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Preventing tobacco use in Norwegian dental practice

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Abstract – *Objectives:* To determine dentists' and dental hygienists' intervention activity towards patients who smoke or use snus (oral moist snuff), and to establish which factors impede interventions and cause variations in approach. *Methods:* A questionnaire was mailed to a sample of 1500 dentists (response rate: 68%) and all dental hygienists in the country (522 in all; response rate: 61%). *Results:* Dental hygienists conversed with patients on smoking habits on average 18 min/week, while the dentists spent 13 min doing the same. The issue of snus-use was discussed, on average, for 3 min. In eight of 10 consultations with patients suffering from tobacco-induced disorders in the oral cavity, the dentists/dental hygienists raised the subject of smoking habits with the patient. In cases without visible tobacco-induced symptoms, inquiries were made concerning smoking habits in three of 10 dentist consultations and four of 10 consultations with dental hygienists. For first-time consultations, six of 10 were queried concerning their smoking habits by their dentist, while dental hygienists enquired in seven of 10 cases. Self-reported skills, perceived barriers and attitudes explained far more of the variance in intervention impact than background variables. There were moderate differences between dentists and dental hygienists. *Conclusions:* There is room for improvement in smoking and snus-use prevention efforts in the dental sector. If staff is to be rid of their misconceptions regarding the efficacy of intervention, it is important to inform them about the encouraging results at the population level.

Key words: tobacco; smoking; smokeless tobacco; snus; intervention; dentists; dental hygienists; attitudes

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Background

Smoking represents the largest preventable cause of poor health and premature death in Norway. A total of 31% of Norwegians smoke daily and another 10% smoke occasionally (1). The current overrepresentation among smokers in the low-education and low-income brackets will increase the health inequality gap. Studies have shown that information channelled through the mass media tends to influence higher social strata, while persons in the lower-education bracket appear to decode and respond best to verbal information (2). The dental clinic is therefore an important site for counselling that could help offset the increasing class-based disparities in health status. Dental staff who offer minimal interventions in their practices, i.e. who enquire about the patient's smoking habits and if (s)he would like help to stop, may probably be able to raise their patients' cessation rate by 4–8%. If a smoking cessation programme is put in place at the clinic, cessation rates could rise to 10–15% (3, 4). Smokeless tobacco is also modifiable by intervention, and studies have shown increased motivation for cessation after clinical examination by dentists or dental hygienists (5, 6). Smokeless tobacco cessation rates from 10–18% are reported in intervention studies conducted in dental clinics (6, 7).

Severe damage to oral health is reported as a consequence of smoking (8). Smokeless tobacco (US snuff) has been associated with oral cancer (9), and this has led to an EU ban on the sale of snus (oral moist snuff) in 1992 (10). The composition of

the Swedish snus differs from that of the US moist snuff, including lower content of tobacco-specific nitrosamines (11). Data on the association between Swedish snus and oral cancer is less robust (12, 13). Sweden negotiated an exemption from this ban when they entered the EU in 1995 (14). Sweden has high snus consumption, and low smoking prevalence, and it has been anticipated that having snus available is of benefit to public health in Sweden (15). Sweden was the only country in Europe to reach the WHO's goal of the <20% adults smoking rate by year 2000. Among other motives for the exemption was the fear of the development of an illegal snus market. Norway is not a member of the EU, and the Swedish snus covers at least 90% of the Norwegian market. While the consumption of cigarettes has continued to decline over the past decade in these countries, the consumption of snus has been on the rise, especially among young, urban males. The prevalence of Norwegian males aged 16–34 years using snus daily or occasionally was 20% in 2002 (1). There is an ongoing debate in Scandinavia on the role of snus, as part of a harm-reduction strategy (15, 16). Both smoking and the use of snus involve nicotine addiction, and the level of addiction is assumed to be three times higher for snus than for smoking (17).

The purpose of this study was to determine dentists' and dental hygienists' intervention activity towards patients on the subject of smoking and the use of snus, and to explore the factors underlying this behaviour.

Data and method

An anonymous questionnaire was mailed to a random sample of 1500 currently professionally active members of the Norwegian Dental Association (total 3883) and all members of the Norwegian Association of Dental Hygienists (522) in February 2002. The questionnaire was sent to the dentists by surface mail from their professional organization, and to the dental hygienists accompanying their association's newsletter. Dental staff whose adult patients made up <10% of their total patient list were not included in the analyses. This applied to 11% of the dentists and 23% of the dental hygienists. The dental staff was asked to estimate the proportion of smoking and snus-using patients among all adult patients. Their estimates were similar (Table 1). Questions used to assess dentists and dental hygienists smoking habits were 'Do you smoke on a daily basis?' The answers alternatives were; 'no not at all', 'yes daily', 'yes every week but not daily', and 'yes but less than once a week'. The two last options were categorized as 'sometimes'. The wording of the question regarding the use of snus was 'Have you ever used snus continuously for more than one year (daily or sometimes)?' Answer options was 'yes/no'.

Table 1. Sample characteristics

	Dentists	Dental hygienists
Response rate – (%; *n*/*N*)	68 (982/1444)	61 (319/522)
Gender (%; *n*/*N*)		
Female	36 (355/982)	95 (302/319)
Male	64 (624/982)	5 (16/319)
Mean number of years working (SD)		
Female	17 (11)	13 (9)
Male	24 (12)	
Private/public practice (%; *n*/*N*)[a]		
Minimum 80% in private practice	60 (586/981)	21 (65/317)
Less than 80% in private and public practice	15 (150/981)	33 (104/317)
Minimum 80% in public practice	25 (245/981)	47 (148/317)
Proportion with patients population containing at least 10% adults (%; *n*/*N*)	89 (862/973)	77 (210/302)
Proportion of adult patients assumed to be smokers/snus-users [mean (SD)]		
Smokers	35 (14)	39 (18)
Snus-users (male)	7 (8)	7 (6)
Own smoking habits		
Never	82 (703/855)	75 (156/207)
Daily	7 (59/855)	10 (21/207)
Occasional	11 (93/855)	15 (30/207)

[a]A 100% occupation is minimum 37.5 working hours a week.

Dependent variables

The questions which aimed at establishing intervention levels (Table 2) had been used previously in similar studies of health care personnel in Norway (18); of Nordic GPs (19); and of dentists in the wider Stockholm area (20). Respondents were asked about intervention activity towards cigarettes and snus-users, separately. Respondents were asked to answer the following questions by indicating the proportion of consultations in which the activity took place: (i) When you treat adult patients who do not have tobacco-related damage/symptoms in the oral cavity, how often do you ask them about their smoking/snus habits? (ii) When you treat adult patients who have tobacco-related damage/symptoms in the oral cavity, how often do you ask them about their smoking/snus-using habits? (iii) If you know that a patient of yours smokes/uses snus, how often do you provide information on the positive health-related effects of giving up? (iv) When you treat new patients for the first time, how often do you enquire into their smoking/snus-using habits? and (v) When you learn that a patient uses tobacco, how often do you record that information in the patient's journal? The response category was never, or in approxi-

Table 2. Average proportion (in per cent) of consultations (SD) with adult patients where dentists and dental hygienists inquire about smoking habits (A–C), provide information about quitting (D) and enter information into patient journal (E)

	(A) Patients at their first consultation with dentist			(B) Patients presenting with no tobacco-related oral damage			(C) Patients presenting with presumed tobacco-related oral damage			(D) Provide information about the benefits of quitting to patients you know smokes			(E) Smoking data are entered into the patient's journal		
	%	SD	*N*	%	SD	*N*	%	SD	*N*	%	SD	*N*	%	SD	*N*
Dentists	63	42	769	31	37	738	84	27	779	52	35	770	53	43	753
Gender															
Female	72	38	247	41	41	235	87	24	253	57	32	244	64	41	243
Male	59	43	522	26	35	503	83	28	526	49	36	526	48	43	510
Time in profession[a]															
Short	72	39	267	38	39	256	88	23	272	51	33	267	69	40	261
Medium	66	39	262	33	38	246	85	25	264	55	34	259	50	42	257
Long	49	44	236	21	33	232	77	33	239	47	38	240	39	42	231
Private/Public practice[c]															
Private	66	42	526	30	37	511	84	27	532	53	35	527	53	43	508
Private/public	64	42	104	37	39	94	83	31	103	52	38	102	57	45	107
Public	51	40	141	31	37	135	84	27	146	47	34	143	49	41	140
Own smoking habits															
Daily	44	48	50	23	37	48	76	36	49	37	32	50	44	45	48
Sometimes	59	44	77	26	36	77	86	26	81	38	35	82	51	44	79
Never	65	41	639	32	38	610	84	27	645	54	35	634	54	43	622
Dental Hygienists	71	38	200	39	39	197	83	28	198	58	35	198	62	41	197
Time in profession[b]															
Short	75	37	67	39	38	66	85	25	65	58	34	67	65	40	67
Medium	69	40	74	40	40	75	81	30	74	56	36	74	61	42	72
Long	69	38	58	39	39	56	84	29	59	62	35	57	60	41	58
Private/Public practice[c]															
Private	75	39	60	45	42	58	81	32	60	58	34	61	69	41	61
Private/public	76	38	71	37	40	70	84	26	69	56	37	69	63	41	69
Public	61	37	67	36	36	68	84	27	68	61	34	67	54	41	66
Own smoking habits															
Daily	72	37	20	29	37	19	80	32	18	49	34	19	52	41	19
Sometimes	78	35	28	52	42	27	87	25	28	50	37	27	68	42	28
Never	69	39	149	38	39	149	83	28	150	61	35	150	62	41	148

[a]Cutpoint for three equal groups. Dentists: short, 0–16 years; medium, 17–28 years; long, >29 years.
[b]Cutpoint for three equal groups. Dental hygienists: short, 0–7 years; medium, 8–18 years; long, >29 years.
[c]Private, min. 80% in private practice; private/public, <80% in private and public practice; public, min. 80% in public practice.

Table 3. Bivariate and controlled effect of level of smoking intervention[a]. Separate analysis for dentists and dental hygienists (correlation and multiple regression analysis)

	Dentists ($R^2 = 0.41$)		Dental hygienists ($R^2 = 0.42$)	
	Bivariate (r)	beta	Bivariate (r)	beta
Sex	−0.21**	−0.09*	−0.15*	0.01$^{(ns)}$
Time in profession	−0.28**	−0.09*	−0.01$^{(ns)}$	0.04$^{(ns)}$
Own smoking habits	0.12**	−0.02$^{(ns)}$	0.01$^{(ns)}$	−0.10$^{(ns)}$
Self-reported skills	0.53**	0.26***	0.51**	0.34***
Perceived barriers	−0.54**	−0.30***	−0.43**	−0.16*
Anticipated positive outcomes	0.32**	0.00$^{(ns)}$	0.28**	−0.05$^{(ns)}$
Anticipated negative outcomes	−0.24**	−0.00$^{(ns)}$	−0.23**	−0.00$^{(ns)}$
Attitudes to intervention at the clinic	0.49**	0.17***	0.57**	0.39***

[a]Level of intervention is measured on an index consisting of the variables set out in columns (A)–(E) in Table 2, together with the duration of intervention in minutes in the previous week.
Significant at $P =$ ***0.001, **0.01, *0.05; $^{(ns)}$not significant.

Table 4. Bivariate and controlled effect of level of snus intervention[a]. Separate analysis for dentist and dental hygienists (correlation and multiple regression analysis)

	Dentists ($R^2 = 0.26$)		Dental hygienists ($R^2 = 0.27$)	
	Bivariate (r)	beta	Bivariate (r)	beta
Sex	−0.11*	−0.01$^{(ns)}$	−0.21*	0.00$^{(ns)}$
Time in profession	−0.22**	−0.11**	−0.02$^{(ns)}$	0.03$^{(ns)}$
Own smoking habits	0.02$^{(ns)}$	−0.08*	0.02$^{(ns)}$	−0.09$^{(ns)}$
Self-reported skills	0.47**	0.32***	0.37**	0.22*
Perceived barriers	−0.38**	−0.25***	−0.33**	−0.17$^{(ns)}$
Anticipated positive outcomes	0.22**	−0.01$^{(ns)}$	0.31**	0.09$^{(ns)}$
Anticipated negative outcomes	−0.12**	0.04$^{(ns)}$	−0.06	0.20*
Attitudes to intervention at the clinic	0.28**	0.03$^{(ns)}$	0.49**	0.35**

[a]level of intervention is measured on an index consisting of the variables set out in columns (A)–(E) in Table 2, together with the duration of intervention in minutes in the past week.
Significant at the $P =$ ***0.001, **0.01, *0.05; $^{(ns)}$not significant.

mately __% of the consultations. Respondents were further asked to answer the following question: (vi) In the course of the last week, how much time did you spend approximately speaking with your patients about smoking/snus? The response option here was in approximately __ minutes.

The responses to the above questions (i)–(vi) were added into two indices to provide a more reliable measure of 'level of intervention activity', one for 'smoking intervention activity' and one for 'snus intervention activity'. Cronbach's alpha, a measure of internal consistency, was acceptable with an alpha value of 0.75 for the smoking intervention index, and 0.69 for the snus intervention index (21). The intervention indices are employed as dependent variables in the regression analyses in Tables 3 and 4.

Independent variables

To obtain information on perceived intervention skills, perceived barriers to intervention, expected positive outcome of intervention, expected negative outcome of intervention and attitudes to intervention respondents were asked to express how much they agreed with a range of statements on a seven-point Likert scale. The higher the score, the stronger the agreement. All these five cognitive variables were evaluated separately for smoking and snus intervention.

Perceived intervention skills

This was measured by adding the responses of four items into a sum-score index based on the respondents degree to which they perceived themselves able to (i) assess the patient's motivation to stop smoking/using snus; (ii) provide correct information on the benefits to health of stopping smoking/using snus; (iii) provide appropriate follow-through for patients interested in quitting smoking/snus; and (iv) during the next year have an overview of patients who smokes or use snus [Cronbach's alpha 0.58 (smoking) and 0.61 (snus)]. Response categories were 1 = highly disagree, 7 = highly agrees.

Table 5. Average proportion (in per cent) of consultations (SD) with adult patients where dentists and dental hygienists inquire about the use of snus (A–C), provide information about quitting (D) and enter information into patient journal (E)

	(A) Patients at their first consultation with dentist			(B) Patients present with no snus-related damage			(C) Patients presenting with presumed snus-related damage.			(D) Provide information about the benefits of quitting to patients you know use snus			(E) Data on snus-use are entered into the patients journal		
	%	SD	*N*	%	SD	*N*	%	SD	*N*	%	SD	*N*	%	SD	*N*
Dentists	42	45	705	17	32	660	75	38	744	52	40	717	48	45	701
Gender															
Female	51	46	238	20	34	211	78	36	255	61	37	238	59	44	234
Male	38	44	465	16	31	447	74	38	487	48	41	477	43	44	465
Time in profession[a]															
Short	52	45	252	20	33	236	80	34	273	46	37	257	61	44	257
Medium	43	45	254	17	34	228	78	35	256	61	38	248	47	44	246
Long	30	43	193	13	29	190	65	42	209	49	43	206	34	42	193
Private/public practice[c]															
Private	47	46	454	17	33	435	75	37	481	54	40	459	50	45	450
Private/public	39	45	104	21	36	90	73	41	104	52	41	100	53	47	102
Public	30	40	147	13	25	135	77	36	159	48	39	158	42	42	149
Ever used snus more than 1 year continuously															
Yes	42	45	45	19	36	45	78	35	49	38	35	49	55	44	47
No	42	45	655	17	32	611	75	38	691	54	40	664	48	45	649
Dental hygienists	47	44	170	16	31	171	73	38	170	53	39	172	51	44	175
Time in profession[b]															
Short	49	45	60	19	32	60	72	37	60	48	35	63	53	44	61
Medium	51	45	61	16	30	63	76	36	64	56	42	62	51	45	64
Long	39	43	49	14	33	48	70	43	46	55	41	47	47	44	50
Private/public practice[c]															
Private	48	46	53	18	33	52	69	43	53	50	40	57	59	44	54
Private/public	59	46	56	17	32	59	76	37	56	47	41	56	42	43	60
Public	35	39	60	13	26	59	74	36	60	60	36	58	51	43	60
Ever used snus more than 1 year continuously															
Yes	55	46	6	3	4	6	55	43	6	30	45	5	42	49	6
No	47	44	163	17	32	164	74	38	163	54	39	166	51	44	168

[a]Cutpoint for three equal groups. Dentists: short, 0–16 years; medium, 17–28 years; long, >29 years.
[b]Cutpoint for three equal groups. Dental hygienists: short, 0–7 years; medium, 8–18 years; long, >29 years.
[c]Private, min. 80% in private practice; private/public, <80% in private and public practice; public, min. 80% in public practice.

Perceived barriers

This was measured by adding the five items describing different barriers for intervention into a sum-score index. The respondents were asked to state from their own experience the degree to which they agreed with the following statements: (i) Conversations about smoking/snus-use take too much time; (ii) I feel I lack knowledge about smoking/snus effect on oral health; (iii) It's not my job to discuss people's smoking/snus habits; (iv) Smoking/snus is not the main cause of dental problems; (v) It is awkward to ask people about their smoking/snus habits [Cronbach's alpha 0.59 (smoking) and 0.62 (snus)]. Response categories were 1 = highly disagree, 7 = highly agree.

Expected positive outcomes

This was measured by adding the responses to an imaginary intervention at the clinic into a sum-score index, which the respondent believe would: (i) lead to several patients wanting to stop smoking/use snus; (ii) reduce the likelihood of dental problems in smoking/snus-using patients; (iii) raise patients' respect for me; (iv) help me do a better job as a dentist/dental hygienist [Cronbach's alpha 0.61 (smoking) and 0.59 (snus)]. The Expected negative outcomes of intervention [Cronbach's alpha 0.70 (smoking) and 0.70 (snus)] was measured by adding the responses to an imaginary intervention into a sum-score index, which the respondent believed would: (i) annoy patients who

smoke; (ii) have a negative effect on my relations with my smoking/snus-using patients; (iii) lead to patients asking for help I can't provide; and (iv) make patients think I'm moralizing. Response option here was 1 = not likely, 7 = very likely.

The index attitudes to intervention at the clinic [Cronbach's alpha 0.75 (smoking) and 0.74 (snus)] was based on assessments of the clinic as an appropriate place to carry out smoking/snus-use prevention; smoking or snus-using habits should routinely be registered in the patients journal; and an assessment of whether dental professionals should become involved in tobacco prevention effort with patients. Response categories for this indices was 1 = highly disagree, 7 = highly agree.

Data analysis

The mean scores of the measures with standard deviations are given in Table 2 (smoking) and Table 5 (snus-use). Table 6 shows the differences between the mean values of barriers towards the two intervention types using paired samples *t*-test. The results of Tables 3 and 4 are derived from multiple linear regression analyses for smoking intervention (Table 3) and snus-use intervention (Table 4) to identify the effect of the different predictors while controlling for others using standardized regression coefficients (Beta). All statistical analyses are based upon the statistics program SPSS.

Results

The response rate was 68% for the dentists and 61% for the dental hygienists. Sample characteristics are shown in Table 1. We received the filled-in questionnaire from the respective organizations, and only the data of the respondents were entered into the SPSS file. Because of this procedure to ensure anonymity, we did not have access to the members' lists and therefore not able to check the characteristics of the nonrespondents. Norwegian dental hygienists reported spending 18 min, on average, over the previous week with smoking intervention activity ($N = 177$), while dentists said they had spent 13 min ($N = 788$). Less time was spent delivering snus-use intervention activity, 3 min, on average, for both professions (data not shown).

Intervention activity

In eight of 10 consultations involving patients presenting with tobacco-related damage in the oral cavity, the dentists and dental hygienists raised the

Table 6. Average comparison of intervention activity and barriers towards patients who are smoking or using snus. Separate analyses of dentists and dental hygienists

	Dentists						Dental hygienists					
	Smoking		Snus				Smoking		Snus			
	Mean	SD	Mean	SD	*N*	*P*-value[a]	Mean	SD	Mean	SD	*N*	*P*-value[a]
Barriers: (value 1–7)[b]												
Talking about smoking/snus-use takes up too much time	3.21	1.94	3.37	1.77	789	0.000	2.44	1.82	2.73	1.66	195	0.000
I don't feel I know enough about the effect on dental health	2.47	1.50	2.69	1.69	794	0.000	3.34	4.85	3.34	1.88	196	0.988
I don't feel its my job to discuss peoples smoking/snus-use habits	3.54	1.89	3.51	1.88	804	0.385	2.88	1.84	2.94	1.86	197	0.306
I don't agree that smoking/snus-use is a major cause of dental health problems	1.93	1.34	2.59	1.74	804	0.000	1.81	1.47	2.18	1.67	197	0.000
I feel awkward about asking people about their smoking/snus-use habits	2.84	1.84	2.78	1.82	804	0.001	2.95	1.89	2.93	1.86	198	0.692

[a]Average score is compared using paired-sampled *t*-test, two-tailed.
[b]Value: 1, complete disagreement; 7, complete agreement.

issue of smoking habits (Table 2). If no damage was present, in three of 10 consultations with dentists, the patients were asked about their smoking habits, and in four of 10 consultations with dental hygienists. In first-time consultations with new patients, six of 10 were queried about their smoking habits by the dentist, and by dental hygienists in seven of 10 cases. If dentists and dental hygienists were aware that a patient smoked, information was offered on the benefits of quitting in five and six of 10 consultations, respectively. Information on smoking was entered into the patient's journal with the same frequency. Dentists and dental hygienists had conversations about smoking more often than the issue of snus-use. This was especially the case in routine consultations, i.e. examination of new patients, or in situations where patients presented with no tobacco-related oral damage (Table 5).

Barriers towards intervention

Of dentists, 30% agreed with the belief that discussing smoking or snus-use is outside their field of responsibility, and 26% agreed that talking about tobacco is too time consuming (value 5–7 on seven-point Likert scale). These were the two most common barriers among the dentists. For the dental hygienist, 22% believed that discussing tobacco was not a part of their job, and 23% felt awkward asking people about their smoking habits. Both dentists and dental hygienists value snus-use intervention as more time consuming compared with smoking intervention (Table 6). They also considered snus-use to be less harmful to oral health than smoking. Only dentists believed they lack knowledge about the health effects of snus-use to a greater extent than smoking.

Predicting level of intervention activity

Tables 3 and 4 presents the bivariate (r) and controlled effect (beta) on smoking and snus-use intervention activity of the background variables gender; time in profession (year); and own smoking habits, as well as the five cognitive variables described above. There were relatively strong correlations between some of the cognitive variables and level of intervention activity for both professions and both intervention types. There was a strong correlation between self-reported skills, perceived barriers and attitudes and smoking intervention levels among dentists ($r = 0.53$, 0.54 and 0.49, respectively) (Table 3), i.e. the higher the perceived skills, the lower the perceived barriers to intervention and the more positive the attitudes to intervention, the higher the level of intervention. Anticipated positive outcomes and anticipated negative outcomes correlated moderately with intervention level ($r = 0.32$, -0.24, respectively). The background variables correlated also significantly with smoking intervention for dentists, although less strongly than the cognitive variables. Female, dentists with shorter careers and non-smoking dentists reported higher intervention levels.

The factors most likely to influence intervention levels among dentists were self-reported skills (beta = 0.26), perceived barriers (beta = −0.30), and attitudes (beta = 0.17). The model explained 41% of the variance in smoking intervention level ($R^2 = 0.41$). The regression analysis was run in a hierarchical fashion, thus in step 1 the background variables and in step 2 the five cognitive variables were included in the model. For the dentists, the background variables explained 10% in the first step, and the cognitive variables explained a further 31% of the variance in smoking intervention levels.

The pattern was slightly different for dental hygienists. There was no correlation between the background variables and level of intervention activity, but high correlations between the cognitive variables and smoking intervention activity. Perceived intervention skills (beta = 0.34) and attitudes (beta = 0.39) were the factors most likely to influence smoking intervention activity among dental hygienists. The full model explained 42% of the variance ($R^2 = 0.42$) for the dental hygienists.

Table 4 presents the multiple regression analysis for snus-use intervention. The models explained less of the variation in snus intervention when compared with smoking intervention ($R^2 = 0.26$ for dentists and $R^2 = 0.27$ for dental hygienists). The two strongest determinants among dentists were self-reported skills (beta = 0.32) and perceived barriers (beta = −0.25). Self-reported skills were also influential for snus intervention levels among dental hygienists (beta = 0.22), but attitudes was the most important factor for this profession (beta = 0.35).

Discussion

Dental personnel have been considered an underutilized resource in the work of tobacco prevention (22). Studies from the USA show that professional bodies in the dental sector have

developed procedures aimed at tobacco control, but that intervention is the exception more than the rule (23). The findings are supported by studies of smoking patients, in which fewer than one-fourth reported that they had been advised about how to come to grips with their smoking habits (24).

Intervention activity

International studies of intervention activity among dental staff's reveal wide variations between countries and regions. The proportion of dentists report to perform intervention activities on the subject of smoking 'as a rule' or 'always' varies between 11% and 64%, largely dependent on the wording of the question. In a similar study of Finnish dentists, 26% inquire of patients about smoking 'often' or 'always' (25). Consultations about smokeless tobacco at every visit/almost every visit is reported by 44% of the dentists (26). The few extant studies of dental hygienists show that between one quarter and one half perform smoking intervention activities in the clinic.

In Norwegian dental clinics, when patients do *not* present with tobacco-related oral damage they are asked about smoking habits in 31% of dentists' consultations (snus 17%) and 39% of dental hygienists' consultations (snus 16%). The low intervention level may be due to a belief that it is unnecessary to ask returning patients about their tobacco habits at every appointment. When new patients are treated for the first time, they are questioned about their smoking habits by dentists 63% of the time (snus 42%), and by dental hygienists in 71% of the time (snus 47%). None of these figures can be compared directly with results from other countries, but they indicate that the recording of patients' smoking or snus habits is not a regular task among Norwegian dental professionals. Hence we may conclude that there is room for substantial improvement in tobacco cessation counselling in Norwegian dental clinics.

Predicting level of intervention activity

The strongest predictors for intervention activity among dentists were perceived skills and perceived barriers. For the dental hygienist perceived skills and attitudes were the most important predictors. The findings indicate that if smoking intervention levels among dentists are to be raised, it would appear advisable to address three factors. The first is heightening the counselling skills for both professions. For example, how to identify patients who are motivated to make a quit attempt. The second involves correcting their ideas of the existence of smoking cessation counselling barriers. Lack of time is reported to be a barrier. Other studies have shown that dentists find the time to ask patients about their smoking habits and interest in quitting, if they also know of a therapeutic smoking cessation centre the patient could attend (20). However, there are few such centres in Norway as yet, and it would clearly be advisable from a policy point of view to encourage their establishment. One efficient strategy may be a kind of division of different tasks between dentist and dental hygienists, leaving to dentist to discover smoking habits and stages of cessation motivation, while the dental hygienist may advise the patient on the practical course to take. Another study reports that the time taken to provide smoking cessation advice reported by patients is 2 min for dentists on average, and the intervention time increased when dentists have free access to nicotine gum and a chart reminder (27). Another barrier is the belief that consultations about smoking or snus fell outside dentists or dental hygienists field of responsibility. There is a negative correlation between this belief and smoking intervention level for dentists ($r = -0.46$) and dental hygienists ($r = -0.44$). The third issue involves focusing on dental staff's attitudes to clinical intervention, i.e. how they evaluate tobacco intervention. Time in the profession does have a small influence on intervention activity for dentists in that the shorter the time in the profession, the higher the intervention activity. This may justify increased focus on tobacco prevention in continuing dental education, and possibly increased understanding of tobacco prevention as part of their professional role as dentists. Fear of negative patient reaction is also a predictor for snus-use intervention activity for dental hygienists. Fear of rebuttal has been noted in several studies (28), although the experience of dental staff indicates that their fear is unjustified. Of the respondents in the present study with counselling experience, 6% of the dentists ($N = 792$) and 3% of dental hygienists ($N = 195$) reported negative reactions by patients, while 37% and 31%, respectively, reported that the patients' reactions were positive.

Method

One reason for the lower response rate for the dental hygienists (61%) may be related to the distribution of the questionnaire as accompanying the newsletter of their professional organisation,

rather than in a separate envelope as was done for the dentists (response rate 68%). There may have been a selection bias in the way dental staff with an interest in the survey's subject matter may have been more inclined to respond. A limitation of the study is the lack of information on the non respondents. Furthermore, a response rate of 68% may be considered a fairly high response rate. Another limitation of the present study is concerned with the self-reported intervention activity, which may be subject to recall bias and low validity. Based on studies comparing patients' and physicians' reports of cessation advice, we may assume that an underdocumentation of intervention activity is more likely than overreporting (29). In spite of this limitation the results may be accepted as indicative for the intervention activity in Norwegian dental clinics.

Conclusion

Dental staff is a resource waiting to be used in the work of tobacco prevention. There is room for improvement when it comes to intervening with patients because patients are generally not questioned about their smoking or snus-using habits until they present with symptoms of tobacco-related oral damage. Dental hygienists do intervene to a greater extent than dentists, who need to get over some barriers to increase their intervention level. Dental staff should be informed about the encouraging results of tobacco intervention conducted in the dental clinic. The findings indicate that given a policy to encourage dentists and dental hygienists to counsel patients on tobacco, the two professional groups would do well to approach the task slightly differently. An increased amount of snus-users is expected as a consequence of smoking restrictions in public arenas, and dental staff needs to be prepared to help this group.

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