

Finnish dentists find smoking cessation important but seldom offer practical support for their patients

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Objectives: To investigate Finnish dentists' smoking cessation related attitudes, consultation practices and familiarity with the local treatment guideline on smoking cessation. **Basic research design:** An online questionnaire was sent to 1740 dentists, which corresponds to 39% of dentists in Finland. A total of 456 dentists responded (response rate 26%), of whom 435 (95%) were clinicians. The dentists' smoking cessation practices were also compared to ones reported in a previous study in Finnish physicians. **Results:** Dentists found smoking cessation important and often discussed and recommended quitting to the patients, but concrete withdrawal actions were seldom provided. The local treatment guideline on smoking cessation was actively utilized by 36% of the dentists. Adherence to the guideline was associated with higher rates of smoking cessation activities and success in them. Smoking cessation activity among dentists was significantly lower than in Finnish physicians. In accordance with the literature, among dentists, the most common barriers for smoking cessation were lack of time (44%) and education (42%). **Conclusion:** Although smoking cessation is discussed with patients, dentists are less active in taking concrete actions to support the patient on withdrawal. Adherence to the local treatment guideline was associated with better capabilities in dealing with tobacco withdrawal and a more active role in smoking cessation. The results suggest that more education on the local smoking cessation treatment guideline and cessation intervention is needed in order to overcome the remaining barriers to promoting effective smoking cessation in dental practice.

Key words: tobacco, smoking, smoking cessation, smoking cessation interventions

Introduction

Smoking and use of tobacco products are among the leading causes of preventable death and disease in the world. Dentists and other healthcare professionals have an important role in the diagnosis of nicotine dependency and its treatment with both non-pharmacological and pharmacological means, and thus, in the treatment of the global tobacco epidemic (Carr *et al.*, 2012; Davis *et al.*, 2014; Fiore *et al.*, 2008; Needleman *et al.*, 2010; Omaña-Cepeda *et al.*, 2016). In addition to cancer, respiratory and cardiovascular system diseases, smoking is a known risk factor for oral diseases, including oral cancer, premalignant oral lesions and periodontitis (Amemori, 2012; Omaña-Cepeda *et al.*, 2016). Oral health is also suggested to be widely related to the individual's systemic health (Carr *et al.*, 2012; Dumitrescu, 2016; Tavares *et al.*, 2014).

Current evidence shows that smoking cessation interventions carried out by dental health care professionals are effective (Davis *et al.*, 2014; Fiore *et al.*, 2008; Ramseier & Suvan, 2015; Talla *et al.*, 2016). Optimal smoking cessation programs are comprised of effective use of pharmacotherapy and non-pharmacological support, and are often based on multidisciplinary cooperation of health care professionals, for example, recurring interventions

and regular follow-ups (Carr *et al.*, 2012; Current Care Guidelines, 2012; Fiore *et al.*, 2008). However, even a short question about smoking status and advice to quit by a physician or a dentist has some effect (Carr & Ebbert, 2012; Fiore *et al.*, 2008). In addition, a physician's or dentist's short intervention comprising "asking and acting" (diagnosis, treatment, referral and/or arrangement of smoking cessation support) are easily conducted in daily practice and cessation (McIvor *et al.*, 2009). The probability of successful withdrawal increases with the instances and/or total time of support (Fiore *et al.*, 2008). Most smokers visit a dentist regularly, and dental health care visits provide a particularly good opportunity for interventions, due to the typically long-term nature of a dentist-patient relationship.

There are a limited number of guidelines and reviews on smoking cessation delivered by dentists or general guidelines also concerning oral health care (Carr *et al.*, 2012; Davis *et al.*, 2014; Fiore *et al.*, 2008; NICE, 2013; Omaña-Cepeda *et al.*, 2016; RACGP, 2014). For example, *The Finnish Current Care Guideline on Smoking Cessation and Treating Tobacco Dependence* is an evidence-based clinical practice guideline intended for all health care professionals (Current Care Guidelines, 2012). The guideline recognizes tobacco dependence as a chronic disease and provides evidence and practical guidance that tobacco cessation counselling,

even in terms of brief interventions, can be effective. For example, adopting the 5A's model (Ask, Assess, Archive, Advise, and Arrange) is described. Importantly, it determines that physicians and dentists should have a similar role in delivery of smoking cessation, taking smoking cessation into account in oral and other health care organizations.

Previously, a cross-sectional study examined the effect of a tobacco intervention program on dental health care in Finnish adolescents, leading to a 19% withdrawal rate (Heikkinen *et al.*, 2009). Educational and fee-for-service interventions were also assessed among Finnish oral health professionals (Amemori *et al.*, 2013), and further results on smoking cessation activities provided by Finnish physicians have been reported (Keto *et al.*, 2015a). The aim of this study was to determine Finnish dentists' smoking cessation related attitudes and consultation practices, and familiarity with the local treatment guideline on smoking cessation. In addition, the results were compared to a similar study of Finnish physicians by Keto *et al.* (2015a).

Methods

Participants and electronic data collection

An invitation to an online questionnaire on smoking cessation was sent to a random sample of 1740 Finnish dentists whose e-mail addresses were available in the membership register of the Finnish Dental Association in January 2016. The register includes approximately 95% of all Finnish dentists (n≈4500), approximately 90% of whom had provided an e-mail address.

Altogether 600 dentists entered the survey, of which 456 (76.0%) completed it. Thus, the response rate was 26.2% (n=456) among those who were invited to participate. Altogether 95.4% (n=435) of respondents had patient contact at work, i.e. were clinicians. The respondents who did only administrative, research, or other non-clinical work were included only in analyses of opinions. Most participants worked in primary health care (88.2%; n=402), and 4.4% in secondary health care (n=20). The data were collected using the Webropol online survey tool (www.webropol.com).

Questionnaire

The study questionnaire included questions about the respondents' demographic background, smoking and moist snuff status, attitudes towards smoking and smoking cessation, experience with smoking cessation practices in the clinic, restrictions for smoking cessation, and familiarity with the local treatment guideline on smoking cessation. In some of the questions, the respondents could include additional information in open fields. However, qualitative analysis of open field answers was not conducted.

The questions on consultation activities were derived from the study by Pipe *et al.* to allow international comparison as well as comparison with the Finnish physician study (Keto *et al.*, 2015a; Pipe *et al.*, 2009). The activities were also aligned with the local treatment guideline for smoking cessation, which is targeted to all healthcare professionals in Finland (Current Care Guidelines, 2012).

Statistical analysis

Differences between groups was tested by the chi-square test or Fisher's test when the assumptions of chi-square test were not fulfilled. A log-linear model was used to adjust potential confounding factors such as age and gender when comparing physicians and dentists on smoking cessation practice. *P*-values of <0.05 were considered statistically significant. Statistical analyses were conducted using the open source software package R 3.1.3.

Results

Smoking habits and attitudes towards smoking and smoking cessation

An overview of the study participants (n=456) is presented in Table 1. A total of 5.9% (n=27) were current smokers, and 10.3% (n=47) former smokers. A marginal group of dentists used moist snuff (3.3%; n=15) or e-cigarettes (0.2%; n=1) either daily or occasionally. Almost all participants found smoking to be among the most significant public health concerns in Finland (98% agreed), and 99% agreed that it affects oral health (Figure 1). Nicotine or tobacco addiction was identified as a disease by 71% of dentists. Opinion on e-cigarettes' effect on health was predominantly negative (77%), or the respondents did not have an opinion on it (17%). A total of 61% of respondents felt that they have sufficient skills to provide help with smoking cessation, but only 30% of responders thought that smoking cessation is implemented well in dental health care.

Familiarity with the local treatment guideline

Over one third (36%) of responders utilized the local treatment guideline on smoking cessation fully or partially ("adherent"), whereas 64% did not utilize it or were not familiar with it ("non-adherent"). Adherence to the guideline was used as an outcome variable in further analyses. Adherence was unrelated to demographic characteristics but the consumption of moist snuff was significantly greater among "non-adherent" dentists (data not shown).

Table 1. Characteristics of the study participants (N=456).

<i>Description</i>	<i>n (%)</i>
<i>Place of work</i>	
Primary health care	402 (88.2)
Secondary health care	20 (4.4)
Other	34 (7.4)
<i>Patient contact at work</i>	
Yes	435 (95.4)
No	21 (4.6)
<i>Gender</i>	
Male	103 (22.6)
Female	353 (77.4)
<i>Smoking status</i>	
Current smoker	27 (5.9)
Former smoker	47 (10.3)
Non-smoker	382 (83.8)

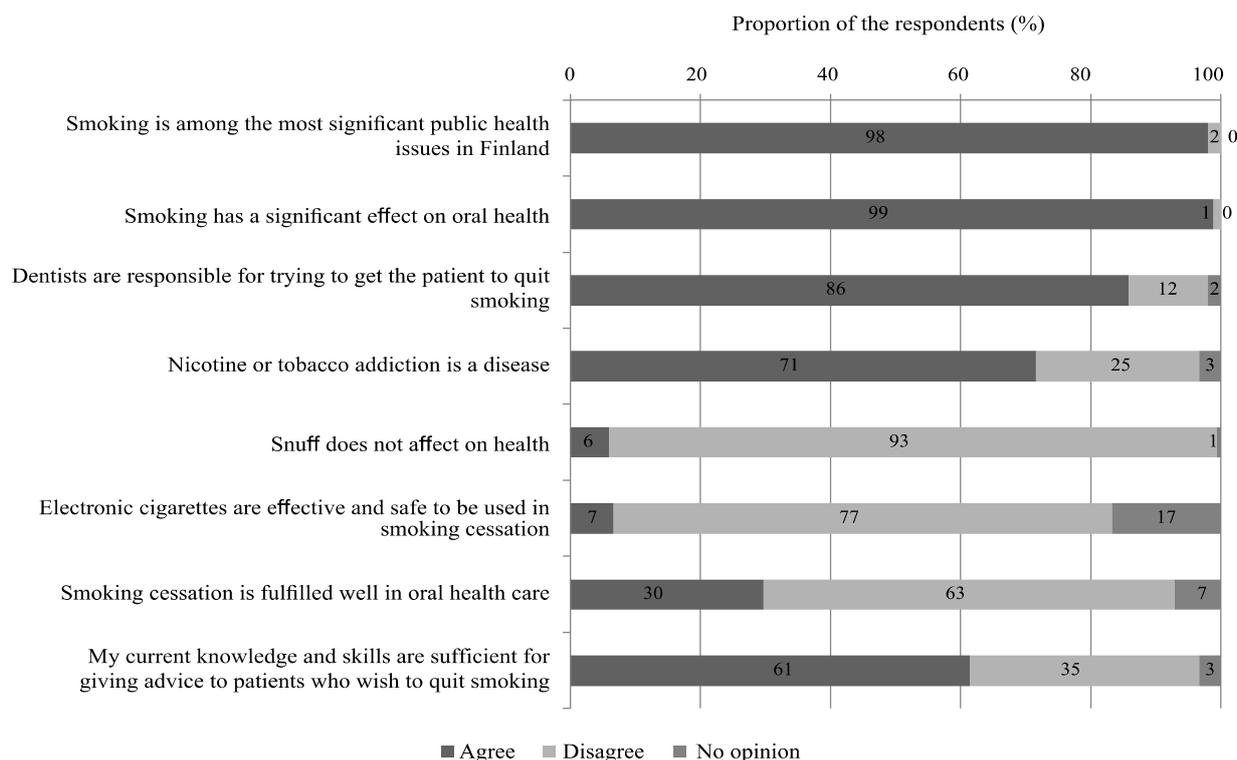


Figure 1. Smoking and smoking cessation related attitudes of Finnish dentists (N=435). The proportion of dentists who completely or partially agree (“Agree”), completely or partially disagree (“Disagree”), or who do not have an opinion (“No opinion”) on the claim. Only clinicians were included.

Adherence to local treatment guideline and the cessation support given

We surveyed how often (nearly always, often, sometimes, or never) dentists conducted specific smoking cessation related treatment activities (classified as practical actions and conversation actions) during consultations, and compared this with their familiarity with the local treatment guideline (Figure 2). In general, conversation activities were conducted more often than practical withdrawal activities. The most common activities were recommending reducing the amount of smoking (82%) and marking smoking status in patient records (80%). All of the smoking cessation activities were more often conducted by the “adherent” dentists (Figure 2).

Dentists’ experiences with smoking cessation

We further asked how well the participants felt they had succeeded in smoking cessation. In total, 24% reported that they had succeeded. Adherence was significantly associated with greater success (37% of adherent vs. 17% of non-adherent dentists, respectively). More than 5% of responders in the non-adherent subgroup answered that they do not intend to try to help their patients with smoking cessation. Based on the open answers, the dentists who had achieved success in smoking cessation felt that it was very rewarding. They also thought that dentists are an important authority figure and have a great opportunity to deliver smoking cessation support on a daily basis.

Comparison between physicians and dentists, smoking cessation practices, and restrictions for both professionals

To compare the smoking cessation activity of physicians and dentists, we included the data from a similar survey with parallel questions conducted in 2012, which involved 1,066 Finnish physicians (Keto *et al.*, 2015a)(Table 2). Dentists were less active in almost all of the activities. For example, only 31% of dentists provided patients with information on smoking cessation methods, compared to 66% of physicians. Also, 34% of physicians prescribed withdrawal medication nearly always or often, while only 2% of dentists did so. Nicotine replacement therapy was recommended by 46% of physicians, but only by 26% of dentists. These differences remained significant after adjustment for participants’ age and gender (data not shown).

When asked about restrictions affecting smoking cessation practices, dentists identified lack of time (44%), and insufficient education (42%) as the most important reasons. However, 23% felt that they did not have any restrictions. Among Finnish general physicians, the most common restrictions were lack of time (64%) and insufficient treatment path (26%), whereas lack of resources was not identified as a major restriction (11%) (Keto *et al.*, 2015b).

CONVERSATION ACTIONS

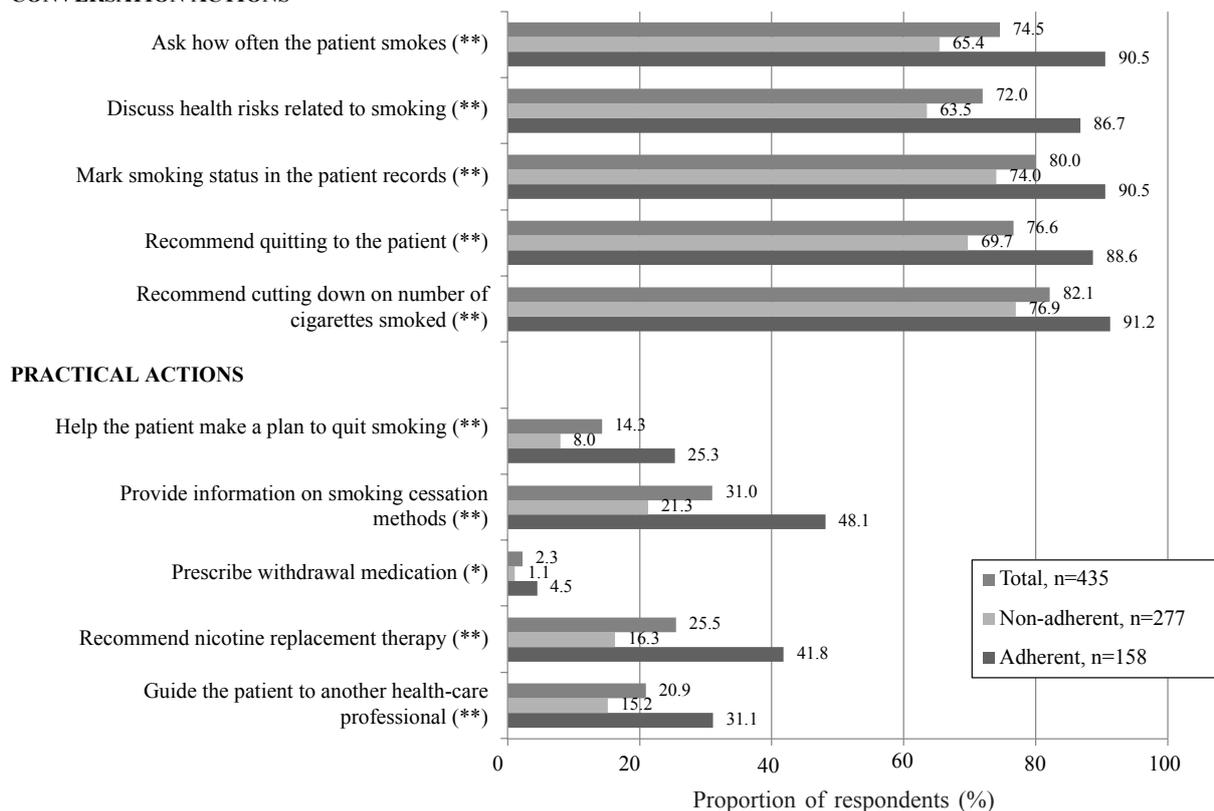


Figure 2. Smoking cessation activities offered by Finnish dentists (N=435). The proportion of dentists offering consultation for smoking cessation “nearly always or often” in total sample and in two sub-groups depending on dentist’s adherence to the local treatment guideline: “adherent” (n=158) or “non-adherent” (n=277). The difference between these sub-groups was statistically significant in all the actions taken (*P <0.05, **P <0.001, chi-square test). Only clinicians were included.

Discussion

Based on the findings of the present study, it seems that Finnish dentists discuss smoking and even quitting with their patients actively, but are less active in taking concrete actions to support the patient with smoking cessation and treat nicotine dependence. For example, almost 60% of Finnish smokers have reported willingness to quit smoking but less than 9% of them received advice to quit from their dentist during one year (Helldán & Helakorpi, 2014). A comparative UK study reported that half of current smokers had received advice to quit from any healthcare professional, but only one of ten received it from a dentist (Danesh *et al.* 2014). Nearly two-thirds (64%) of working-aged Finnish people visit a dentist at least once annually (Helldán & Helakorpi, 2014), which indicates an opportunity for more active smoking cessation.

The lack of concrete smoking cessation actions was also observed in the comparative analysis with Finnish physicians. The differences between these professions in providing smoking cessation were significant, calling for improvement, especially in the dental health care setting. Notably, recent studies have reported that smokers use dental health care more frequently than non-smokers (Keto *et al.*, 2017; Tanner *et al.*, 2015). Thus, dental professionals could provide an ideal setting for smoking cessation consultations. This is supported by a wide variety of studies, including a systematic review of 14 studies with over 10,500 participants,

which shows that tobacco interventions offered by dental professionals increased the abstinence rates both among tobacco and smokeless tobacco users (Carr & Ebbert, 2012).

Furthermore, our study revealed that the dentists who adhered to the treatment guideline on smoking cessation had higher scores both in the conversation (“ask”) and practical smoking cessation actions (“action”) categories. As was reported by Yusuf *et al.* (2016), dentists’ attitudes towards prevention, including smoking cessation predict their behaviours. It should be noted that nearly 80% of the dentists asked about the smoking status of their patients during their first visit, but only half raised the issue again during later visits. The lack of practical actions may be a reflection of a general lesser interest in smoking cessation, or perceived inability, to alter patients’ smoking behaviour or identify the smoking cessation role in his/her own dentist role. Importantly, we found lack of time and education to be the major restrictions reported by the dentists themselves. This finding is in line with the literature; earlier studies also identified lack of training, time, and peer support to be the key factors limiting smoking cessation interventions in dental office (Amemori, 2012; Lala *et al.*, 2017; Omaña-Cepeda *et al.*, 2016; Talla *et al.*, 2016). Barriers that restrict smoking cessation are also addressed in an update of the Cochrane systematic review on smoking cessation in a dental setting; they are recognized as an important action to increase effectiveness of smoking cessation (Needleman *et al.*, 2010). To be noted, however,

Table 2. Comparison of smoking cessation activities offered “nearly always or often” by Finnish dentists (N=435) and physicians (N=1066).

Variables	Dentists N=435		Physicians N=1066		P-value
	n	%	n	%	
<i>Ask how often the patient smokes</i>					
Never	12	2.8	16	1.5	<0.001
Sometimes	99	22.8	110	10.3	
Nearly always or often	324	74.5	940	88.2	
<i>Discuss health risks related to smoking</i>					
Never	3	0.7	9	0.8	<0.001
Sometimes	119	27.4	164	15.4	
Nearly always or often	313	72.0	893	83.8	
<i>Mark smoking status in the patient records</i>					
Never	15	3.4	33	3.1	0.042
Sometimes	72	16.6	126	11.8	
Nearly always or often	348	80.0	907	85.1	
<i>Recommend quitting to the patient</i>					
Never	5	1.1	18	1.7	<0.001
Sometimes	97	22.3	131	12.3	
Nearly always or often	333	76.6	917	86.0	
<i>Recommend cutting down on number of cigarettes smoked</i>					
Never	12	2.8	67	6.3	<0.001
Sometimes	66	15.2	272	25.5	
Nearly always or often	357	82.1	727	68.2	
<i>Help the patient make a plan to quit smoking</i>					
Never	181	41.6	107	10.0	<0.001
Sometimes	192	44.1	461	43.2	
Nearly always or often	62	14.3	498	46.7	
<i>Provide information on smoking cessation methods</i>					
Never	95	21.8	47	4.4	<0.001
Sometimes	205	47.1	309	29.0	
Nearly always or often	135	31.0	710	66.6	
<i>Prescribe withdrawal medication</i>					
Never	330	75.9	159	14.9	<0.001
Sometimes	95	21.8	548	51.4	
Nearly always or often	10	2.3	359	33.7	
<i>Recommend nicotine replacement therapy</i>					
Never	119	27.4	91	8.5	<0.001
Sometimes	205	47.1	490	46.0	
Nearly always or often	111	25.5	485	45.5	
<i>Guide the patient to another health-care professional</i>					
Never	136	31.3	212	19.9	<0.001
Sometimes	208	47.8	608	57.0	
Nearly always or often	91	20.9	246	23.1	

Statistically significant ($P < 0.05$) differences between groups were tested with chi-square test.

almost a quarter of respondents in our study reported that they do not have any restrictions affecting smoking cessation practices, which may reflect dentists’ general disinterest in the topic in general.

According to several smoking cessation guidelines, dentists and physicians should routinely ask about their patients’ smoking habits, diagnose possible nicotine dependence, and further advise and assist the smokers to quit (Current Care Guidelines, 2012; Davis *et al.*, 2014; Fiore *et al.*, 2008; NICE, 2013). Patients typically have a positive attitude towards smoking cessation delivered by dentists, while some patients are not even aware of the relationship between

smoking and oral disease (Terrades *et al.*, 2009). A motivated patient should first be introduced to the different cessation methods available (Fiore & Baker, 2011). Next, smoking cessation options should be introduced and a concrete plan should be made together with the patient. The motivation of the patient is important, and the combination of pharmacological treatment and non-pharmacological support can increase the probability of abstinence up to 3–4-fold (Current Care Guidelines, 2012; Fiore *et al.*, 2008). However, in this study only a few dentists prescribed withdrawal medication or nicotine-replacement therapy. This might be due to the lack of knowledge on smoking cessation pharmacotherapy.

First-line pharmacological treatments for smoking cessation that can be prescribed by dentists in Finland comprise of bupropion, nicotine-replacement therapy (NRT, several forms), and varenicline (Current Care Guidelines, 2012; Fiore *et al.*, 2008). Varenicline is a more effective monotherapy treatment than bupropion or NRT (Anthenelli *et al.*, 2016). In addition to pharmacotherapy, support given by health care professionals increases the effectiveness of treatment. Only 3-5% of those quitting without any support succeed (Hughes *et al.*, 2004), while a physician providing even a short session of advice may increase cessation rates by 30% (Fiore *et al.*, 2008). Short counselling of 3-10 minutes increases cessation by 30-60% in comparison with no intervention, and adding longer behavioural support may increase success even more (Fiore *et al.*, 2008).

Electronic surveys hold many advantages compared to traditional methods such as mail surveys, but have generally lower response rates and respondents may spend less time on the survey (Czaja *et al.*, 2005; Shih *et al.*, 2009). To increase the number of responses, we delivered an email invitation followed by two online reminders. The response rate of the present study was over 26%, which is higher than that obtained in the similar physician study that had a response rate of 15% (Keto *et al.*, 2015a). The respondents seemed to remain consistent with their answers from question-to-question. For instance, high coherence was noted between questions covering the utilization of the local treatment guideline and the concrete actions taken in the clinic. As a limitation of this, as well as with other survey studies, respondents who consider the subject of smoking cessation important are likely to be overrepresented in the study sample, and thus the results might be biased. Indeed, this discrepancy can be noted between 77% of dentists reporting they recommend quitting for their patients, and only 9% of smokers who said they have received advice to quit from their dentist according to another study (Helldán & Helakorpi, 2014). The reality of attitudes and practices regarding smoking cessation among Finnish dentists is probably much more complex.

Conclusion

In summary, our study demonstrated that Finnish dentists actively ask and advise their patients to quit smoking. However, they seldom deliver concrete cessation actions, including making individual plans for smoking cessation, using smoking cessation pharmacotherapy, and arranging support. Most patients are motivated to quit, and smoking cessation treatment delivered by oral and other health-care professionals has been demonstrated to significantly increase the likelihood of cessation. Thus, smoking cessation should be an essential part of routine both among dentists and physicians. As pointed out by Needleman and colleagues (2010), barriers for providing smoking cessation guidance should be examined further. Our study demonstrated that lack of time and education were the major restrictions recognized by the Finnish dentists. The Finnish Dental Association has taken an active role in this matter and has worked for several years to provide better knowledge on tobacco dependence and smoking cessation for dental health care professionals. In order to change

dentists' attitudes and practices in offering support for smoking cessation, more education on smoking cessation tool and dentists' opportunities in smoking cessation will be needed to meet the reported restriction challenges.

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