Dentists' familiarity with tobacco cessation programs in dental settings in Iran

Arezoo Ebn Ahmady, PhD[1]; Mohammad H. Khoshnevisan, DMD, DPHDent, DrPH[1]; Nastaran Heidari, DDS[1]; Harry Alan Lando, PhD[2]

1 Community Oral Health Department, School of Dentistry, Shahid Beheshti Medical University, Tehran, Iran
2 Division of Epidemiology and Community Health, University of Minnesota, Minneapolis, MN

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Correspondence
Professor Harry Alan Lando, Division of Epidemiology and Community Health, University of Minnesota, 1300 South Second Street, Suite 300, Minneapolis, MN 55454-1015. Tel.: 612-624-1877; Fax: 612-624-0315; e-mail: lando001@umn.edu. Harry Alan Lando is with the Division of Epidemiology and Community Health, University of Minnesota. Arezoo Ebn Ahmady, Mohammad H. Khoshnevisan, and Nastaran Heidari are with the Community Oral Health Department, School of Dentistry, Shahid Beheshti Medical University.

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Abstract

Objectives: The current study assessed Iranian dentists' practice, knowledge, perceived barriers, and attitudes toward helping patients to quit. We hypothesized that Iranian dentists would have limited knowledge and awareness of tobacco cessation methods or of their important role in encouraging patients to quit. We expected the combination of quantitative and qualitative research to yield important insights regarding effective methods of engaging Iranian dentists in tobacco intervention.
Methods: From a list of registered dentists following an initial screening, we randomly selected a total of 1,000 dental practices in 10 randomly selected provinces. Following an initial letter describing the study, we mailed a questionnaire. For the qualitative part of the study, we used a convenience purposeful sampling of 16 dentists.
Results: Despite repeated contacts, only 35 percent of those contacted returned completed surveys. Key findings not only included generally positive attitudes toward tobacco cessation programs, but also identification of major barriers including concerns about patient resistance, lack of supportive organization, and opportunities for training. Dentists were far more likely to ask patients about smoking than to provide actual cessation support. Female dentists were more likely to ask patients. The qualitative interviews shed further light on barriers to intervention.
Conclusions: Interpretation of the findings is limited by the relatively low response rate. However, despite identified barriers to intervention, we are encouraged by dentists' overall knowledge and interest in tobacco cessation services. We plan to use the current findings to inform development of continuing education programs and incorporation of tobacco cessation counseling into dental school curricula in Iran.

Introduction

Tobacco use is the leading preventable cause of death in the world, and by 2030, it is expected to be the single biggest cause of death worldwide (1), accounting for about 8 million deaths per year (2). Tobacco use has been identified as a significant problem in Iran. A national study on prevalence of self-reported smoking among Iranian youths in 2004 demonstrated that smoking is becoming a major public health threat among Iranian youths (especially in males) (3). Also, the prevalence of tobacco use and dependency in people aged 12 and over in a rural sample in Iran was very high, especially in men (4). It is important to understand the cultural context of tobacco use in Iran. Smoking rates differ substantially by gender. Thus, whereas overall prevalence of current and daily cigarette smoking among Iranians aged 15-64 years was recently estimated at 12.5 percent (5), the rate among males was 23.4 percent versus only 1.4 percent among females. The mean age of starting to smoke was 20.5 years. Water pipe smoking has been gaining in popularity with current use of 3.5 percent among males and 1.9 percent among females. The

Note. The first three authors collected the quantitative and qualitative data, and the first author wrote the initial draft of the manuscript. The fourth author has extensive experience in tobacco cessation programs and worked with the senior author in revising the manuscript, adding additional context and editing for proper English usage.

fact that only 6.2 percent of males and 0.6 percent of females were former smokers (5), as opposed to more than 50 percent of those who ever smoked having quit in the United States, suggests limited interest in and social support for quitting among the general population. Therefore, involving healthcare providers in planning for effective smoking cessation and prevention programs is recommended in order to increase abstinence rates in the community.

A study among 5,140 Iranian general practitioners in 2006 indicated that less than 30 percent were aware of smoking cessation programs, and approximately 80 percent identified lack of training as a major barrier to intervention (6).

Dental professionals are in a unique position to promote smoking cessation among their patients (7). Dentists are increasingly expected to apply preventive measures in their routine practice (8). According to data published in 2004, Iran had more than 13,000 dentists (9), and based on recent Iranian Medical Council unpublished data, the current number is estimated at around 22,000 in 2010. Approximately 700 new dentist graduate annually in Iran (10).

Oral healthcare professionals engage in regular interaction with their patients. Not only is tobacco a major risk factor for general health, but it also contributes substantially to oral health problems including more than 50 percent of periodontitis as well as numerous other oral conditions. Furthermore, tobacco use is responsible for 75 percent of oral and pharyngeal cancer deaths (11). A study in Iran revealed a positive and significant correlation in two active and ex-smokers between gingival, plaque, and periodontal indices, and the number of packs per year (12).

A Cochrane systematic review has reported that behavioral interventions conducted by oral health professionals, when incorporated as part of an oral exam in a community dental setting, can increase tobacco cessation rates (7). Dental care providers have the opportunity to ask and advise patients about their tobacco use and arrange for brief intervention to be conducted in the dental office as recommended in the 2000 US Department of Health and Human Services clinical practice guidelines and the subsequent 2008 guideline update (13,14), and in the Iranian Tobacco Cessation Guideline (15). We were concerned that dental practitioners in Iran missed this opportunity to intervene with patient's tobacco use.

The current study assessed Iranian dentists' practice, knowledge, perceived barriers, and attitudes toward helping patients to quit smoking. We were especially interested in modifiable barriers and in findings that could lead to improved opportunities for training and for engagement of dental professionals in tobacco cessation.

Methods

Quantitative assessment

We obtained an unpublished list of registered dentists in the Iranian Medical Council of Iran. We then screened the list to confirm availability of address, and telephone and fax numbers of dental offices. From this list, we randomly selected a total of 1,000 dental practices in 10 randomly selected provinces as clusters. We first sent a letter that described the study, requested that dentists complete a study questionnaire, and informed the dentists that a member of the research team would be calling their office within a few days. We included the questionnaire and a self-addressed stamped envelope. The survey was conducted anonymously. Two subsequent reminders were mailed and faxed targeting nonrespondents. Postal survey was not the most feasible way in Iran to reach dentists (16), but we used postal survey, which is a valuable method that has used random sampling.

The contents of the primarily structured questionnaire were designed by the first author based on the US clinical practice guideline on tobacco cessation program (TCP) (17,18), the Iranian book on TCP (19), and preliminary research, and its psychometric properties were evaluated in terms of face and content validity through a panel discussion with seven academic staff in Iran, who had experience in TCPs (including one public health, one medical education, and two dental public health experts; one psychiatrist; and two dentists), until a convergence of opinions was reached. The reliability coefficient (Cronbach alpha) of the questionnaire was assessed through test–retest on a group of 25 dentists. Respondents with three or more missing answers were excluded. The questionnaire included 25 close-ended questions divided into three sections: first, practice profile that assessed dentists' demographic characteristics including age, sex, smoking status, years since graduation, and average hours and types of practice activities per day and week; second, dentists' perceived knowledge of tobacco's effect on oral health and tobacco cessation activities, with a focus on the clinical practice guidelines and recommendations (the 5 A's) (13,15), and their opinions about and interest in participating in a specific training program for tobacco interventions; and, finally, dentists' attitudes and beliefs regarding the effectiveness of TCPs in the dental setting. Frequencies were calculated for all variables. Dentists' activities in the 5 A's smoking cessation were determined, and the following alternatives were offered as answers: always, occasionally, seldom, and never. For the analyses, respondents with always were considered to be actively involved in cessation, and occasionally, seldom, and never were considered to be not actively involved in cessation. In four separate questions, respondents were requested to assess their self-perceived knowledge of tobacco's effect on oral health and familiarity with tobacco

cessation counseling methods (5 A's and 5 R's), their willingness to have TCP training, the scope of dental practice to help smokers to quit, and positive and negative opinions on the effectiveness of TCP by a dentist in the dental setting. Ten statements were rated on a 5-point Likert scale ranging from "most important" to "not important" on strength of perceived barriers against TCP in the dental setting.

Descriptive statistics included means and standard deviations of the respondents' reported practice scores. Chi-square tests were used to evaluate the statistical significance of differences in frequencies between subgroups. Statistical significance was set to P-value < 0.05.

Qualitative assessment

Subsequent to the quantitative data collection, we conducted one-to-one audiotaped in-depth semi-structured interviews in the Community Oral Health Department, School of Dentistry, Shaheed Beheshti University of Medical Sciences in Iran. We employed a qualitative, phenomenological approach to explore and present the experience of 16 dentists through reflective processes. We used this approach for identification of the "essence" of dentists' experiences concerning tobacco cessation and barriers to tobacco cessation in the dental setting. Reliability and validity in qualitative research are discussed in terms of "adequacy of evidence," and credibility or "trustworthiness." Reliability or "adequacy of evidence" is reached when similar relationships between phenomena frequently emerge from the data. Validation or "trustworthiness" of the data is based on constant comparison (20).

Each interview lasted for between 30 minutes and 1 hour, and focused on dentists' own descriptions of barriers for conducting a TCP in the dental setting and on thoughts, feelings, and how and why dentists do or do not participate in tobacco cessation activities. Each interview was analyzed before the next dentist was selected, and was continued when data saturation was provided. Saturation refers to the idea that researchers have obtained enough data to have a complete description of the experience being studied. In order to minimize bias, a person independent of the research team conducted the interview. We standardized questions to the extent possible, but the questions were modified somewhat for each dentist depending upon his or her responses. Subject matter was introduced by the interviewer in an informal and conversational way. The project was approved by the Ethics Committee of the School of Dentistry. We used convenience and purposeful sampling to include dentists with a variety of professional backgrounds and at least 5 years' dental work experiences. We described the study verbally and stressed that participation was voluntary. Before the interview, all participants were informed about full confidentiality and about the right to discontinue participation at any time.

Analysis of data was carried out by line-by-line coding for identifying barriers. The line-by-line coding procedure started with open coding in order to identify descriptions of thoughts and ideas related to the interview questions. Barriers reflecting the substance of the data were identified. Barriers with similar content were grouped together to form more abstract categories. The emerging themes pertaining to barriers were then developed.

Results

A total of 357 dentists returned completed survey questionnaires for a response rate of approximately 35 percent despite two rounds of (monthly) telephone contact, plus fax and mailing reminders (based on the availability of information) to non-responders. Those who provided no information on their gender or age ($n = 17$), those under 24 ($n = 6$) or older than 67 years of age ($n = 8$), and those who were not practicing as a dentist ($n = 3$) were excluded, leaving a total of 323 respondents for the basic data analysis.

Work experience and reported practice

The majority of respondents to the quantitative survey (58 percent) reported more than 10 years of work experience. About 40 percent of the respondents were between 35 and 44 years of age (Table 1).

Average days of practice per week were 4.89 [standard deviation (SD) = 1.09], and average practice hours per day were 6.10 (SD = 2.58). Fifteen percent of the dentists who responded reported current smoking. Although the majority (51.2 percent) of the dentists indicated that they routinely asked their patients about their smoking status, substantially fewer reported active involvement in advising (25.9 percent), assisting (20.1 percent), assessing (4.4 percent), and arranging (2.4 percent) smokers to quit. Female dentists were more

Table 1 Distributions (%) of Responding Iranian Dentists ($n = 323$) by Age, Years in Practice, and Average Days of Practice Per Week, Separately for Men ($n = 167$) and Women ($n = 156$)

	Total	Men	Women	*P*-value*
Age in years				
<35	28.6	24.7	32.9	
35-44	41.6	40.7	42.5	0.112
≥	29.9	34.6	24.7	
Years in practice				
<5	20.5	14.9	26.8	
5-9	21.9	26.6	16.7	0.015
≥10	57.5	58.4	56.5	
Average days per week of practice				
≤4	23	14.5	32.6	0.000
≥5	77	85.5	67.4	

* Statistical evaluation of differences by gender: the chi-square test.

Table 2 Participants' Involvement in Smoking Cessation Activity (%) by Gender

	All	Men	Women	*P*-value*
Asking	51.2	43.7	59.4	0.005
Advising	25.9	22.8	29.4	0.193
Assisting	20.1	18.8	21.6	0.558
Assessing	4.4	4.5	4.3	0.924
Arranging	2.4	3.2	1.4	0.312

* Statistical evaluation of differences by gender: chi-square test.

likely to ask patients about smoking than were male dentists (59.4 percent versus 43.7 percent, $P = 0.005$) (Table 2).

Knowledge, attitudes, and beliefs about barriers to program implementation

Of those who responded, 38.7 percent reported having good knowledge about tobacco oral health effects, but only 19.6 percent stated that they were knowledgeable about the 5 A's and 5 R's. A total of 59.3 percent reported having major involvement in a smoking cessation program, and 81.3 percent fully agreed that there is a need for training in effective smoking cessation counseling methods. The majority of dentists (61.9 percent) had positive attitudes regarding the effectiveness of TCPs in dental settings. Dentists' positive attitudes toward the effectiveness of developing tobacco cessation services were significantly associated with their reported need for training on tobacco clinical practice guidelines ($\chi^2 = 43.8$, d.f. = 8, $P < 0.001$).

Reported need for education on adverse oral effects of tobacco use was associated with dentists' perceived ability to help patients quit using tobacco and also was highly correlated with the percentage of patients dentists asked about tobacco use. Dentists who had a negative opinion about the feasibility of intervention identified a number of barriers. These included patient resistance to advice (42.3 percent), time constraints (30.3 percent), lack of supportive organizations for developing such programs (50.3 percent) and of training facilities such as brochures in dental settings (36.8 percent), limited knowledge about cessation counseling (34.8 percent), lack of interest and preference for providing dental treatments only (33.5 percent), and reported lack of confidence in being able to conduct cessation counseling (30.9 percent). Failure to reimburse for cessation counseling and risk of losing dental patients were not viewed as important barriers (see Figure 1).

Qualitative findings

Several strong themes emerged from the qualitative interviews. Results of the qualitative analyses indicated a number of barriers to communicating with patients regarding tobacco harms and the importance of quitting. The barrier themes were: motivational (anticipating few rewards and mental inertia); educational and experiential (lack of similar training and experience); emotional (reluctance to open communications and counseling); variation in culture and language–accent dialect; interpersonal barriers (difficulties in changing daily routine, laziness, and lack of interest); literacy and words; gestures (misunderstanding gestures); competition (noise, doing and concentrating on treatment); cultural (patient resistance, social differences, issues pertaining to dentist–patient disclosure); and perceptional (viewing what is said from their own mindset). Physical constraints (time and environment), teamwork among dental teams and its leadership, and losing the patients were not identified as a barrier theme to developing TCPs in dental offices.

Those interviewed tended to anticipate few rewards from raising the topic of tobacco. Inertia and reluctance to undertake new activities were common themes. Respondents were concerned about their lack of relevant experience and also expressed reluctance to engage in unstructured discussions. They identified concerns about changing their daily routine and preferred treatment activities. Cultural differences, and patient resistance and literacy issues posed additional challenges. Effective communication, counseling and negotiating skills, nontraditional forms of verbal interaction, and interpersonal styles (including careful and responsive listening) also were seen as challenging. However, teamwork among dental office personnel including receptionists, dentists, and hygienists; guidelines for developing TCPs; program leadership; time; environment; and decision-making styles were not seen as problematic.

Discussion

This study is the first to assess knowledge, attitudes, and practices of dentists in Iran on implementation of cessation programs (5 A's activities) in dental practice. We employed both quantitative and qualitative assessment. Of those asked, "How often do you advise a smoking patient to quit that habit?," 56 percent of respondents reported that they always recommend that their smoking patients quit. However, the findings did not demonstrate dentists' active involvement in evidence-based cessation programs (18). We found that although the majority of dentists reported asking their patients about their smoking status, far fewer engaged in other 5 A's activities, with only 3.8 percent assessing and arranging intervention. Although respondents tended to indicate positive attitudes regarding the effectiveness of TCPs in dental settings, active involvement in smoking cessation programs, and need for training in effective tobacco control methods, substantially fewer reported having good knowledge of tobacco interventions in the dental setting. It is perhaps somewhat surprising that dentists were as positive as

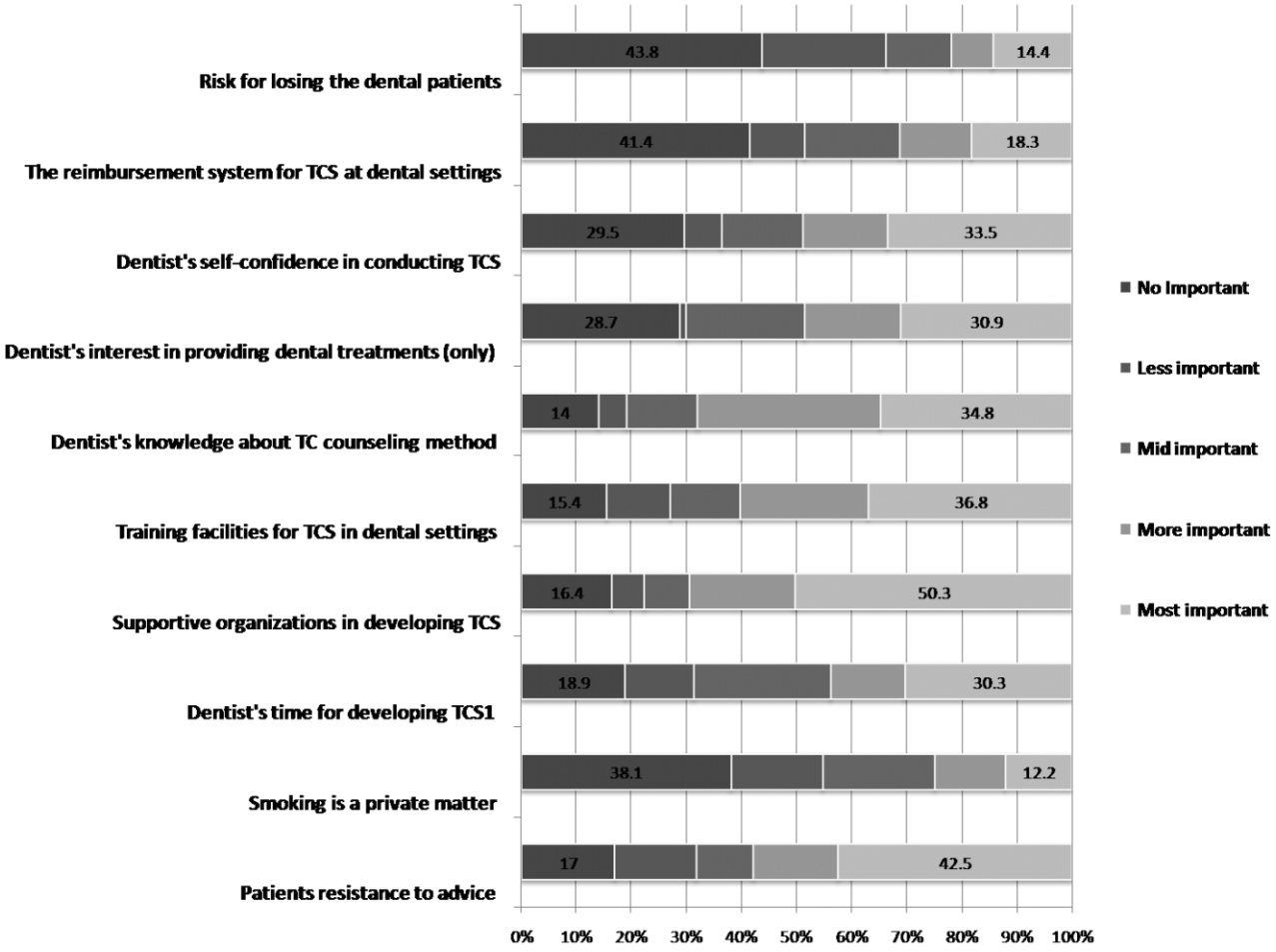

Figure 1 Attitudes toward cessation programs in the dental setting. Percentages of Iranian dentists who had negative attitudes toward effectiveness of tobacco cessation programs in dental settings (selection options ranged from "most important" to "not important" on a 5-point Likert scale) with perceived barriers to developing cessation programs in the dental setting.

they were about the importance of engaging patients in smoking cessation given that there have not been antismoking campaigns in Iran comparable to those in many high-income countries. Unfortunately, dentists were far less likely to assist patients in quitting than they were to offer general advice. These results are consistent, however, with the findings of other surveys conducted in the United States, Britain, Sweden, and New Zealand (19-22).

Those who expressed negative opinions about the feasibility of intervention identified a number of barriers including patient resistance, lack of supportive organizations in developing Tobacco Cessation Services (TCS), lack of training facilities for conducting TCS in dental settings, and dentists' lack of knowledge of effective interventions. Time, reimbursement for cessation counseling, and the risk of losing dental patients were not identified as important barriers. These findings are consistent with a previous study in four states in the United States that reported that time and reimbursement were not the main barriers for developing TCS (23). Further studies are needed including on the impact of reimbursing smoking cessation services in the dental setting. The findings from the quantitative surveys were largely reinforced and expanded through the qualitative interviews. These interviews shed further light on communication issues in addressing tobacco with patients as well as such barriers as lack of similar experience for tobacco cessation counseling, concerns about changing daily routine, and perceived lack of skills and experience in conducting counseling. Teamwork within the dental setting was not seen as a problem, however, and respondents indicated that they could create an appropriate climate for tobacco cessation intervention within their practices.

As expected, Iranian dentists reported that they were not familiar with evidence-based guidelines for TCPs in the dental setting. Also not surprising was the finding that respondents were far less likely to engage in active cessation intervention than to simply ask about current tobacco use. It

is encouraging that dentists agreed with the need for training in effective counseling and that they generally viewed TCPs in the dental setting favorably. However, the large number of barriers identified by those who viewed intervention negatively is of concern. Engaging dental staff in effective training and providing resources could address a number of these barriers including limited knowledge and lack of confidence in ability to intervene, communication issues, and lack of training facilities and supportive organizations.

There are a number of limitations to the current study. We achieved only a 35 percent response rate despite subsequent telephone reminders and mailings to nonrespondents. Although we had hoped for a better response, other surveys of healthcare providers including dentists also have tended to generate low response rates (16,24,25). The current study was limited to dentists in 10 provinces in Iran. It is possible that those who returned the surveys were more interested in and receptive to tobacco cessation intervention than were those who failed to return the surveys. Despite these limitations, the findings point to significant receptivity on the part of dentists to engaging in tobacco cessation counseling and also to a number of barriers that could be addressed through provision of training and resources. It would be helpful to incorporate similar questions in the next national dental survey in Iran in order to generate further information for operational planning at the county level.

Although further work will be important in identifying strategies for overcoming challenges and barriers, the current findings provide important directions. Future studies focused on patient perspectives would add to this base of knowledge and would be helpful in identifying effective intervention strategies.

It may be feasible to implement continuing education courses on tobacco cessation counseling for dentists and the other members of the dental team, especially in the public sector, through the primary health care system. There is support for such an initiative by the Ministry of Health and Medical Education, the World Health Organization (WHO) Collaborative Centre on Tobacco Control, and the WHO Collaborative Center for Research and Training in Dental Public Health of the Shaheed Beheshti University Medical Sciences. Smoking cessation activities should be integrated in all dentists' practice. Training could be disseminated through the more than 22 dentistry schools in the country, and other healthcare personnel could be actively engaged in integrated healthcare services. By placing more emphasis on the behavioral sciences (especially communication and counseling methods), evidence-based preventive dentistry, and dental public health education, social responsibility and cultural competence among dentists could be encouraged. Model curricula could be adapted from those in other countries such as the United States (26). In order to improve the quality of dental education, new educational methods and continuing education courses and curriculum designs should be implemented in Iran's dental schools. The oral health delivery system should encourage preventive behavioral interventions as dentists' daily duty. Barriers to the provision of such practice should be explored and removed, and health authorities should reimburse for preventive measures including tobacco cessation as an important and essential part of dental treatment.

Dentists and dental practices have a critical role to play in advising patients and in encouraging and supporting tobacco cessation. By receiving appropriate training and fully engaging in tobacco cessation counseling, they can contribute significantly to reducing the burden of tobacco-related diseases and death.

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