmatory diagnostic method. Early diagnosis through biopsy and histopathological examination remains the gold standard for oral cancer detection and improves treatment outcomes when performed at early stages [6]. Early detection of oral cancer significantly improves survival rate and reduces disease-related morbidity [3].

Despite good knowledge levels, the present study showed inconsistency in routine screening practices among dental practitioners in the Chengalpattu population. Only a limited proportion of practitioners reported performing routine oral cancer screening consistently. Similar gaps between knowledge and clinical practice have been reported in previous KAP studies among dental practitioners [12,13]. This gap may be attributed to clinical workload, lack of structured screening protocols, and limited training opportunities.

Attitude assessment in the present study showed that most practitioners believed that early detection improves survival and that oral cancer screening is part of their professional responsibility. These findings are consistent with previous studies which showed positive professional attitudes toward oral cancer screening among dental practitioners [14,15].

However, willingness to attend additional training programs was comparatively lower. Continuing dental education and hands-on screening training programs have been shown to improve screening practices and confidence among dental professionals [16].

The practice assessment revealed that most practitioners recorded tobacco and alcohol history and were able to identify suspicious lesions. Recording habit history is essential because tobacco and alcohol remain the major modifiable risk factors associated with oral cancer

development [8]. However, referral practices varied among practitioners. Efficient referral systems and multidisciplinary collaboration are essential for early diagnosis and treatment of oral cancer [19].

Patient cooperation was identified as the major barrier to oral cancer screening among dental practitioners in the Chengalpattu population. Similar barriers have been reported in studies evaluating patient perception and participation in oral cancer screening programs [18]. Lack of awareness, fear of diagnosis, and socioeconomic factors may contribute to poor patient compliance.

Statistical analysis in the present study showed no significant association between knowledge level and qualification. Similar findings were reported in previous studies indicating that both undergraduate and postgraduate dental education provide adequate theoretical knowledge regarding oral cancer [17].

The positive correlation observed between attitude and practice indicates that practitioners with more positive attitudes toward oral cancer screening are more likely to perform screening in routine practice. This finding highlights the importance of motivational training and awareness programs to improve clinical screening practices [20].

From a public health perspective, opportunistic screening during routine dental visits is considered a simple, cost-effective, and non-invasive method for early detection of oral cancer. Community-based screening programs and professional training can significantly improve early detection rates and reduce oral cancer burden [2].

In regions like Chengalpattu, where tobacco usage and associated risk factors remain prevalent, strengthening routine screening protocols in dental practice can play a major role in early diagnosis and improved patient outcomes.

Limitations:

1. The cross-sectional design prevents establishment of causal relationships between knowledge, attitude, and practice.
2. Convenience sampling limits the generalizability of findings beyond dental practitioners in Chengalpattu.
3. The study focused on one specific region, so it may not reflect other practice settings.
4. Data were self-reported and subject to response and social desirability bias.
5. Clinical practices were not observed directly. This may lead reporting bias.
6. Certain subgroups had smaller sample sizes. This could affect statistical power.

Conclusion: Dental practitioners in the Chengalpattu population demonstrated good knowledge and positive attitude toward oral cancer screening. However, there is a need to improve routine screening practices through continuing education programs, clinical training, and patient awareness initiatives in Chengalpattu region.

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