RESEARCH ARTICLE

Attitude and Practices Among Dentists and Senior Dental Students in Iran Toward Tobacco Cessation as an Effort to Prevent Oral Cancer

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Abstract

Background: Oral health professionals are responsible in Iran for providing a brief tobacco cessation program to smoker patients. The aim of this study was to assess Iranian dental student and dentist practice, knowledge and attitudes toward smoking cessation programs. Materials and Methods: A valid and reliable self-administered questionnaire was designed and distributed to 150 dentists working in Isfahan-Iran and 60 dental students. Some questions were developed based on the expected 5A tobacco cessation protocol. Statements on attitudes focused on professional responsibility towards smoking cessation and its effectiveness. Chi-square, ANOVA, and t test were used for statistical analysis. Results: The cessation program in dental settings covers a small group of patients (18%). Some 69.1% (n=96) of dentists reported asking their patients about tobacco use, 64% (n=83) advising their patients to quit, 33.8% (n=47) assessing their patients willingness to quit and 20% (n=28) reported helping their patients in changing their behavior. A far lower percentage reported active involvement in arranging assistance for smokers to quit (4.3%, n=5). Some 22% of students and 26% of dentists disagreed that the tobacco cessation programs should be as part of dentists' professional responsibility and 70% of them were willing to follow the protocol of tobacco cessation for patients. Conclusions: Iranian dentist performance regarding tobacco cessation is weak. Dentists and students indicated their lack of knowledge as the major reason for non-adherence to the protocol. Therefore, planning to encourage dentist to follow the protocol needs continuous educational programs.

Keywords: Smoking cessation - dental setting - dentists - Iran - attitude - practice - oral cancer

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Introduction

Tobacco use has serious harmful effects on nearly every system in the body and by 2030-accounting for approximately 8 million deaths per year-it is expected to be the single biggest cause of death worldwide (World Health Organization, 2009) and especially in developing countries (Philip et al., 2013). In Iran, there are an estimated 10 million smokers and the death rate for smoking is now estimated at about 60000 people a year (Ministry of Health and Medical Education, 2005; Kelishadi et al., 2006). Prevalence of daily cigarette smoking among Iranians aged 15-64 years is estimated 12.5 percent (23% in males and 1.4 %in females) (Ziaddini et al., 2006).

Carcinoma of oral cavity in developing countries is the sixth commonest cancer in males and the tenth commonest site of cancer in female accounting for approximately 4% of all cases of cancers world-wide (Razavi et al., 2012). The majority of cases are well advanced before diagnosis (Silverman et al., 2010) as a result of a late attendance by patients and also inability of dentists and other physicians in early detection of suspicious lesions (Scully et al., 2009). Therefore, early detection through identifying patients with high-risk behaviors is currently the greatest opportunity to decrease the mortality and morbidity rate associated with oral cancers (Saleh et al., 2014). Smoking and alcohol consumption are the major behavioral risk factors for oro-pharyngeal cancers and numerous other diseases in oral cavity (Sham et al., 2003).

The clinical practice guidelines for treating tobacco use and dependence 2008 update state that the primary care clinicians, including oral health professionals, are responsible for providing a brief tobacco cessation intervention to all using patients (Fiore et al., 2008). Dental professionals are in a unique position to promote smoking cessation among their patients (Carr and Ebbert, 2012) -as more than 50% of smokers see a dentist yearly (Walsh and Ellison, 2005) and preventive treatment services, oral

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screening, and patient education have been considered as a part of the dental practice (Oberoi et al., 2014). Based on recent Iranian Medical Council unpublished data, the current number of dentists is estimated at around 26,000 in Iran (Tahani et al., 2013).

Some of the dental schools around the world have made a substantial effort to increase dental students' knowledge and level of engagement in tobacco cessation promotion (Vanobbergen et al., 2007). Also, motivational interviewing by dentists has been promoted in recent years as an effective method for engaging patients in positive health behaviors and increasing adherence to treatment regimens (Hinz, 2010).

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 (Meysamieet et al., 2010). Also, in other studies in Iran and other countries, dental students reported feeling unprepared to counsel tobacco-using patients to quit because of limitations in knowledge of the practical methods and a lack of confidence in the effectiveness of such measures (Rikard Bell et al., 2003; Hu et al., 2006; Ahmady et al., 2011).

Although this aspect of dentists' responsibility is important, there are limited studies conducted in Iran concerning tobacco cessation knowledge and practice of dentists. Therefore, the aim of the current study is to assess dental students' and dentists' practice, knowledge, perceived barriers, and attitudes toward helping patients to quit smoking in Iran, Isfahan.

Materials and Methods

This study was confirmed by the ethics committee of Isfahan Medical University and was carried out in Isfahan-Iran. Isfahan is the second biggest city in the country, located in a central region. It has two dental schools, about 800 active dentists and two professional centers for managing the patients with different kinds of cancers. Therefore, annually a lot of patients are referred to this city for utilization of dental and other professional health services.

Design of questionnaire

A valid and reliable self-administered questionnaire was designed (Razavi et al., 2013) which was mainly focused on oral cancer examination. Intra-class correlation coefficient for questions about the profile of dentists' practice was 0.94 for mean number of patients visited daily, 0.83 for the mean days of work in a week and 0.59 to 0.76 for the questions about "determining their patients' age compositions." The Guttman split-half coefficient and alpha-Cronbach coefficient were 0.75 and 0.66 for reliability of all questions included in knowledge and attitude sections, respectively.

As part of it, there were some questions and statements to determine the performance and attitude of dentists and senior students toward tobacco cessation in dental settings. The questionnaire consisted of four main sections: demographic characteristics, dentists' practice in oral cancer examinations and following the 5A tobacco cessation protocol (Puschel et al., 2008), dentists and students' opinions about their competencies and skills.

The demographic section mainly included questions about estimation of participant dentists about the number of patients referred to them, dentists' age, gender and years of their practical experience, their setting of practice and their institute of graduation. For dental students, this section included age, gender and their institute of education.

Some of the thirteen multiple-choice questions in knowledge section were about the role of tobacco use as the main risk factor. The other questions were mostly designed to assess the knowledge of dentists and dental students about oral cancer diagnosis and management.

Statements on attitudes were mostly to elicit opinion of dentists and students about proposed professional responsibility of them towards smoking cessation, effectiveness of smoking cessation in the dental setting, their willingness and perceived barriers to provide this service in the dental settings. Participants were asked to indicate their level of agreement with statements based on a 5-point Likert scale (ranging from 1=strongly agree to 5=strongly disagree).

To evaluate the practice scheme of dentists, some questions were developed based on the recommended US clinical practice guidelines 5As for cessation of tobacco use in dental settings. These questions were about number of patients that have been involved by dentists in each of the 5 steps of this protocol during the last week (Asking about tobacco use, Advising them to quit smoking, Assessing for readiness to quit, Assisting with quitting and Arranging for a follow-up appointment for additional tobacco cessation counseling).

Design of the survey

According to sampling formula and considering 54 % for the percentage of dentists with knowledge about the most common region of oral cancer occurrence based on previous studies (Lopez-Jornet et al., 2010; Vijay et al., 2012), it was estimated to need 150 dentists to perform the survey. Dentists were randomly selected using table of randomized numbers. The list of dentists working in Isfahan-Iran was provided by Vice Chancellery of Medical Affairs of Isfahan. The questionnaires were distributed to dentists during their clinic hours and were collected at the end of working day. Informed consent to use the given information was obtained from dentists.

60 questionnaires were also distributed among senior dental students at two dental schools in this city. Students were selected through convenience sampling method and asked to fill out the questionnaires at the beginning of one of their academic sessions. Questions included in the questionnaire were similar to dentists except of the practice section which was excluded, as these students had not independent practical experience yet.

Statistical analysis

For calculating the frequency of answers provided by dentists and students, both descriptive and analytical statistical measurements were generated for all questions

using SPSS (version 13) software. We calculated the mean of patients determined by dentists for each question in practice section and the frequency of Likert scales for each statement in attitude section.

To compare the variables, statistical analysis including Chi-square, ANOVA, and t test were used. Correlation tests were used to determine the relationship between number of patients participated by dentists in each of the 5- steps of protocol with other demographic factors. Statistical significant was set at 0, 05 level for all the tests.

Results

Completed questionnaires were returned from 139 dentists and 57 students. 63% of students were female and 37% male and 65% of them were studying in governmental university (Table 1). Most of the dentists were male and were practicing in private section (72%). 84% of them had more than 5 years of clinical experience. Mean days of practice were 5.1 (95%CI= 4.9-5.3) and mean of visited patients per week was 8.3(95%CI=7.3-9.28).

Knowledge

The mean score of the dentists' knowledge about oral cancer was 5.41(CI95%=5.03-5.79) out of 13. Students had better knowledge scores (mean=7.07, CI95%=6.4-7.3 out of 13) in comparison to dentists (T-test, P-value<0.001). Female students gained higher scores (P-value<0.001) than male students. Based on dentists' duration of experience, significant difference was observed in knowledge scores (ANOVA test, P-value<0.01); dentists with less than 5 years of clinical experience showed higher scores compared with those with 10 to 15 and more than 15 years of experience.

High percentage of dentists correctly identified use of tobacco products (97%) and use of alcohol (78%) as the main risk factors for oral cancer. Regarding the symptoms commonly experienced and expressed by patients with early lesions, 45% of dentists selected "asymptomatic" as the correct choice.

In comparison to dentists, higher percentages of students selected the correct answers regarding tobacco (98.2%) and alcohol (94.7%) as the main risk factors even though the difference was not significant. About 50% of them were familiar with the clinical Figure of cancerous lesions. Similar to dentists, 35% of students selected the age group of patients with the highest probability of infection correctly.

Practice

It was shown that most of the patients seeking for oral health care services were 18 to 39 years (CI95%=44.4 -47.06%) and 60% (83 out of 139) of dentists reported the experience of providing care for 40-64 years of age patients in their recent week of practice.

In following the 5A protocol of tobacco cessation consultation, it was shown that the cessation program in dental settings covers a small group of patients. Approximately 6 patients (18% of patients, CI95%= 14.22-21.83) in a week are asked about their tobacco use by each dentists, 5.2(15.02 of patients, CI95%=11.69-18.35) are advised to quit, 2.7(7.3% of patients, CI95%=4.89-9.79) are assessed about their willingness to quit and a smaller group (3.8% of patients, CI95%=1.97-5.72) are assisted to quit.

Descriptive analysis (Figure1) revealed that 69.1% (n=96) of dentists reported to ask their patients about tobacco use. It was indicated that 64% (n=83) of dentists follow the other steps of the protocol by advising their patients to quit, 33.8% (n=47) assessed their patients readiness and willingness to quit and just about 20% (n=28) of them reported to help their patients in planning for changing their behavior. A far lower percentage reported active involvement in Arranging assistance for smokers to quit (4.3%, n=5). There was no significant difference between male and female dentists except of those who asked their patients (x^2=7.2; p-value=0.005); female dentists had significantly better scheme of practice regarding this step (82.7% *vs*. 60.9%).Spearman coefficients revealed no significant correlation between duration of experience, age groups, and their scheme of practice regarding the 5 steps. Also, Phi and Cramer's V correlation coefficient between dentists' setting of practice (public or private, solo or group) and their scheme of practice was not significant.

Attitude

Attitude of dentists and students regarding effectiveness of early detection and oral cancer education they have received and different aspects of tobacco cessation consultation are shown in Figure2. There was no significant difference between the means of opinions of these two groups regarding each of the statements in this section (t-test). It was revealed that most of the dentists as well as students were agree or strongly agree with the important role of dental team in early diagnosis of oral cancers. They had also positive attitude about the role of dental team in giving their patients tobacco quit consults. About 22% of students and 26% of dentists disagreed or strongly disagreed that tobacco cessation programs should be as part of dentists' professional responsibility. Besides, 72% of students were willing to follow the protocol of tobacco cessation for their future patients as were dentists (76%). A small group of dentists (28%) and students (36%) believed that the tobacco use by patients is a personal decision. About 30% of students and 40%

Table 1. Distribution of Dental Students and Dentists' Demographic Characteristics (Age, Gender, and Institute of Education)

	Gender Percentage (number)		Age Mean (SD)	Institute/university of education Percentage (number)		
	Female	Male		Governmental	Azad	Abroad
Senior dental student	63.2 (36)	36.8 (21)	24 (1.3)	53 (30)	35 (20)	12 (7)
Dentist	37.4 (52)	62.6 (87)	40 (7.9)	79.1 (110)	11.5 (23)	3 (6)

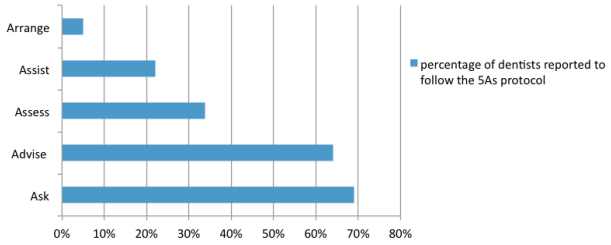

Figure 1. Percentage of Dentists Reported to Follow the 5As Protocol

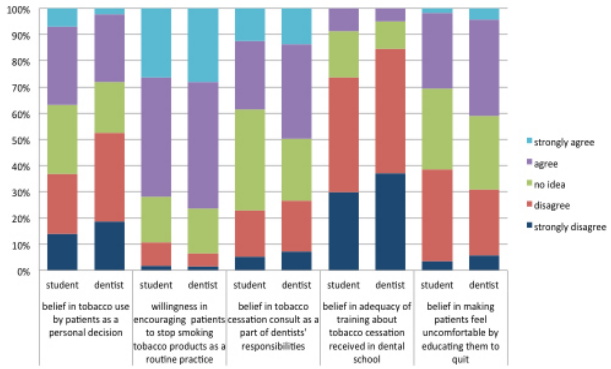

Figure 2. Attitude of Dental Students and Dentists Regarding Tobacco Cessation in Dental Settings

of dentists believed that encouraging patients to quit will make them feel uncomfortable.

75% of students and 84% of dentists disagreed or strongly disagreed with the adequacy of training they received in dental schools during their education at university.

Using chi-square test and combining the scale of "strongly disagree" and "disagree" to one category and "strongly agree" and "agree" to another one, there is neither significant correlation between attitudes of dentists toward tobacco cessation as their professional task and their scheme of practice regarding the 5steps, nor their attitude toward smoking as a personal decision. Also, their opinion about the probability of making patients uncomfortable had no effect on their practice. The only aspect of their opinion which was in correlation with their scheme of practice was the willingness of dentists to encourage patients; those who seemed willing to encourage their patients to quit had better practice regarding Ask (χ^2=14.4 P-value=0.001), Advise (χ^2=31.1 P-value<0.001)), Assess (χ^2=15.1 P-value=0.001) and Assist (χ^2=7.9, P-value=0.019)

Discussion

Despite the oral cavity is readily accessible to examination, the majority of cases are well advanced and have poor prognosis at diagnosis (Epstein and Waal, 2008). This delay in diagnosis is probably a result of a combination of late presentation by patients and missed diagnosis. Effective theoretical and practical education on oral cancer to general dentists and students should cover the areas of recognition of pre-cancerous and cancerous lesions, etiologic factors, and accurate clinical examination of all patients in particular those aged over forty (Borhan et al., 2012).

According to the limited knowledge of dentists and students in our study about oral cancer lesions, and especially as just one half of them were aware about the asymptomatic nature of early lesions, identifying patients with high-risk behaviors takes on particular importance; Tobacco use is a major risk factor for some of the non-communicable diseases (NCD) such as cancer and is responsible for 1 in 6 of all NCD death globally especially in developing countries (World Health Organization 2010). Several studies have emphasized that tobacco cessation advice provided by health professionals including dentists could enhance the quit rate among smoker patients. WHO (Word Health Organization), CDC (Center for Disease Control), and World Medical Association together have given a clarion call for engaging professionals in tobacco control (Venkatesh and Sinha, 2012). They can advise smoker patients about the harms of tobacco use and also offer them tobacco dependence treatments. It is shown that it might take less than three minutes to provide a brief assessment and advice to patients and according to a Cochrane review of 41 trials, even brief advice provided by physicians is effective in promoting tobacco cessation (Stead et al., 2008).

However, as a matter of concern, the detection rate of smoker patients by physicians is usually low and the proportion of smokers who receive advice is small. In a cross-sectional study conducted in Isfahan as a part of Isfahan Healthy Heart Program (IHHP) on 9093 adults, 66.8 and 14 % have received and asked for tobacco cessation support. Of these, just 27.9% received advice from physicians and other health care providers (16.2%) (Toghianfar et al., 2011). This is in agreement with the results of our study which shows that just 18% of the dental patients received advice.

On the other hand, even though the effectiveness of smoking cessation programs provided by physicians is small, considering the large number of physicians who could offer cessation advice, the total effect still could be considerable and significant (Chapman et al., 1993). In a review on the effectiveness of interventions for tobacco cessation delivered by oral health professionals, clear evidence of benefit and minimal heterogeneity (OR 2.38, 95%CI 1.70 to 3.35, 5 studies, I^2=3%) (Carr and Ebbert, 2012) was shown .In another study conducted in Japan (Hanoka et al., 2010), the intensive smoking-cessation program was effective in terms of long-term self-denial rates for smokers Therefore, physicians should be encouraged to routinely follow the suggested protocols for all of their smoker patients.

Surveys of dentists have consistently shown willingness to participate in tobacco cessation campaigns and to undertake relevant trainings. However, widespread acceptance of tobacco use interventions in the dental setting is limited. Dentists in our study reported to Ask and Advise more frequently than they Assist, Assess and Arrange with patients' quit attempts. This is consistent with findings in other clinical settings; 54.9% of oral health practitioners in Manitoba reported to advise smokers to quit. Assisting was the service least frequently provided

by practitioners (Brothwell and Gelskey., 2008).

A survey carried out in 130 Hungarian dentists, demonstrated that there is a high interest (45%)in encouraging patients in giving up smoking among dentists (Antal et al., 2013). Based on a study in India, from the responding dentists' self-reports, 10.6% never asked and 60.9% asked in 50% of their patients about tobacco use (Chandrashekar et al., 2011). In a study in California, Pennsylvania, and West Virginia, from 2004 to 2008, 74% of 271 dentists asked about tobacco use, and 78% advised tobacco users to quit. Only 19% assessed readiness to quit, 39% assisted with quitting, 4% arranged follow-up (Prakash et al., 2013). From 136 of dentists in Nigeria, only 65 percent indicted to always ask their patients about their smoking habits, and only 30 percent have heard about smoking cessation programs. However, 81 percent of the respondents said they are willing to undergo training in tobacco (Uti and Sofola, 2011).

A majority of participants in our study also agreed that dentists should encourage their patients to stop smoking and this is also consistent with other research including findings among Korean (Venkatesh and Sinha, 2012) and Australian dentists (Rikard-Bell and Ward, 2001).

There were some barriers reported by dentists and dental students in our study in giving advice. Some of them feel that these advices may have negative effect on their relationship with patients. There is some evidence indicating that providing advice by physicians might increase the level of satisfaction of smoker patients (Coleman et al., 2000). Other perceived barriers were mostly about the lack of appropriate knowledge. These reported barriers are similar to the other studies, for example dentists in Nigeria (Uti and Sofol, 2011) reported lack of necessary materials (81 percent), and lack of knowledge of smoking cessation (74 percent).

In our study, the samples also consisted of dental students. Students, going to shape the future of their profession, are an inseparable part of initiatives directed towards reducing the ever growing danger of tobacco. It was revealed that most of these students believed that smoking cessation consults should be a part of dentists' responsibility and they showed willingness in participating and just a small group of them were satisfied by the level of education they received in dental school. Another study designed by Ebn ahmady et al on Iranian dental students showed high interest of the students toward tobacco cessation encouraging, although the most important barriers to providing cessation services included perceived patient resistance (Ahmady et al., 2011).

In a study to assess Indian dental graduates' knowledge, attitude and practices towards tobacco cessation, it was revealed that 97% of the respondents reported that they were willing to undertake tobacco cessation activities, while 93% of them indicated that they had not undergone any training in tobacco cessation (Binnal et al., 2012). In a study on dental students at a UK dental hospital patient disinterest in receiving advice was perceived as a strong barrier by over 80% of students and a lack of training to give effective advice was identified as a strong barrier by almost half (Clareboets et al., 2010).

According to the findings of surveys worldwide and the results of our study, it is shown that majority of dentists and dental students think that dental professionals should ask patients about their smoking habits. Also, they agree that talking about smoking should be considered as a part of their professional practice but a low percentage of them reported to intensively involve in assisting and helping their patients with quitting. This finding indicates that, even if dentists accept their responsibility in counseling role, they are not adequately competent to undertake it.

Limitations in tobacco cessation programs in the educational curriculum of dental schools may in turn act as a barrier to incorporating tobacco intervention into clinical practice. Some of studies conducted amongst healthcare professionals indicated that clinicians who received formal training in cessation counseling are more likely to provide tobacco intervention for their patients. Most of the dental schools worldwide are beginning to include tobacco cessation counseling training as part of their curricula which is mostly limited to lectures about health and dental consequences of tobacco use and counseling strategies including pharmaco-therapy. Considering a workshop element including hands-on training in nicotine replacement therapy and other medications might allow students to practice tobacco cessation strategies and increase confidence in providing cessation counseling (Vendrell et al., 2010).

This study was limited to dental students and dentists in Isfahan, the second biggest city in Iran, which might limit the generalizability of the results. However, the demographic characteristics of the respondents, which are comparable to those of the general population of senior dental students and general dentists in Iran, might provide assurance about the applicability of results to other dentists. Also, the practice schemes of dentist were determined by asking them to self-report their practice. In the future studies it is suggested to monitor their real practice through direct observation for example by using simulated patients.

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