

Original Article

Attitudes and Practices of Tobacco Cessation Counseling Among Saudi Dental Professionals: A Nationwide Cross-Sectional Survey

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ABSTRACT

Background: Dental professionals can play a pivotal role in educating the public about the harmful effects of smoking and encouraging them to quit the habit. **Aim:** This study assesses the attitudes and practices of tobacco cessation counseling (TCC) among dental professionals in Saudi Arabia.

Patients and Methods: This questionnaire-based cross-sectional study targeted dentists and dental interns working in government and private sectors in Saudi Arabia. We conducted a descriptive analysis by using SPSS Statistics, version 25.0.

Results: A total of 895 respondents (314 interns and 581 dentists) participated in this survey. Although the majority of respondents (93%) reported that they always ask patients about tobacco habits, only 59% reported recording tobacco habits in patients' files, and only 55% of the respondents reported explaining to patients the harmful effects of tobacco. Around 91% of the participants believe that a dental clinic is an appropriate place for TCC, and 22% believe that TCC has a negative impact on dental practice. Smoking status, work setting, and the number of years since graduation were found to be significantly associated with the respondents' attitudes and practices. Lack of training, time limitations, and lack of confidence were barriers for TCC. **Conclusions:** Dental professionals in Saudi Arabia demonstrated relatively positive attitudes but weak practices of TCC. Continuous education and motivation are needed to improve dentists' confidence, attitudes, and willingness for TCC. Integration of tobacco control education in undergraduate curricula is recommended.

KEYWORDS: Attitudes, dentists, practices, tobacco cessation

INTRODUCTION

Undoubtedly, tobacco use in its different forms is one of the most common causes of morbidity and mortality worldwide.^[1-3] Annually, up to 7 million people across the globe die due to direct tobacco use and more than 1.2 million die due to second-hand smoking. Additionally, tobacco use during pregnancy can lead to many life-long health conditions for newborns.^[4] For a clearer perception of the tobacco-attributed risk, one has to realize that the mortality in people using tobacco is higher than that caused by tuberculosis, HIV/AIDS, and malaria combined.^[5]


Besides its association with several systemic diseases,^[3,6] tobacco use is a major risk factor for several oral conditions such as chronic periodontitis, oral potentially malignant lesions, and oral cancer.^[2,7-12] Further, tobacco is associated with impaired wound healing and suppression of the immune response.^[13,14]

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Certainly, the burden of tobacco-related illness and death is heaviest in the low- and middle-income countries.^[1,8] This is substantiated by the fact that over 80% of the 1.3 billion tobacco users worldwide live in these countries.^[8,15]

Fortunately, however, tobacco-associated health risks are highly preventable. Provisioning education and motivation and behavioral changes program greatly help.^[16-19] Tobacco cessation counseling (TCC) is one of these programs that is well-known for its impact. Based on the current evidence, TCC is now more increasingly applied and more health professionals are involved.^[20]

Health professionals, including dentists, can play a vital role in the fight against tobacco use by engaging in providing TCC. As dental professionals see patients on a regular basis, they are in a good position to interview, communicate, motivate, and advise patients to stop tobacco use.^[13] Several surveys worldwide have assessed dental professionals' knowledge, practices, and attitudes toward TCC.^[18,21-27] These studies showed variable levels of attitudes and practices and reported several obstacles for TCC in dental offices.^[14-20] Unfortunately, in Saudi Arabia, despite the high prevalence of smoking of 12.2%–34.4% among the general population,^[28] there is scarcity in the literature regarding this topic, with only two studies that explored TCC attitudes and practices among dental professionals.^[23,29] Further, the latter two studies used very small sample sizes, thus limiting their conclusions. Thus, this study sought to assess the attitudes and practices of TCC among dentists and dental interns in Saudi Arabia.

MATERIAL AND METHODS

This is a descriptive, cross-sectional, questionnaire-based study. The study proposal was reviewed by the Scientific Research Unit of the College, Jazan University as partial fulfillment of the requirement of the interns' training and an ethical approval was obtained (Reference No.: CODJU 20231; dated: September 16, 2020).

The study tool was a self-administered, pretested questionnaire adapted from previous studies with minor modifications.^[24,30] The items of the questionnaire were prepared as a Google Form whose link (an online survey) was sent to the target population through emails and different social media. A cover letter was included at the beginning of the questionnaire explaining the purpose of the study and ensuring that the data will be dealt with confidentially and for the research purpose only. Only those who chose the "agree" alternative were taken to the next pages to complete the questionnaire. To restrict each user to a single entry, the sensitivity of the Internet Protocol (IP) address was made active. The

questionnaire consisted of 22 closed questions divided into two main sections. The first section included five general questions regarding gender (male and female), qualification (dental interns, bachelor degree, and higher degree), years since graduation (less than 5 years or more than 5 years), work sector (private/government), and smoking habits (yes/no). The second section included 17 questions on practices (three questions), attitudes (eight questions), perceived effectiveness of tobacco cessation in the dental setting (one question), the best method of counseling (one question), and four questions on the potential barriers of not doing TCC.

The target population was dental interns, and dentists (general dental practitioners (GDP) and dentists with higher academic and/or professional degrees) and working in Saudi Arabia. As the authors neither had formal statistics on the size of the target population in Saudi Arabia nor knew an online forum or organization website through which they could reach the target population, no prior calculation of sample size was made. However, the authors made every effort to target the largest possible number of the target sample by sending the link to different dental professional groups (WhatsApp, Facebook, and alike), and by help from active dental organizations/society members. In addition, the authors sent the link four times aiming at reminding those who already targeted but not responded while aiming at recruiting a new participant not reached previously.

The data collection was started on November 4, 2020 and was ended on January 10, 2021. The raw data were obtained in an excel file from which they were imported into IBM SPSS Statistics for Windows, version 25.0 (Released 2017; IBM Corp., Armonk, NY, USA) for analyses. The variables were all qualitative and hence were presented as frequencies and percentages and analyzed by Chi-square/Fisher's exact test. The *P* value was set at less than 0.05.

RESULTS

A total of 895 respondents (314 interns and 581 dentists (546 GDP and 35 specialists)) participated in this survey. Of these, 63.6% were males and 16% were smokers. Out of the participating dentists (*n* = 581), the majority work in government settings (85.9%, *n* = 499) and 426 (73.3%) have been in practice for ≤ 5 years [Table 1].

Attitudes and practices of the respondents by qualification are depicted in Table 2 (% of "Yes" answers). The positive practices of the participants ranged from 55.1% to 93.1%. The majority of participants (93.1%) reported that they always ask

their patients about their tobacco habits, with slight insignificant differences between interns (95.9%) and dentists (92.6%; $P = 0.055$). Conversely, only 59.1% reported that they record tobacco habits in the patients' files with significant differences between interns (88.9%) and dentists (43.0%; $P < 0.001$); only 55.1% explain to patients the harmful effects of tobacco, with significant differences between interns and dentists (35.0 vs. 65.9%; $P < 0.001$). While 90.7% of the participants believe that a dental clinic is an appropriate place for tobacco counseling, around 45.0% (56.8% of dentists and 23.2% of interns; $P < 0.001$) believe that providing dental care is more important than TCC counseling, and one-fifth of

the participants (21.9%) believe that TCC has a negative impact on dental practice. The majority of participants think that health professionals should refrain from tobacco and that tobacco products should be banned in KSA, with significant differences between interns and dentists (93.3% vs. 85.7%, $P = 0.001$; and 90.4% vs. 74.7%; $P < 0.001$, respectively). Additionally, the vast majority (95.4%) think that TCC should be incorporated in dental curricula with no significant differences between interns and dentists [Table 2].

Attitudes and practices of the respondents by gender and smoking status are depicted in Table 3. No significant differences were observed between males and females regarding their TCC practices ($P > 0.05$). However, female participants showed relatively better attitudes toward TCC compared to males; for example, a significantly higher proportion of males (26.0%) were of the opinion that TCC has a negative impact on clinical practice as compared to only 14.6% of females ($P < 0.001$). A significantly higher proportion of female participants believe that health professionals should refrain from tobacco (96.9%) and that tobacco products should be banned in the country (96.9%), compared to only 83.6% and 71.9% of males, respectively. Generally, non-smoker participants revealed better practices and attitudes toward TCC compared to current smokers, with significant differences between the two groups [Table 3].

Table 4 presents dentists' ($n = 581$) attitudes and practices according to the type of setting and period since graduation. With regards to the type of setting,

Table 1: Demographic data of the participants (n=895 unless otherwise stated)

Variables	N	%
Gender		
Male	572	63.9
Female	323	36.1
Qualification		
Interns	314	35.1
Bachelor	546	61.0
Specialists	35	3.9
Graduation (n=581)		
<=5 years	426	73.3
>5 years	155	26.7
Setting (n=581)		
Government	499	85.9
Private	82	14.1
Smoking		
Yes	143	16
No	752	84

Table 2: Attitude and practices of the participants toward TCC (% of Yes answers) by qualification (interns vs. dentists) (n=895)

Questions	Qualification		Total	P
	Interns	GP		
Practice items				
Do you always ask your patients about their tobacco habits?	95.9	92.6	93.7	0.055
Do you always record tobacco habits in the patient's file?	88.9	43.0	59.1	0.000
Do you explain to patients the risks of tobacco?	35.0	65.9	55.1	0.000
Attitudes items				
Do you believe that enquiring about tobacco habits has a negative impact on clinical practice?	23.2	21.2	21.9	0.473
Do you believe that TCC is a waste of time?	5.7	5.2	5.4	0.718
Do you believe that providing dental treatment is more important than TCC?	23.2	56.8	45.0	0.000
Do you think a dental clinic is an appropriate place for TCC?	90.1	91.0	90.7	0.650
Do you feel that there should be a provision for TCC centers in hospitals and institutions?	98.1	98.8	98.5	0.395
Do you think that health professionals should refrain from tobacco?	93.3	85.7	88.4	0.001
Do you think that tobacco products should be banned in KSA?	90.4	74.7	80.2	0.000
Do you think that TCC should be a part of dental curriculum?	94.9	95.7	95.4	0.588
Perceived effectiveness items				
Do you think that proper counseling will lead to patients quitting the habit	96.5	96	96.2	0.734

Chi-square test TCC: Tobacco Cessation Counseling

Table 3: Attitudes and practices of dentists toward TCC (% of Yes answers) by gender and smoking status (n=895)

Questions	Gender		P	Smoking		P
	Male	Female		NO	Yes	
Practice items						
Do you always ask your patients about their tobacco habits?	93.7	93.7	0.952	94.9	87.4	0.001
Do you always record tobacco habits in the patient's file?	58.7	59.8	0.768	63.6	35.7	0.000
Do you explain to patients risks of tobacco?	55.2	54.8	0.897	51.3	74.8	0.000
Attitudes items						
Enquiring about tobacco habits has negative impact on clinical practice?	26.0	14.6	0.000	14.0	63.6	0.000
TCC is a waste of time?	6.3	3.7	0.100	3.7	14.0	0.000
Providing dental treatment is more important than TCC?	44.1	46.7	0.437	38.8	77.6	0.000
Dental clinic is an appropriate place for TCC?	90.6	91.0	0.819	93.1	78.3	0.000
There should be provision of TCC center in hospitals & institutions?	98.3	99.1	0.396	98.8	97.2	0.143
Health professionals should refrain from tobacco?	83.6	96.9	0.000	97.7	39.2	0.000
Tobacco products should be banned in KSA?	71.9	95.0	0.000	89.5	31.5	0.000
TCC should be a part of dental curriculum?	94.2	97.5	0.024	97.2	86.0	0.000
Perceived effectiveness items						
Proper counseling will lead to patients quitting the habit?	96.0	96.6	0.644	97.5	89.5	0.000

Chi-square test TCC: Tobacco Cessation Counseling

Table 4: Attitude and practice of dentists toward TCC by graduation years and working sector (% of Yes answers) (n=581)

Questions	Graduation years		P	Working sector		P
	≤5 years	>5 years		Public	Private	
Practice items						
Do you always ask your patients about their tobacco habits?	92.7	92.3	0.850	96.4	69.5	0.000
Do you always record tobacco habits in the patient's file?	30.8	76.8	0.000	43.9	37.8	0.303
Do you explain to patients the risks of tobacco?	76.8	36.1	0.000	67.5	56.1	0.043
Attitudes items						
Enquiring about tobacco habits has a negative impact on clinical practice?	24.2	12.9	0.003	15.4	56.1	0.000
Is TCC a waste of time?	5.2	5.2	0.999	2.4	22.0	0.000
Providing dental treatment is more important than TCC?	48.8	78.7	0.000	53.9	74.4	0.001
Is a dental clinic an appropriate place for TCC?	91.3	90.3	0.711	94.6	69.5	0.000
Should there be a provision for TCC centers in hospitals and institutions?	98.6	99.4	0.456	98.6	100	0.601
Should health professionals refrain from tobacco?	84.0	90.3	0.056	86.4	81.7	0.263
Tobacco products should be banned in KSA?	70.7	85.8	0.000	74.5	75.6	0.838
TCC should be a part of dental curriculum?	95.8	95.5	0.879	96.6	90.2	0.009
Perceived effectiveness items						
Proper counseling will lead to patients quitting the habit?	95.8	96.8	0.585	97.8	85.4	0.000

Chi-square test TCC: Tobacco Cessation Counseling

dentists who work in public sectors revealed better practices and attitudes toward TCC than those working in private sectors, with statistically significant differences in most of the answered items ($P < 0.05$). The results also showed some differences in the respondents' practices and attitudes according to the period of graduation. Around 76.8% of dentists who graduated much earlier (>5 years) reported that they always record their patients' tobacco habits compared to only 30.8% of the recent graduates (≤5 years; $P < 0.001$). Conversely, a significantly higher proportion of recent graduates reported that they always explain to their patients the tobacco harmful effects compared to those who graduated long earlier (76.8%

vs. 36.1%, $P < 0.001$). Dentists who graduated much earlier seemed to have much better attitudes than recent graduates [Table 4].

Perceived barriers of TCC are illustrated in Table 5. The most-reported perceived barriers of TCC were lack of training (94.2%), lack of time (85.5%), lack of confidence (63.9%), and lack of financial incentives (25.9%), with some differences between the participants according to gender, smoking status, type of setting and duration since graduation.

In response to the question about the best methods for TCC, the participants suggested repulsive pictures (92%), verbal communication (79%), audio/

Table 5: Proportion of perceived barriers of tobacco cessation counseling by different factors (% of agree answers) (n=895 unless otherwise stated)

	Lack of time	Lack of training	Lack of confidence	Lack of financial incentives
Qualification				
Interns	86.3	90.4	48.4	15.0
Bachelor	85.0	96.2	72.3	31.8
<i>P</i>	0.161	0.002	000	000
Gender				
Male	81.6	93.5	69.9	32.0
Female	92.3	95.4	53.3	15.2
<i>P</i>	0.000	0.256	0.000	0.000
Smoking status				
No	86.2	96.1	62.6	25.7
Yes	81.8	83.9	70.6	27.3
<i>P</i>	0.384	0000	0.028	0.910
Graduation years (n=581)				
<=5 years	81.7	96.2	87.6	38.5
> 5 years	94.2	96.1	30.3	13.5
<i>P</i>	0.001	0.61	0.000	0.000
Working sector (n=581)				
Government	85.6	97.4	73.1	26.9
Private	81.7	89.0	67.1	62.2
<i>P</i>	0.610	0.001	0.276	0.000
Total	85.5	94.2	63.9	25.9

video methods (26.9%), and reading materials (8.5%) as the best means for counseling in dental clinics.

DISCUSSION

Dental practitioners can play a crucial role in the fight against tobacco use through engaging in tobacco cessation activities. The present survey assessed the practices and attitudes toward TCC among a group of dentists and dental interns in Saudi Arabia. Overall, the results revealed relatively positive attitudes toward TCC but comparably suboptimal practices, with only 59% of the respondents reporting routinely recording their patients' habits and only 50% explaining to them the harmful effects of tobacco. The results also revealed that the respondents' attitudes and practices were influenced by different socio-professional factors, including smoking status, working environment, and graduation time. Additionally, inadequate training, lack of time, and lack of confidence were the most reported barriers to providing TCC in the dental setting.

The present study revealed that surveyed dentists and interns have positive attitudes and willingness toward TCC, but they lack confidence and motivation. Such findings are consistent with previous local, regional, and international studies.^[17,18,23-25,29] A recent systematic review of nine studies concluded that dental practitioners have positive attitudes toward TCC but are less motivated to actively engage in TCC.^[31] The literature

suggests that time constraints, inadequate training, and lack of financial incentives are the most important barriers for TCC in dental clinics.^[17,21,23,24,26,31,32] This underscores the importance of continuous educational and motivational programs through periodic workshops and training courses.^[19,24,29] Additionally, remuneration for TCC should be considered to motivate dentists and compensate them for the time spent educating the patients about tobacco and its harmful effects.

It is well-documented that several socio-professional factors can influence dentists' attitudes and practices toward TCC.^[17,18,22-25,29,31-33] In the present study, smoking status, working setting, and time of graduation were found to significantly influence dentists' attitudes and practices of TCC. One important finding in the present study is the significant association between smoking status and attitudes and practices of TCC. As expected, non-smokers showed significantly better attitudes than smokers. This finding is consistent with many previous studies that reported a negative impact of smoking status on dentists' willingness and attitudes toward tobacco cessation.^[17,23,24,29] Indeed, tobacco use clearly jeopardizes TCC and hence dental practitioners should be discouraged from this habit in order to serve as good role models in their communities. Additionally, dentists working in private settings were less motivated and showed poorer attitudes toward TCC than those working in public sectors. Such results can be attributed in part to

time constraints as dentists in private settings are usually overwhelmed with a large number of patients, making them more stressed, and subsequently, they become more concerned about providing traditional dental treatments rather than providing TCC. Another important finding is that older graduates (graduated >5 years ago) had better attitudes than recent graduates, a finding that can be explained by the experience and professional maturation of the older dentists. Older dentists usually have acquired enough experience that makes them more efficient in time management and providing counseling. Additionally, older dentists have more exposure to dental diseases induced by tobacco and hence they are more aware of the deleterious effects of tobacco and thus more enthusiastic for tobacco counseling. This finding is in line with studies by Alajmi *et al.*^[23] and Li *et al.*^[32] However, our results disagree with other studies which reported that recent graduates had better practices and attitudes toward TCC.^[17,24,33]

Consistent with previous studies,^[17,21,23,24,26,31,32] the present study showed that lack of time, lack of training, and lack of confidence were the most common obstacles for TCC. This again emphasizes the urgent need for continuous education and hands-on workshops to enhance dentists' knowledge, attitudes, and competencies in providing TCC.

Training dental students on TCC is essential to equip future dentists with the necessary knowledge and skills regarding TCC.^[27,34] Undergraduate dental program in Saudi Arabia is a six-year program and one-year clinical internship; yet to the best of our knowledge, the curricula do not include any lectures or specific training on TCC. Evidence suggests that education about TCC should be early (including didactic knowledge and clinical competencies) and continuous,^[35] and hence it is vital that tobacco education should be considered in undergraduate dental curricula.^[36] Most of the respondents agree that tobacco cessation should be part of dental curricula, which is in agreement with previous studies.^[24,29,30]

The present study—the largest study nationwide—has provided important insights into the attitudes and practices of TCC among dental practitioners and interns in Saudi Arabia. Nevertheless, the present study, like other questionnaire-based surveys, has some potential limitations that should be considered. First, this is a self-reported-based study and thus the respondents' answers do not necessarily reflect their real practices and perceptions. Second, despite the relatively large sample size, the generalizability of the results cannot be guaranteed. Also, due to the anonymous nature of this survey, the characteristics of the non-respondents are

not known; this again undermines the generalizability of the results. Additionally, no information was obtained regarding other factors that might have influenced the respondents' attitudes such as attending continuous education activities about TCC or other relevant conferences or training workshops.

In conclusion, the present survey revealed positive attitudes and fair practices toward TCC. However, potential barriers such as lack of training, time constraints, and lack of financial incentives seem to be obvious obstacles that affect dentists' practices of TCC. Thus, we strongly recommend conducting continuous educational and training programs so as to help improve dentists' knowledge, attitudes, and willingness in providing TCC. Furthermore, incorporation of tobacco counseling interventions in undergraduate and postgraduate curricula should be taken into consideration.

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Conflicts of interest

There are no conflicts of interest.

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