

## RESEARCH ARTICLE

## Assessment of professional competency and need of smoking cessation counseling for dental students

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### Abstract

**Purpose:** The aim of this study was to analyze the smoking prevalence among dental students and to assess the need for promoting tobacco education and intervention by exploring their knowledge about smoking related risk factors. The study also examined the attitudes and practices of the students toward tobacco consumption, and their responsibilities toward the community. **Methods:** In total, 53 male students participated in the study (21 juniors and 32 seniors). The training program was divided into three modules, and the questionnaire was administered before and after the counseling sessions, which provided the comparative data on the students' views about smoking cessation. **Results:** The most commonly practiced mode of tobacco consumption was found to be cigarette smoking (90.6 %), while a few consumed Gutkha (9.4%). All the junior students (100%) reported to have been benefitted by the counseling program, while 68.8% of the students from the senior group reported the same. Bivariate statistical analysis was conducted using the Pearson's chi-square test for testing the difference across the age groups. P-values less than 0.05 were considered statistically significant. **Conclusion:** Curbing tobacco influence on dental students in their initial days can ensure a smoke-free life for them, as well as prevents them from feeling embarrassed or experiencing a lack of confidence while seeing their patients. Thus, tobacco education and intervention programs can motivate the students and increase their potential to be credible advisors regarding smoking cessation.

**Key Words:** *Counseling; Dental students; Prevalence; Risk factors; Smoking cessation*

### INTRODUCTION

Tobacco consumption, mostly in the form of smoking, is common on college campuses. It has become an inescapable health issue that requires expeditious preventive action to reduce tobacco consumption. Dental students need smoking cessation counseling that would help them quit smoking, support those who desire to quit, and dissuade those who desire

to start. Indeed, it should be a compulsory part of the dental curriculum, which can encourage the students to quit tobacco consumption.

The objective of the present study was to determine the prevalence of smoking among dental students, to explore their knowledge, attitudes, and practices related to smoking, and to examine their sense of responsibility toward the community. The study also aimed to evaluate the effects of smoking cessation counseling on these students. As per our knowledge, no studies have examined the impact of a counseling program to help dental students quit smoking, such that they can become real role models for their patients.

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## METHODS

The selection criterion was limited to students who were current smokers (occasional or regular), and who willingly agreed to attend all the counseling sessions. Participants signed a consent form after they were provided a brief description of the study, before commencing the program. The institutional ethical board granted permission for this study.

### Participants

The participants were chosen from all the four batches of the four-year Bachelor in Dentistry (BDS) program. They were divided into two groups to study and compare the results, the junior batch (first and second year BDS), and the senior batch (third and final year BDS). Out of the total 350 students, only 61 were found to be smokers who were willing to participate in the study. On the first day of training, only 53 students reported and agreed to sign the consent form (response rate 86.89%). Out of them, 32 were from the senior group and 21 from the junior group. All the participants were males, and no female student attended the training.

### Questionnaire

A self-reported, pre-tested, anonymous questionnaire was administered on the participating students. The questionnaire, with 21 questions in total, was divided into four sections. The first section was related to the demographic data, section two comprised ten questions on general information about the health awareness status of the students, section three included six questions (3-point Likert scale) on the students' perception about healthcare professionals who smoked, while the fourth section comprised five questions (dichotomous) on post counseling information.

### Procedure

The program was divided into three modules, as described in Table 1. The first two sessions were conducted on two consecutive days, while the third session was conducted a fortnight after the second session, to study the post counseling ef-

fects. All the four sections of the questionnaire were administered as per the study requirements. Sections I, II, and III were administered before beginning the sessions, to collect the information about the demographic variables, health awareness, and their perception about healthcare professionals who smoked. Section III was administered at the end of modules I and II, which provided the comparative data on the students' views before and after the counseling sessions. Section IV was administered a fortnight after module II, to assess the post counseling effects on the smoking tendency of the students. Finally, follow-ups and problem assessment was continued for one month (Table 1).

A team of ten instructors was appointed to take care of, and provide vigilance for the study participants. A specific 'instruction protocol' was provided to all the students, in addition to constant assistance from the instructors during the abstinence period, to help them cope with the withdrawal issues.

### Statistical analysis

Frequency distributions were computed on the data from before and after administration of the study modules. In addition, the perception before and after the modules were tested for significant differences, using the Wilcoxon's signed rank test (a non-parametric test for paired analysis). Further, bivariate statistical analysis was conducted using the Pearson's chi-square test, to test the difference in student's perception after quitting smoking, across the age groups. The values on qualitative characteristics were presented as number (% of respondents). P-values less than 0.05 were considered to be statistically significant. The entire statistical analyses were performed using the SPSS software (SPSS Inc., Chicago, IL, USA).

## RESULTS

Fifty-three students participated in this study by attending the counseling and post-counseling interaction sessions. The percentage distribution of the variables has been presented in Table 2. Though the students were all youngsters selected from the first to final year BDS course, the mean age of the

**Table 1.** Training schedule comprising three modules

Module I (didactic lectures): day-1	Module II: day-2	Module III: after a fortnight
1. Smoking hazards & need of quitting in early life.	1. Power point presentations audio/video clippings about cancer patients; their experiences and interviews.	1. Open discussion and interaction on withdrawal symptoms and post quitting experiences.
2. Tobacco and cancer: smokers at risk for all types of cancer and other fatal diseases.	2. How easy it is to quit smoking. How to cope with withdrawal symptoms & smoking relapse.	2. Discussion on smoke free life and helping others in quitting smoking.
3. Importance of factors such as professional ethics and responsibilities towards community as a public health professional.	3. A visit to a cancer hospital and rehabilitation center and communication with the cancer patients.	3. Maintaining the physical and mental status by practicing meditation and yoga.

**Table 2.** Distribution of demographic characteristics of the study participants

Characteristic	No. (%)
Age (yr)	
< 20	21 (39.6)
≥ 20	32 (60.4)
No. of family members	
< 4	17 (32.1)
≥ 4	36 (67.9)
No. of siblings	
< 2	34 (64.2)
≥ 2	19 (35.8)
Position among siblings	
Elder	21 (39.6)
Middle	16 (30.2)
Younger	1 (1.9)
Not applicable (only child)	15 (28.3)
Socio-economic status	
Middle	24 (45.3)
Higher	29 (54.7)
Current stay	
Hostel	34 (64.2)
Local	19 (35.8)

total sample was 20 years.

The students' perceptions about smoking and related health aspects were examined before starting the sessions. The most commonly practiced mode of tobacco consumption was found to be cigarette smoking (90.6%). There were almost 67.9% regular smokers, though 32.1% were occasional smokers. The frequency of smoking ranged from 0 to 1 cigarette a day (32.1%), 2 to 4 cigarettes a day (39.6%), and 5 to 7 cigarettes a day (28.3%) (Table 3). Further, 41.5% of the students agreed that they were influenced by their friends to start smoking, 34.0% of them were influenced by their father/brother, 20.8% by actors, while the remaining 3.8% started smoking just out of curiosity. Out of various reasons, stress was noted to be the most common one for smoking (34%). Other addictions, such as alcohol consumption and paan/betel nut chewing, were reported by 7.5% and 9.5% of the participants, respectively ( $P < 0.05$ ). Finally, 39.6% of the participants admitted to attempting to quit smoking in the past (Table 3).

Subsequently, a comparative analysis was conducted on the data before the counseling session started, and after the completion of every session, to assess the understanding level and improvement in the students. Before the counseling, 69.8% of the participants showed agreement to statement 1, stating their responsibility to help people quit smoking, which increased to 75.5% post module I, and 90.6% post module II. In response to statement 2, before counseling, 77.4% of them agreed that they needed to be competent enough to advise their patients to quit smoking. This score increased to 88.7% after module I,

**Table 3.** Distribution of general health and awareness status of study participants

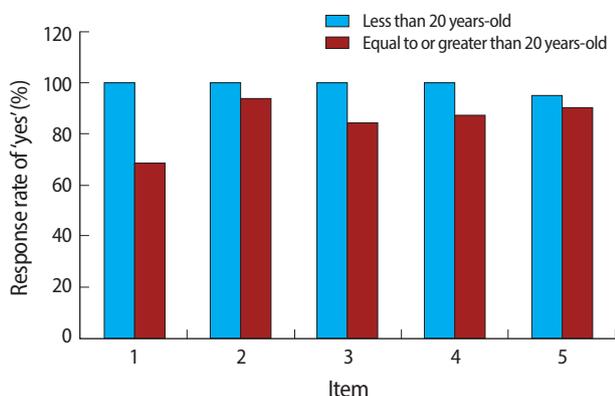
Characteristic	No. (%)
Type of tobacco consumption	
Cigarette	41 (77.4)
Gutkha	5 (5.9)
Both	7 (13.2)
Type of smoker	
Regular	36 (67.9)
Occasional	17 (32.1)
Age of starting smoking (yr)	
< 18	19 (35.8)
≥ 18	34 (64.2)
Frequency of smoking (cigar/day)	
0-1	17 (32.1)
2-4	21 (39.6)
5-7	15 (28.3)
Type of Influence to smoking	
Father	18 (34.0)
Friend	22 (41.5)
Actor	11 (20.8)
Curiosity	2 (3.8)
Reason of smoking	
Stress	18 (34.0)
Adulthood	12 (22.6)
Fun	10 (18.9)
Self esteem	10 (18.9)
Weight loss	3 (5.7)
Other addictions	
Alcohol	4 (7.5)
Paan/betel nut	5 (9.5)
Nil	44 (83.0)
Past quit attempts taken	
Yes	21 (39.6)
No	32 (60.4)

and II. Before module I, 71.7% students agreed that in addition to themselves, people around them were affected by the smoke. This agreement was found in 94.3% of the participants, after module II. In response to statement 4, 56.6% students expressed agreement, which increased to 77.4% after module I, and 92.5% after module II. Before module I, only 45.3% students quoted their positive attitude towards quitting smoking, while majority of them agreed to the same after module I (66.0%), and 94.3% after module II (Table 4).

The post quitting perceptions were compared between the two age groups (< 20 or 'junior group' and ≥ 20, or 'senior group'). We found that all the students from junior group (100%) expressed that they had been benefitted by the counseling program, while 68.8% from the senior group expressed the same. However, 31.2% of the students from the senior group denied this. In response to statement 2, 93.8% of from the participants from the senior group agreed that the institutions should start a 'tobacco dependence counseling' (TDC) center to help students stop smoking. Further, all the students from the junior group (100%) supported the inclusion of tobacco education in the curriculum. All the junior students (100%) reported that smoking amongst medical teachers and students was the main obstacle in providing tobacco education for others. Further, though a few (12.5%) from the senior group denied

**Table 4.** Comparison of students' perception on smoking and other health aspects between modules

Statement	Likert scale	Before module I (n = 53)	After module I (n = 53)	P-value	After module I (n = 53)	After module II (n = 53)	P-value
1. It is my responsibility to help people to quit smoking	Agree	37 (69.8)	40 (75.5)	0.180	40 (75.5)	48 (90.6)	0.002
	Disagree	0	0		0	0	
	Undecided	16 (30.2)	13 (24.5)		13 (24.5)	5 (9.4)	
2. I need to be competent enough to advise my patients	Agree	41 (77.4)	47 (88.7)	0.067	47 (88.7)	47 (88.7)	0.067
	Disagree	3 (5.7)	1 (1.9)		1 (1.9)	1 (1.9)	
	Undecided	9 (16.9)	5 (9.4)		5 (9.4)	5 (9.4)	
3. I am not only affecting my health but also the health of people around	Agree	38 (71.7)	44 (83.0)	0.045	44 (83.0)	50 (94.3)	0.006
	Disagree	5 (9.4)	4 (7.5)		4 (7.5)	0	
	Undecided	10 (18.9)	5 (9.4)		5 (9.4)	3 (5.7)	
4. Tobacco in any form increases a person's risk of cancer	Agree	30 (56.6)	41 (77.4)	0.004	41 (77.4)	49 (92.5)	0.001
	Disagree	11 (20.8)	6 (11.3)		6 (11.3)	0	
	Undecided	12 (22.6)	6 (11.3)		6 (11.3)	4 (7.5)	
5. Smokers are more likely to get cancer than nonsmokers	Agree	22 (41.5)	37 (69.8)	0.001	37 (69.8)	50 (94.3)	0.001
	Disagree	7 (13.2)	3 (5.7)		3 (5.7)	0	
	Undecided	24 (45.3)	13 (24.5)		13 (24.5)	3 (5.7)	
6. I desire to quit smoking	Agree	24 (45.3)	35 (66.0)	0.025	35 (66.0)	50 (94.3)	0.001
	Disagree	9 (17.0)	3 (5.7)		3 (5.7)	0	
	Undecided	20 (37.7)	15 (28.3)		15 (28.3)	3 (5.7)	



**Fig. 1.** Comparison of students' perception after quitting smoking. Explanation of items: 1. do you feel benefitted from the counseling program?; 2. do you think institutions should start 'tobacco dependence counseling?'; 3. do you think universities and institutions should include tobacco cessation education in the curriculum?; 4. do you think that smoking among medical teachers and students is an obstacle in providing tobacco education?; 5. do you want to be a volunteer for the anti-tobacco campaign and help others?

this, a majority (87.5%) agreed to it. In response to statement 5, 90.6% of the seniors, and 95.2% of the junior students, agreed that they wanted to volunteer for the anti-tobacco campaign in India and help others ( $P < 0.05$ ) (Fig. 1).

## DISCUSSION

As the dental and medical professionals' behavior is imitated by others who consider them as role models, they need to

curb tobacco consumption. Healthcare professionals are expected to have a good rapport with the public. Students, who enter the healthcare profession at the age of 17 to 18 years, should be discouraged from smoking, and should be adequately acquainted about the health hazards related to it. A study conducted on medical students in Orissa concluded that the steps to prevent tobacco use should be initiated early in medical colleges, particularly among males and those with a family history of tobacco use [1]. As per a study by Binnal et al. [2] the individuals aged  $\leq 24$  years had higher attitude scores to smoking cessation ( $P = 0.01$ ) than those aged  $> 24$  years. These reports support the findings of our study, where the senior students were found to have a higher inclination toward smoking cessation, than did their younger counterparts.

The most important factors that influence the adolescents and youth to start smoking were cited as personal, familial, and social factors such as having friends who smoked, family and friends' positive attitude towards smoking, presence of smokers among family members, and other harmful factors in the social environment [3]. As per the present study, the most influential factor was found to be friends who smoked (41.5%), while the other factors had a comparatively lower impact. Further, the present study found stress to be the major reason for smoking (34.0%). This finding is similar to that of Alrshedi and Haleem [4]. However, there is no empirical base for this kind of notion, and researchers have acknowledged it to be a fallacious and deceptive perception of the smokers. Indeed, smokers who do not know the related health risks should be warned, but those who continue smoking despite such knowledge are considered to exhibit 'smoking behavior.' Smoking is

found to be associated with emotional as well as physical dependence. We observed that the lectures that provided comprehensive information about smoking and related health risks proved to be effective to change the perspective of majority of the smokers. Post counseling results of the present study identified that, overall, 92.5% of them recognized the association between cancer and cigarette smoking. These results are in conformity with a study reported by Merrill et al. [5]. In contrast to this, a study has confirmed that there was an overall deficiency in oral cancer awareness and knowledge amongst undergraduate dental students [6].

We found that 39.6% students tried to quit smoking in the past, but they could not succeed due to the paucity of appropriate counseling. It has been studied that most smokers who attempt to quit smoking do so without treatment, and the rates of success in self-quitting are very low [7]. It has been noticed that the students in the present study were aware of their responsibility in helping others quit smoking. They also accepted that, as healthcare professionals, they needed to be competent enough to provide counseling, and become role models. A study supports our results, where the researchers noted the students' positive inclination toward serving as role models for their patients and the public [4].

The present study tried to assess the relationship between age, socio-economic conditions, number of family members, position among the siblings, type of stay: hosteler or localite, etc., to identify the factors responsible for the habit (Table 2). The individual might have an inclination toward adapting smoking at younger age based on his identity in the family, either as the elder and more responsible son whose behavior might not be questioned, or a younger son who indulged in such activities due to the negligence of elders. In other cases, the higher socio-economic conditions provided a more favorable atmosphere for such habits, while those from the lower/middle class might adopt them due to the financial stress. We did not find much difference between the two groups, though the incidence of smoking was slightly higher for the higher socio-economic group, i.e., 54.7%. The students who stayed in a hostel were found to be more vulnerable to adopt wrong habits than were those who stayed with their family, as the former group was aware that nobody would stop them.

A post counseling session that was organized a fortnight after the training program offered individual and candid interactions with the participants. A keen observation was done about the changes in their attitude. The follow-up and interaction sessions were organized every week, for a month, to assess the post counseling effects. It was seen that only three students failed to continue abstinence in the first week, while four who did so in the second week. However, it was surprising to find ten students who could not succeed in quitting smoking

by the third week. The number, however, remained stable over the next three weeks. Thus, at the end of one and half months post counseling (46 days), we found 81.1% of them who agreed to be benefitted by the counseling program. This finding was in agreement with recent study results of Binnal et al. [2]. In contrast to these results, a study reported negative attitude of Nigerian dentists and clinical dental students towards tobacco cessation activities. It has been found that the attitudes of dentists and students, toward smoking cessation, was poor, including a pessimistic attitude about the effectiveness of smoking cessation counseling to help smokers quit. The authors of the present paper believe that this poor attitude could be a result of lack of training [8].

The students from our study demanded the establishment of a TDC center by institutions, so that they get proper training about the cessation techniques. Researchers have posed the need for implementing professional training for medical and dental students in tobacco-cessation counseling techniques [9]. As future role models, it is essential that smoking cessation counseling be embedded in the dental curriculum, to not only discourage their own habits, but so that they may promote the importance of being tobacco free in the wider population [10]. The enforcement of certain policies by institutions and the universities need to be done where the smoking cessation training becomes a part of the curriculum.

Tobacco use, in any form, has a devastating effect on general health and a significant negative impact on oral health. Tobacco cessation programs have a remarkably positive impact on quit rates. Dentists play a major role in the inter-disciplinary health professional team to support smoking cessation. For a dental professional to be a role model, it is imperative to understand his/her responsibilities toward the community.

The counseling programs have been proved to have an immense effect on the mindset of those who are involved in smoking. It is important to emphasize on the fact that quitting smoking can bring improvement in their present state of health, and also the health of people around them. Unsuccessful attempts may actually bring success to the next attempt, as it assures the willingness of a person to quit.

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## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

## SUPPLEMENTARY MATERIAL

Audio recording of the abstract.

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