

Knowledge, Attitude, and Practices Regarding Tobacco Cessation Therapies Among Clinical Dental Students of Udaipur City A Cross-Sectional Study

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Article Info	ABSTRACT
Article type: <i>Research</i>	Aim: The aim of the present study was to assess the knowledge, attitude, and practices regarding tobacco cessation therapies among clinical dental students in Udaipur city, India.
Article History: <i>Received: 2024-09-21</i> <i>Accepted: 2024-11-15</i> <i>Published: 2024-12-22</i>	Methods: This descriptive cross-sectional study was conducted among 468 clinical dental students (III BDS, IV BDS, interns, and postgraduate students) from two randomly selected dental colleges in Udaipur city. A validated, self-administered, close-ended online questionnaire was used to collect data on participants' knowledge, attitude, and practices related to tobacco cessation therapies.
Keywords: Knowledge, Attitude, Practices, Tobacco Cessation	Results: The study found that while 94.9% of the respondents were aware that tobacco use is harmful to health, there were significant gaps in their knowledge of specific cessation therapies and strategies. The average knowledge score was 4.7 out of 10, with postgraduate students scoring the highest. Overall, 56.4% of the respondents had a positive attitude towards tobacco cessation counseling, with postgraduate students and never-users of tobacco showing more favorable attitudes. However, only 60.7% of the students reported providing tobacco cessation counseling to their patients, and just 30.8% had prescribed nicotine replacement therapies.
	Conclusion: The study highlights the need for strengthening tobacco cessation education and training in dental curricula to equip future dental professionals with the knowledge, skills, and confidence to play a pivotal role in reducing the burden of tobacco use among their patients.

INTRODUCTION

Tobacco is one of the most important causes of morbidity and mortality. Tobacco toll in India has one-fifth of all worldwide death attributed to tobacco. There are 700000 deaths per year due to smoking and 800000-900000 per year to all forms of tobacco use of exposure in India.¹ In addition, tobacco use is also a primary cause of many oral diseases and condition, ranging from mild to life-threatening, such as stained teeth and restoration, taste derangements, halitosis, periodontal diseases, poor wound healing, oral precancerous lesions and oral cancer.^{2,3} No single healthcare profession can access all smokers; therefore, combined efforts from all health care workers are required in smoking cessation and prevention. The role of dentist in supporting their patients to withdraw smoking has been recognized.^{4,5}

The effectiveness of smoking cessation services provided by dental professionals is well established. Many studies have concluded that the dental office is an appropriate and effective location for the message about stopping tobacco use. The practice of offices that offer tobacco use cessation services is consistent with the current evidence and practices guidelines.^{6,7}

Dental patients who smoke need access to local services to help them stop smoking. A dentist who recognizes a patient to be smoker has a duty to inform the patient of the options available to them. Then, they can refer their patients who wish to stop smoking into smoking cessation services. Not all smokers are ready to quit smoking. Some have not considered quitting. Others may consider stopping but not sure how to take the next step. By enquiring and providing advice, members of the dental team can help patients from pre-contemplation through contemplation towards action.^{8,9}

Even in the absence of tobacco related diseases in the mouth, the dentist can easily recognize patient's tobacco status. This fact renders dentists a favourable position in connection with tobacco intervention by pursuing more formal training in tobacco cessation counselling be as much a part of their job as plaque control and dietary advice. Evidence shows that clinical interventions during dental care are as effective as in other healthcare settings. 10 The potential of using dental clinics to promote tobacco cessation is largely realized but is ineffective due to absence of a structured approach. They largely remain untapped resources for providing advice and brief counseling to current tobacco users.¹⁰

The aim of the present study was to assess the knowledge, attitude, and practices regarding tobacco cessation therapies among clinical dental students in Udaipur city, India.

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted among 468 clinical dental students (III BDS, IV BDS, interns, and postgraduate students) from two randomly selected dental colleges in Udaipur city. A validated, self-administered, close-ended online questionnaire was used to collect data on participants' knowledge, attitude, and practices related to tobacco cessation therapies.

Institutional Ethics Committee Clearance:

Ethical clearance was obtained from the institutional ethical committee of Pacific Dental College in hospital, Udaipur.

Permission for conducting the study was obtained from the respective heads of the five dental colleges included in the study.

Informed consent:

The purpose of the questionnaire was explained at the beginning of the google form to the dental students prior to the study and consent was obtained in the same.

Inclusion Criteria:

Clinical students of the five dental colleges who were present at the time of administration of questionnaire who were cooperative, who gave informed consent and are subjects who are above 18 years were included in the study.

Exclusion Criteria:

Clinical students who were not present at the time of administration of questionnaire who were not cooperative and who did not give informed consent were excluded from the study

Data collection

Structured, Self-administered, close ended online questionnaire containing

1. Demographic Questions (4)

This section includes inquiries about gender, age, tobacco use status (current user, former user, or never used), and the year of study

2. Knowledge-based questions (10)

Following the demographic section, the questionnaire delves into knowledge-based questions. This part is designed to assess participants' understanding of Nicotine Replacement Therapy (NRT), with four specific inquiries focusing on its indications, contraindications, and mechanisms of action. Additionally, it explores behavior management in Tobacco Cessation Counseling (TCC) through four questions centered on the 5As (Ask, Advise, Assess, Assist, Arrange) and 5Rs (Relevance, Risks, Rewards, Roadblocks, Repetition). Lastly, it addresses the health impacts of tobacco use, featuring two questions that highlight the consequences and available support resources.

3. Attitude-based questions (6)

The third section of the questionnaire shifts focus to attitudes, comprising six questions that evaluate participants' perceptions of tobacco cessation counseling. This includes four questions aimed at understanding their views on TCC and two questions that encourage self-assessment regarding their training needs.

4. Practice-based questions (4)

Finally, the questionnaire concludes with practice-based questions that explore the practical application of knowledge and skills related to tobacco cessation. This section includes four inquiries that investigate students' practices concerning tobacco habits, behavior management, NRT prescription, and the pursuit of training opportunities.

Validity and reliability of the questionnaire

Cronbach's alpha was used to determine the reliability of the test based on the pilot study's completed questionnaires. The reliability coefficient for the questionnaire was more than 0.7, demonstrating its validity and suitability for the current research. Senior faculty from department of public health dentistry and periodontia verified the reliability and validity of the questionnaire's format.

Statistical Analysis:

Data recorded during the study were systematically transferred and tabulated using Microsoft Excel. Statistical analysis was performed using IBM SPSS Statistics version 25. Descriptive statistics included calculations of frequency, frequency percentage, mean, and standard deviation to provide a detailed summary of the data. Analytical statistics involved the application of the Chi-Square test, Fisher's exact test, and independent T-test to assess the

relationships and differences within the dataset. A confidence level of 95% was maintained, with a significance level set at 5%. P- values less than or equal to 0.05 was considered statistically significant. The statistical analysis was conducted using the Windows version of SPSS (20.0; SPSS Inc., Chicago, IL, USA) to ensure accuracy and reliability in the results.

RESULTS

Table 1: Demographic Characteristics and tobacco use status

	Frequency	Percentage
Gender		
Female	337	72.0
Male	131	28.0
Age		
<23	270	57.7
23-27	123	26.3
>27	31	6.6
Year of Study		
III BDS	121	25.9
Intern	106	22.6
IV BDS	153	32.7
Postgraduate	88	18.8
Tobacco use status		
Ex-user	53	11.3
Never-user	372	79.5
Occasionally	5	1.1
Present user	38	8.1

The participants of the present study were 72% females and 28% males. 57.7% of the participants were less than 23 years old. 26.3% were between 23 and 27 years old and 6.6% were more than 27 years old. 44% did not provide their age. Among the participants, 25.9%

were studying in III BDS, 22.6% in IV BDS, 32.7% were interns and 18.8% were post graduate students. Among the 468 participants, 11.3% were ex users, 79.5% never users, 8.2% were present users, 1.1 were occasional users of tobacco.

Table 2: Comparative assessment of mean knowledge scores according to gender

Gender	Mean	SD	Median	IQR	Test Statistics	P-Value
Female	4.7	1.88	5	2	20,917	.373*
Male	4.5	1.87	5	3		
Overall	4.7	1.88	5	3		

Overall, the average knowledge score was 4.7 out of 10. When compared between genders it was found that females scored a mean score of 4.7 (1.88) and a median score of 5(2). Males Scored a mean score of 4.5 (1.87) and a median score of 5(3).

Table 3: Comparative assessment of mean knowledge score according to year of study

Year of Study	Mean	SD	Median	IQR	Test Statistics	df	P-Value
III BDS	3.8	1.68	4	2	79.965	3	.000*
IV BDS	4.5	1.93	4	3			
Intern	4.8	1.63	5	2			
Postgraduate	6.0	1.53	6	2			

When the different years of study was compared III BDS scored a mean of 3.8(1.68) and a median of 4(2), IV BDS scored a mean of 4.5(1.93) and a median of 4(3), Interns scored a mean of 4.8(1.63) and a median of 5(2) and Postgraduates scored a mean of 6(1.53) and a median of 6(2).

Table 4: Comparative assessment of mean knowledge score between different users of Tobacco

Year of Study	Mean	SD	Median	IQR	Test Statistics	Df	P-Value
Ex-user	4.2	1.59	4	2.00			

Never-user	4.7	1.94	5	3.00	6.040	3	.110*
Occasional Users	4.2	1.64	4	2.50			
Present user	4.7	1.60	4	1.25			

The scores showed a non-normal distribution according to Kolmogorov Smirnov Test. Thus, a non-parametric test was performed to compare the scores between males and females. Independent Samples Kruskal Wallis showed that there was no significant difference in the knowledge scores between the statuses of tobacco users ($p>0.05$).

Table 5: Comparative assessment of attitude regarding TCC according to gender

Gender	Attitude				Value	df	p-value
	Negative	Neutral	Positive	Total			
Female	56 (16.6%)	75 (22.3%)	200 (59.3%)	331	5.05	2	.080*
Male	20 (15.3%)	41 (31.3%)	64 (48.9%)	125			
Total	76 (16.2%)	116 (24.8%)	264 (56.4%)	456			

Chi Square Test showed that there was no significant association between gender and attitude regarding TCC ($X^2(2) = 5.05$, $p>.05$).

Table 6: Comparative assessment of attitude regarding TCC between year of study

Gender	Attitude				Value	df	p-value
	Negative	Neutral	Positive	Total			
III BDS	22(18.2%)	31 (25.6%)	61 (50.4%)	114			
IV BDS	39 (25.5%)	43 (28.1%)	70 (45.8%)	152			

Intern	14 (13.2%)	38 (35.8%)	50 (47.2%)	102	68.047	6	.000*
Postgraduate	1 (1.1%)	4 (4.5%)	83 (94.3%)	88			
Total	76 (16.2%)	116 (24.8%)	264 (56.4%)	456			

Chi Square Test showed that there was significant association between year of study and attitude regarding TCC ($\chi^2(6) = 68.047$, $p < .05$).

Table 7: Comparative assessment of attitude regarding TCC between different status of tobacco users

Gender	Attitude			Total	Value	df	p-value
	Negative	Neutral	Positive				
Ex-user	13 (24.5%)	16 (30.2%)	22 (41.5%)	51	37.343	6	.000*
Never-user	44 (11.8%)	90 (24.2%)	229 (61.6%)	363			
Occasionally	2 (40%)	1 (20%)	2 (40%)	5			
Present user	17 (44.7%)	9 (23.7%)	11 (28.9%)	37			
Total	76 (16.2%)	116 (24.8%)	264 (56.4%)	456			

Chi Square Test showed that there was significant association between different statuses of tobacco users and attitude regarding TCC ($\chi^2(6) = 37.343$, $p < .05$).

Table 8: Comparative assessment of practice regarding TCC between gender

Question	Gender	Practice			Value	df	p-value
		No	Yes	Total			
Have you enquired from your patients about their tobacco	Female	23 (6.8%)	309 (91.7%)	332	2.71	1	.075*
	Male	15 (11.5%)	114 (87%)	129			

habits?	Total	38 (8.1%)	423 (90.4%)	461			
Have you ever given tobacco cessation counselling to your patients?	Female	131 (38.9%)	202 (59.9%)	333	.331	1	.565*
	Male	47 (35.9%)	82 (62.6%)	129			
	Total	178 (38%)	284 (60.7%)	462			
Have you ever prescribed NRTs for your patients?	Female	237 (70.3%)	94 (27.9%)	331	5.125	1	.024*
	Male	77 (58.8%)	50 (38.2%)	127			
	Total	314 (67.1%)	144 (30.8%)	458			
"Have you ever attended some programme regarding tobacco cessation counselling (TCC) or discussed regarding TCC with your peer group?"	Female	104 (30.9%)	228 (67.7%)	332	.000	1	.988*
	Male	40 (30.5%)	88 (67.2%)	128			
	Total	144 (30.8%)	316 (67.5%)	460			

Chi Square Test showed that there was no significant association between gender and enquiry of tobacco habits of patients? ($X^2(1)=2.71$, $p>.05$). Chi Square Test showed that there was no significant association between gender and giving tobacco cessation counselling to your patients.

Table 9: Practice regarding TCC between different statuses of tobacco users

Question	Gender	Attitude			Value	df	p-value
		No	Yes	Total			
Have you enquired from your patients about their tobacco habits?	Ex-user	4(7.5%)	49(92.5%)	53	.950	3	.813*
	Never-user	30(8.1%)	336(90.3%)	366			
	Occasionally	1(20%)	4(80%)	5			
	Present user	3(7.9%)	34(89.5%)	37			
	Total	38 (8.1%)	423 (90.4%)	461			

Have you ever given tobacco cessation counselling to your patients?	Ex-user	25(47.2%)	28(52.8%)	53	7.905	3	.052*
	Never-user	130(34.9%)	237(63.7%)	367			
	Occasionally	3(60%)	2(40%)	5			
	Present user	20(52.6%)	17(44.7%)	37			
	Total	178 (38%)	284 (60.7%)	462			
Have you ever prescribed NRTs for your patients?	Ex-user	34(64.2%)	19(35.8%)	53	4.531	3	.210*
	Never-user	246(66.1%)	117(31.5%)	363			
	Occasionally	5(100%)	0(0%)	5			
	Present user	29(76.3%)	8(21.1%)	37			
	Total	314 (67.1%)	144 (30.8%)	458			
"Have you ever attended some programme regarding tobacco cessation counselling (TCC) or discussed regarding TCC with your peer group?	Ex-user	10(18.9%)	43(81.1%)	53	6.620	3	.085*
	Never-user	121(32.5%)	244(65.6%)	365			
	Occasionally	3(60%)	2(40%)	5			
	Present user	10(6.3%)	27(71.1%)	37			
	Total	144 (30.8%)	316 (67.5%)	460			

Chi Square Test showed that there was no significant association between tobacco use status and enquiry of tobacco habits of patients.

DISCUSSION

Tobacco users are constantly exposed to the risk of non-communicable diseases, leading to premature mortality among the risk population. As mentioned previously Globally, eight million deaths are reported every year due to tobacco use.¹¹ However, the prevalence of tobacco use has been decreasing globally since 1990¹² and most tobacco users live in low-middle-income countries (LMICs).¹³ India is also no exception compared with other LMICs; for example, Global Adult Tobacco Survey-2 (GATS) highlighted that nearly 29 percent of adults (42% male and 14% female) aged 15 years and above use some form of tobacco.¹⁴

Four hundred and seventy-one students responded to the questionnaire of which 3 were incompletely filled and was not considered for the study. Among them majority were females (72%), and more than half were below 23 years of age (57.7%). This is in accordance with Jaiswal AK et al¹⁵ study where majority of the dental students (74%) were females. Though

94.9% of the respondents knew that tobacco use was harmful for health, when asked about the methods of TCC, only 26.1% of the respondents knew what the 5R's stood for. On the contrary 68.2% of the students knew what the 5A's of TCC. When asked questions regarding NRTs only 31.4% knew how long to prescribe them. But 57.7% knew that nicotine nasal spray was absorbed the fastest. 59% knew that NRTs can be successfully used in smokeless tobacco habit too and 59.6% knew when not to prescribe NRTs. On the contrary only 26.7% knew that the benefit of quitting tobacco begins within less than 1 hour, only 26.7% knew that nicotine craving lasts less than 3 minutes and only 15.8% knew that the first three days of quitting is when the patient needs the most support. The students exhibited low knowledge score, 4.7 out of 10. There was no significant difference ($p > 0.05$) between the knowledge scores of females (4.7 ± 1.88) and males (4.5 ± 1.87). Similarly, there was no significant difference in the knowledge score between the different users of tobacco ($p > 0.05$). But there was significant difference in the knowledge score between the academic levels with postgraduates scoring the highest (6 ± 1.53), followed by Interns (4.8 ± 1.63), IV BDS students (4.5 ± 1.93) and III BDS students (3.8 ± 1.68). This is in accordance with the study of Rajesh G et al¹⁶ where there was a significant correlation between the year of study and knowledge score.

26.3% of the students felt that TCC may upset the dentist patient relationship whereas almost 69.5% felt that TCC provided by dental students would assist patients to quit tobacco use. 19.7% of the respondents felt they did not have adequate training in TCC and 52.5% felt they had adequate training regarding TCC. 73.1% felt they serve as a role model for their patients and public in relation to tobacco habits. 30.5% of the respondents felt TCC is not effective unless the patient had a related health problem in contrast to 44.7% who felt otherwise. 41.5% of the respondents felt patients don't listen to the dental students when they discuss tobacco usage in contrast to 27.3% of the respondents who felt they listened. Overall, 16.2% of respondents had negative attitude, 24.8% had neutral attitude and 56.4% had positive attitude towards TCC. There was no significant difference in the attitudes of females and males ($p > 0.05$). There was a significant difference in the attitudes of different academic levels ($p < 0.05$) with postgraduates showing more positive attitude (94.3%) followed by III BDS (95.4%), interns (47.2%) and IV BDS students (45.8%). Most number of IV BDS students (25.5%) showed negative attitude, followed by III BDS students (18.2%), interns (13.2%) and then postgraduate students (1.1%). Similarly, there was significant difference in the attitude depending on the tobacco use status of the students ($p < 0.05$) with a greater number of never users showing positive attitude (61.6%) followed by ex-users (41.5%), occasional users (40%) and present users (28.9%). More number of present users had a negative attitude (44.7%) followed by occasional users (40%), ex users (24.5%) and never users (11.8%). Postgraduate students and never-users of tobacco showed more positive attitudes towards promoting cessation, indicating the importance of personal tobacco use status in shaping professional behaviours.¹⁷

90.4% of the students said they have enquired about their patients' tobacco habits but only 60.7% have ever given TCC to their patients. Only 30.8% of the student have prescribed NRTs even though 67.5% of them have attended some program related to TCC or discussed regarding TCC with their peer group. There was no significant difference in the responses of practice question between genders except the one regarding prescription of NRT with a greater number of males (30.8%) prescribed compared to females (27.9%). There was significant difference in the practice of TCC between the academic levels with a greater number of postgraduate students practicing TCC followed by interns, IV BDS students and then III BDS students for

all the practice-based questions except the question regarding NRTs wherein a greater number of Interns said yes followed by postgraduates, III BDS and IV BDS students. This agrees with the findings of Clareboets et al¹⁸ and Horowitz et al.¹⁹ In terms of practices, the study found that students who had higher knowledge scores were more likely to inquire about patient tobacco habits, provide cessation counselling, and attend relevant training programs. This highlights the importance of equipping dental students with the necessary knowledge and skills to effectively intervene with their patients. However, the study also found that knowledge was not significantly correlated with prescribing nicotine replacement therapies, suggesting that additional training may be needed in this area. The literature suggests that incorporating practical training in tobacco cessation interventions can improve dental students' confidence and willingness to engage in these activities.^{20,21}

The study also found associations between attitude and various tobacco cessation practices. Students with more positive attitudes were more likely to provide cessation counselling, prescribe NRTs, and attend training programs. This underscores the need to foster a positive attitude towards tobacco cessation among dental students, as this can directly translate to improved patient centred care. Previous research has also emphasized the importance of addressing attitudinal factors to enhance tobacco cessation activities among dental professionals.^{22,23}

CONCLUSION

The findings revealed that while clinical dental students demonstrated a good understanding of the health risks associated with tobacco use, there were notable gaps in their knowledge of specific cessation therapies and strategies. Additionally, the study highlighted positive attitudes towards promoting tobacco cessation among patients, but the actual implementation of cessation interventions in clinical practice was found to be limited. Moving forward, it is imperative to address these gaps in knowledge and translate positive attitudes into concrete practices. Educational interventions focusing on evidence-based cessation therapies and practical training in implementing these interventions during patient interactions can play a crucial role in enhancing the preparedness of clinical dental students in addressing tobacco cessation. Moreover, fostering collaboration between dental colleges and public health agencies can further strengthen the integration of tobacco cessation interventions in clinical settings.

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