Oral Health Behaviour of Iranian Dental School

Mohammad R. Khami^{a,b}/Jorma I. Virtanen^a/Mohammad Jafarian^b/Heikki Murtomaa^a

Purpose: To investigate oral health behaviour and smoking habits among academic staff members in Iran's dental schools in relation to their personal and academic background characteristics.

Materials and Methods: Out of 15 state dental schools, seven were selected randomly as clusters. All of the educators who were present (total n = 363) were asked to voluntarily fill in a self-administered pre-tested questionnaire. In addition to background and academic characteristics, the questionnaire requested information on smoking habits, oral self-care, and dental check-ups. Recommended oral self-care was defined as brushing at least twice a day and frequent use of fluoridated toothpaste. Chi-square test and binary logistic regression model served for statistical analyses.

Results: A total of 291 educators filled in the questionnaire (response rate = 80%). Women reported higher frequencies of brushing (p = 0.001), use of fluoridated toothpaste (p = 0.002), flossing (p < 0.01) and eating sugary snacks (p = 0.01) compared with men. Habitual cigarette and pipe smoking was reported by 22% and 3% of male educators respectively. Familiarity with the field of oral public health correlated to higher frequencies of brushing (p = 0.05) and flossing (p = 0.03). Smoker educators reported less favourable oral self-care habits than non-smokers. Female gender (p = 0.002, OR = 2.7) and familiarity with the oral public health field (p < 0.01, OR = 2.5) were associated with recommended oral self-care criteria.

Conclusion: Dental educators should have positive attitudes towards and beliefs in effectiveness of preventive dentistry in order to increase public awareness of its importance.

Key words: dental education, dental faculty, oral hygiene, preventive dentistry, smoking

Oral Health Prev Dent 2006; 4: 265-271.

Submitted for publication: 16.12.05; accepted for publication: 01.02.06.

n order to be effective, oral health promotion programmes at the community level need dental staff with proper preventive knowledge and positive attitudes towards prevention (Gift, 1993). Educating prevention-oriented dental staff seems to be a challenge in many countries (Pitts, 2004). Despite some opinions to the contrary, several studies support the concept that attitudes of dental students can be changed

^a Institute of Dentistry, University of Helsinki, Helsinki, Finland

^b School of Dentistry, Shaheed Beheshti Medical University, Tehran, Iran during their studies (Brown et al, 2002). These changes require not only proper educational programmes and curricula but also knowledgeable and prevention-oriented dental school educators.

Oral health behaviour (OHB) of dental health professionals has been suggested to be an indication of their attitudes toward preventive care (Tseveenjav et al, 2002). Whether or not they smoke is also indicative of the extent to which they appreciate and value their own health. Moreover, the role of dental care providers in smoking cessation counselling and tobacco use prevention has been emphasised widely (Tomar, 2001; Petersen, 2003), and the importance of their knowledge, skills and values in this primary prevention effort has also been widely recognised (Ayo-Yusuf, 2005). Under these circumstances, OHB and smoking habits of dental school educators can be considered as a

ORIGINAL ARTICLE

Reprint requests: Dr Mohammad Reza Khami, Dept. of Oral Public Health, Institute of Dentistry, University of Helsinki, P.O.Box 41, FI-00014 Helsinki, Finland. Tel: +358-9-191 27279, Fax: +358-9-191 27379, Email: mohammad.khami@helsinki.fi



		Gen	der	
		Men	Women	
	All (n=291) %	(n=175) %	(n=116) %	p*
Duration of teaching (years)				0.00
Less than 10	52	46	70	
10 or more	48	54	30	
Academic degree				0.83
DDS	11	11	10	
MS or PhD	89	89	90	
Acquaintance with OPH field				0.11
Not at all or low	67	62	72	
Quite a lot or high	33	38	28	
Work experience in OPH field				0.18
No	37	35	44	
Yes	63	65	56	

reflection of attitudes towards prevention in dental schools, especially in countries like Iran, where awareness of the importance of prevention-oriented dental education is increasing rapidly. Very few studies, however, exist in this field (Lang et al, 1977; Weiss and Diserens, 1980).

The aim of the present study was to investigate OHB and smoking habits of dental schools' academic staff members in Iran. Our working hypothesis was that dental education is the basis for implementing preventive dentistry and that educators play a major role in this process via their personal and academic characteristics.

MATERIALS AND METHODS

Study subjects and data collection

The target population of the present study comprised the entire academic staff of Iran's state dental schools. A cluster random sampling approach was used to obtain a representative sample of this population. Out of 15 state dental schools, seven were selected randomly as clusters. In April and May 2005, one of the researchers (MK) went to these schools and, over a period of two days, asked all the educators who were present (total n = 363), one by one, to voluntarily fill in a self-administered pre-tested questionnaire. The questionnaires were immediately collected with the help of administrative officials. A total of 291 educators filled in the questionnaire (response rate = 80%).

Questionnaire and variables

In addition to gender, duration of tenure as a dental school educator, and highest academic degree (Table 1), the questionnaire covered the following areas.

Familiarity with oral public health field

In two separate questions, the respondents were requested to indicate their acquaintance with the oral public health (OPH) field and to rate their previous working experience (teaching, doing research, planning) in the field. The alternatives were: very much, quite a lot, a little and not at all. Those who reported knowing quite a lot or very much about the OPH field and had some experience in it were defined as being familiar with the field.

Table 2 Distribution o the oral public health	of OHB comp((OPH) field	onents as repo	orted by Iraniar	ı dental sc	hool educators	s (n=291) accor	ding to gend	ler, academic d	legree and famili	arity with
	AII	Genc	der		Academ	nic degree		Famili	arity with the OPH f	ield**
	(n=291) %	men (n = 175) %	women (n = 116) %	*d	DDS (n = 32) %	MS or PhD (n = 259) %	*d	Yes (n = 84) %	No (n = 207) %	*a
Brushing				0.001			0.65			0.05
At least twice a day	67	58	80		70	66		75	63	
Less than twice a day	33	42	20		30	34		25	37	
Use of fluoridated toothps	aste			0.002				0.1		0.20
Always	65	61	80		50	66		71	63	
Not always	35	39	20		50	34		29	37	
Flossing				0.006			0.72			0.03
At least once a day	55	46	64		58	54		65	51	
Less than once a day	45	54	36		42	46		35	49	
Sugary snacks				0.01			0.58			0.17
Less than once a day	45	50	33		50	44		51	42	
Once a day or more	55	50	67		50	56		49	58	
Preventive care use				0.80			0.28			0.76
Yes	52	50	48		62	50		53	51	
No	48	50	52		38	50		47	49	
* Chi-square test was used to) evaluate statisti	ical differences bas	sed on gender, acac	demic degree	and familiarity with	the OPH field				
** Familiarity with the OPH fi	eld is a combinat	tion of the two varia	ables: acquaintance	e with OPH an	d having work expe	rience in the OPH fiel	þ			

267





Table 3 Distribution of OHB components as reported by Iranian dental school educators (n = 291) according to gender and duration of working as a teacher (years)

	0	(j)				
	Men Less than 10 (n=80)%	10 or more (n=95)%	p*	Women Less than 10 (n=81)%	10 or more (n=35)%	p*
Brushing			0.02			0.90
At least twice a day	47	67		80	82	
Less than twice a day	53	33		20	18	
Use of fluoridated toothpaste			0.002			0.03
Always	75	49		86	65	
Not always	25	51		14	35	
Flossing			0.07			0.80
At least once a day	38	53		65	62	
Less than once a day	62	47		35	38	
Sugary snacks			0.30			0.60
Less than once a day	44	53		34	28	
Once a day or more	56	47		66	72	
Preventive care use			0.94			0.90
Yes	50	49		49	50	
No	50	51		51	50	
* Chi aguara taat waa waad ta ay	lucto statistical differ		ion of working	r oo o tooobox		

* Chi-square test was used to evaluate statistical differences based on duration of working as a teacher

Smoking habits

The questionnaire requested information on the respondents' habits of cigarette and pipe smoking separately. Those who reported no present smoking habits were considered as non-smokers.

Oral health behaviour

Oral self-care

The respondents were asked to report their frequency of tooth-brushing, use of fluoridated toothpaste, flossing and eating sugary snacks between main meals. These questions had from four to seven alternative answers. Recommended oral self-care was defined as brushing at least twice a day and using fluoridated toothpaste always or almost always.

Dental check-ups

Questions about the provider of dental check-ups (with the following alternative answers: by a colleague, by myself, and no need), and the time of last dental check-up (with seven alternatives) were used to determine the respondents' utilisation of professional preventive care. Attending a dental check-up within the last year by a colleague was defined as preventive care use.

Statistical analyses

Chi-square test was used to compare subgroups. Binary logistic regression model was fitted to the data to calculate odds ratios (OR).

RESULTS

Table 2 shows the distribution of OHB components among the educators according to their background and academic characteristics. Women reported higher frequencies of brushing (p = 0.001), use of fluoridated toothpaste (p = 0.002) and flossing (p = 0.01) compared with men. On the other hand, reported frequencies of eating sugary snacks were lower among men (p = 0.01) than women. Those who were familiar with the field of OPH reported higher frequencies of brushing (p = 0.05) and flossing (p = 0.03).



Table 4 Distribution of OHB components as reported by Iranian male dental school educators (n=175) according to their smoking habits

Smoking habits	Smokers (n=44) %	Non-smokers (n=131) %	p*
Brushing			0.02
At least twice a day	41	64	
Less than twice a day	59	36	
Using fluoridated toothpaste			0.04
Always	46	66	
Not always	54	34	
Flossing			0.30
At least once a day	38	49	
Less than once a day	62	51	
Sugary snacks			0.66
Less than once a day	53	49	
Once a day or more	47	51	
Preventive care use			0.24
Yes	41	53	
No	59	47	
* Chi-square test was used to evalu	ate statistical differ	ances based on smoking babit	· c

Table 5 Association of the personal and academic characteristics with recommended oral self-care among Iranian dental school educators (n=291) in a binary logistic regression model

	ES*	SE**	р	OR	CI 95%	
Female gender	1.006	0.322	0.002	2.7	1.5-5.1	
Teaching at least for 10 years	-0.521	0.311	0.09	0.6	0.3-1.1	
Having MS or PhD degree	0.351	0.512	0.50	1.4	0.5-3.9	
Familiarity with OPH	0.917	0.334	0.006	2.5	1.3-4.8	
Smoking	0.750	0.486	0.12	2.1	0.8-5.5	
Constant	-4.119	1.566	0.009			
Hosmer-Lemeshow goodness-of-fit test significance p > 0.05 for the model						

** SE, standard error

Men with at least 10 years of experience in academic teaching reported higher frequencies of brushing (p = 0.02) and lower frequencies of using fluoridated toothpaste (p = 0.002) compared with other men (Table 3). The latter was also the case among women (p = 0.03).

Habitual cigarette and pipe smoking was reported by 22% and 3% of male educators respectively. None of

the female educators reported any kind of smoking. Frequency of brushing and usage of fluoridated toothpaste were lower among male smokers compared with male non-smokers (p = 0.02 and p = 0.04 respectively) (Table 4).

Recommended oral self-care was reported by 42% of the educators (35% of men and 62% of women, p < 0.001). There was a significant difference (p <

0.05) in reporting recommended oral self-care between those who were familiar with the OPH field (51%) compared with those who were not (38%).

In the logistic regression model (Table 5), female gender (p = 0.002, OR = 2.7) and familiarity with the OPH field (p < 0.01, OR = 2.5) were associated with belonging to the group that met the criteria for recommended oral self-care. The other factors did not show significance in the model.

DISCUSSION

The results of the present study indicate that the reported OHB of dental school educators as a reflection of their preventive orientation is influenced by gender and academic background. Moreover, smoker educators reported less favourable oral self-care habits than non-smoker educators.

Together with other improvements in the dental education system in Iran, the number of academic staff members in dental schools has doubled during the last 15 years (Pakshir, 2003). Currently, around 800 educators are working in various departments of 18 Iranian dental schools (Pakshir, 2003). To our knowledge, no previous studies exist on OHB and smoking habits among Iranian dental school educators.

The sampling method covered all of Iran's 15 state dental schools. Only three private schools exist in the country and some of their teaching staff work in the state schools as well. Thus the sample seems to be very representative of the academic staff of Iran's dental schools. The validity of our results is further reinforced by the relatively high response rate (80%), which probably resulted from the active presence of one of the researchers in all of the selected schools to facilitate the administration of the survey. The fact that all the respondents were dental health professionals who were familiar with the terms and expressions in the questionnaire further increased the validity of the data. However, like those obtained with similar selfadministered questionnaires, our results may be an optimistic estimation of the real situation.

With regard to the OHB components, there is sufficient evidence to consider twice a day brushing (Chestnutt et al, 1998; Pine et al, 2000) and the use of fluoridated toothpaste (Twetman et al, 2003) as recommended oral self-care practices. In the present study, 67% of the teachers reported brushing twice a day and 65% reported frequent use of fluoridated toothpaste. Bearing in mind that the dental school educators have the responsibility to transmit the latest oral health knowledge to the community, it is clear that more attention should be paid to the scientific background of OHB in the dental school curricula.

Similar to findings from lay populations (Ostberg et al, 1999; Tada et al, 2004), the present study found significant gender differences regarding oral self-care. It is expected that dental health professionals acquire stable healthy behaviours through tertiary socialisation (Freeman, 1999), with reduced differences related to background factors (Tseveenjav et al, 2004). Therefore this finding may reflect the powerful effect of background differences between genders. Moreover, it seems that female dentists, being more conservative towards operative dentistry (Tan et al, 2002), pay more attention to oral self-care.

Since preventive-oriented teachers are probably more interested in OPH concepts compared with other teachers, familiarity with the OPH field can be considered as a rough indication of the teachers' knowledge of and attitudes towards prevention. The teachers who were familiar with the OPH field reported relatively better oral self-care habits compared with those not familiar, showing the probable effect of knowledge and attitude on behaviour among dental health professionals (Tseveenjav et al, 2004).

The results of the present study on prevalence of smoking cigarettes as reported by the educators (22% of men and 0% of women) were similar to findings from their population counterparts (26% and 3.6% respectively) (Ahmadi et al, 2001b), but higher than was recently reported by Iranian attending physicians (7.5%) (Ahmadi et al, 2001a). In addition to the known detrimental effects of smoking on general and oral health, smoking has been shown to have negative effects on oral hygiene (Andrews et al, 1998) and frequency of attendance at dental check-ups (Drilea et al, 2005) among lay people. The same trend was found in the present study. These findings show that despite their professional training, the oral self-care practices of smoker educators resemble those of lay people. The current emphasis on the dentists' role in smoking cessation efforts (Tomar, 2001; Petersen, 2003) and the fact that these efforts should begin in dental school (Tomar, 2001), places increased responsibility on dental school educators with regard to smoking.

CONCLUSIONS

Our results indicate that there is room for oral health behaviour improvement among Iranian dental school educators. In addition to their role as specialised dentists in treating their patients, academic oral health professionals have special responsibility for educating



dental students. The beliefs and attitudes of the educators towards prevention are likely to have potential effects on their students (Freeman, 1999). In order to increase public awareness of the importance of prevention (for example smoking cessation as a new role), dental educators should first have positive attitudes towards these concepts and believe in their effectiveness. This can be achieved by putting more emphasis on the growing evidence of the value of preventive dentistry in dental schools.

ACKNOWLEDGEMENTS

A grant to MK by Iranian Center for Dental Research (ICDR), Shaheed Beheshti Dental School is greatly acknowledged. Our warmest thanks go to the dental school educators for their cooperation.

REFERENCES

- Ahmadi J, Khalili H, Jooybar R, Namazi N, Aghaei PM (2001a). Cigarette smoking among Iranian medical students, resident physicians and attending physicians. Eur J Med Res 2001;28:406-408.
- Ahmadi J, Khalili H, Jooybar R, Namazi N, Mohammadagaei P (2001b). Prevalence of cigarette smoking in Iran. Psychol Rep 2001;89:339-341.
- 3. Andrews JA, Severson HH, Lichtenstein E, Gordon JS. Relationship between tobacco use and self-reported oral hygiene habits. J Am Dent Assoc 1998;129:313-320.
- Ayo-Yusuf OA. WHO framework convention on tobacco control and its relevance to the dental professions in South Africa. SADJ 2005;60:202-204.
- Brown G, Manogue M, Rohlin M. Assessing attitudes in dental education: Is it worthwhile? Br Dent J 2002;193:703-707.
- 6. Chestnutt IG, Schafer F, Jacobson AP, Stephen KW. The influence of tooth brushing frequency and post-brushing rinsing on caries experience in a caries clinical trial. Community Dent Oral Epidemiol 1998;26:406-411.

- 7. Drilea SK, Reid BC, Li CH, Hyman JJ, Manski RJ. Dental visits among smoking and non-smoking US adults in 2000. Am J Health Behav 2005;29:462-471.
- Freeman R. The determinants of dental health attitudes and behaviour. Br Dent J 1999; 187:15-18.
- Gift HC. Social factors in oral health promotion. In: Schou L, Blinkhorn AS (eds). Oral health promotion. Oxford: Oxford Medical Publications 1993;65-102.
- 10. Lang NP, Cumming BR, Löe HA. Oral hygiene and gingival health in Danish dental students and faculty. Community Dent Oral Epidemiol 1977;5:237-242.
- 11. Ostberg AL, Halling A, Lindblad U. Gender differences in knowledge, attitude, behavior and perceived oral health among adolescents. Acta Odontol Scand 1999;57:231-236.
- 12. Pakshir HR. Dental education and dentistry system in Iran. Med Princ Pract 2003;12(1 Suppl 1):56-60.
- 13. Petersen PE. Tobacco and oral health: the role of the World Health Organization. Oral Health Prev Dent 2003;1:309-315.
- Pine CM, McGoldrick PM, Burnside G, Curnow MM, Chesters RK, Nicholson J, et al. An intervention programme to establish regular tooth brushing: understanding parents' beliefs and motivating children. Int Dent J 2000;50:312-323.
- 15. Pitts NB. Are we ready to move from operative to non-operative/preventive treatment of dental caries in clinical practice? Caries Res 2004;38:294-304.
- Tada A, Hanada N. Sexual differences in oral health behaviour and factors associated with oral health behaviour in Japanese young adults. Public Health 2004;118:104-109.
- 17. Tan PLB, Evans RW, Morgan MV. Caries, bitewings, and treatment decisions. Aust Dent J 2002;47:138-141.
- 18. Tomar SL. Dentistry's role in tobacco control. J Am Dent Assoc. 2001;132(Suppl):30-35.
- Tseveenjav B, Vehkalahti M, Murtomaa H. Oral health and its determinants among Mongolian dentists. Acta Odontol Scand 2004;62:1-6.
- Tseveenjav B, Vehkalahti M, Murtomaa H. Preventive practice of Mongolian dental students. Eur J Dent Educ 2002;6:74-78.
- Twetman S, Axelsson S, Dahlgren H, Holm AK, Kallestal C, Lagerlof F, et al. Caries-preventive effect of fluoride toothpaste: a systematic review. Acta Odontol Scand 2003;61:347-355.
- 22. Weiss J, Diserens D. Health behavior of dental professionals. Clin Prev Dent 1980;2:5-8.