

Smoking and drinking habits and attitudes to smoking cessation counselling among Tanzanian dental students

M. Amemori¹, E. G. Mumghamba², J. Ruotoistenmäki¹ and H. Murtomaa¹

¹Department of Oral Public Health, Institute of Dentistry, University of Helsinki, P.O. Box 41, FI-00014 Helsinki, Finland; ²Department of Restorative Dentistry, School of Dentistry, Muhimbili University of Health and Allied Sciences, P.O. Box 65014, Dar-es-Salaam, Tanzania

The present research was carried out at the School of Dentistry, Muhimbili University of Health and Allied Sciences, Tanzania. **Objective:** To assess smoking and drinking habits as well as attitudes towards smoking cessation counselling among dental students in Tanzania. **Basic Research Design:** A 28-item pretested and self-administered questionnaire was delivered to all dental students enrolled at the end of the 2006 academic year. The questionnaire covered socio-demographics, smoking and drinking habits, knowledge concerning health effects and attitudes towards smoking cessation counselling. **Participants:** Dental students enrolled at the end of the 2005/2006 academic year in the School of Dentistry, University of Dar-es-Salaam, Tanzania. **Main Outcome Measures:** Self-reported smoking, alcohol use and attitudes to smoking cessation counselling. **Results:** The response rate was 73.2% (109/149) and 76.1% of respondents were male. Smoking was reported by 12.8%, all being male. Alcohol use during the last 30 days was reported by 23.8% and binge drinking during the last two weeks by 11.8%. Both smoking and alcohol use were more common among clinical than basic science students. The majority (67.0%) reported that they had not received education on smoking cessation counselling although 86.2% considered that dentists and physicians should provide such counselling. **Conclusion:** Reported smoking and alcohol consumption are on a low level compared to dental students internationally. Willingness and need for cessation counselling training was expressed by the majority of Tanzanian dental students. This should be taken into consideration in dental curriculum development.

Key words: Dental students, tobacco control, alcohol use, attitudes, patient counselling

Introduction

The prevalence of smoking is rising dramatically, mostly in low- and middle-income countries, where more than 80% of the world's smoking-related deaths are projected to take place by 2030 (Mathers and Loncar, 2006). Today, smoking is estimated to kill 15,000 people every day (Mathers and Loncar, 2006), from one-third to half of all who smoke (Peto *et al.*, 1996). By 2030, smoking is predicted to kill more than eight million a year and up to one billion people during the twenty-first century unless aggressive actions are taken (Mathers and Loncar, 2006; Peto and Lopez, 2001). While alcohol use has decreased in the developed world, the developing world has maintained or increased its alcohol consumption during recent decades (World Health Organization, 2004). High alcohol consumption in particular has many harmful effects on all human biological systems including the oral cavity (Corrao *et al.*, 2004). As dental providers usually meet their patients on a regular basis, they have a unique opportunity to counsel patients on health-related habits relevant to oral health, such as smoking and alcohol use.

Patient counselling by dental providers can promote health behaviour change such as tobacco cessation (Carr and Ebbert, 2006). However, dental providers report they lack the competence to do so (Needleman *et al.*, 2006). As the WHO Global Oral Health Programme has emphasised that dental providers should strengthen their contributions to smoking and alcohol use counselling (Petersen 2008),

more action needs to be taken to reach these goals. The development of undergraduate education to enhance dental students' knowledge and skills concerning these issues should be one of the first undertakings. In order to build an evidence base for undergraduate curriculum development, however, we need to know more about dental students' smoking and alcohol habits as well as attitudes to smoking and alcohol use counselling. The greatest needs for such information exist in developing countries where problems of smoking and alcohol use are increasing the most and data on dental students is scarcest. Thus the aim of the present study was to assess smoking and drinking habits as well as attitudes towards smoking cessation counselling among Tanzanian dental students.

Method

Voluntary participants in the present study were first-through to fifth-year dental students at the Muhimbili University of Health and Allied Sciences (MUHAS), University of Dar-es-Salaam. We used an anonymous 28-item questionnaire (Telivuo *et al.*, 1991) to assess smoking and drinking habits, knowledge concerning smoking and drinking health effects and attitudes toward smoking cessation counselling. The survey was conducted in June 2006 at the end of the academic year during scheduled class times.

The questionnaire had four sections. In the first section respondents were asked about their age, gender, study year and current accommodation. The second and third sections comprised multiple-choice items assessing students' smoking and alcohol use, binge drinking and smoking cessation attempts. Knowledge concerning smoking and drinking health effects was assessed using two five-step Likert items (1=very harmless, 5=very harmful) and one multiple-choice question. The fourth section assessed students' attitudes toward smoking cessation counselling with three "yes or no" closed questions and two multiple-choice items.

The current dental programme at MUHAS is divided into two stages in which the first three years are dedicated to basic science subjects and the next two years are set for clinical teaching. Therefore students from the first to third year are referred to as basic science students and from the fourth to fifth year as clinical year students. Regarding smoking, we divided students into three groups: regular smokers, occasional smokers and non-smokers. Regular smoking was defined as using one or more cigarettes daily and occasional smoking as smoking on average less than one cigarette daily. Non-smokers were those reporting no smoking. Regarding alcohol use, students were categorised into two groups: those who had used alcohol during the last 30 days and to those who had not. By binge drinking we refer to a pattern of drinking alcohol that corresponds to ≥ 5 drinks

(male) or ≥ 4 (female) in one session (Wechsler *et al.*, 1994). The operational definition of a "drink" was one can of beer, glass of wine or shot glass of liquor.

Statistical evaluation was done by chi-square distribution and logistic regression using SPSS 15.0 software for Windows. The statistical significance level was set at $p < 0.05$. Permission to conduct the study was received from the Research and Publication Committee and the Dean of the School of Dentistry, University of Dar-es-Salaam.

Results

Of those eligible, 73% (109/149) participated. The majority were male (76%) and 64.3% were 25 years of age or older (Table 1). Roughly one in ten (12.8%) reported regular or occasional smoking and all smokers were male (Table 2). Smoking was more prevalent among clinical (23.8%) than basic science students (6.0%) ($p = 0.0091$) (Table 3). All regular smokers and two-thirds of occasional smokers (66.7%) reported having tried to quit smoking at least once and 80.0% of regular smokers reported having tried at least three times. Approximately 60.0% of regular and 66.7% of occasional smokers stated that smoking is harmful while 88.4% of non-current smokers did. Alcohol use during the last 30 days was reported by 23.8%, being more common among clinical year (43.6%) than basic science students (12.1%) ($p < 0.001$) (Table 4). Binge drinking during the last two weeks was reported by 11.9%, all being male.

An association between smoking and alcohol use was evident. Among regular and occasional smokers, 32.0% had used alcohol during the last 30 days compared to 6.3% of non-smokers ($p = 0.0021$) (Table 3). In addition, binge drinking during the previous two weeks was reported significantly more often among occasional (44.4%) and regular smokers (40.0%) compared to non-smokers (7.4%) ($p < 0.001$). In general, smoking was rated as (Likert scale, value 1-5) more harmful (4.58, standard deviation ± 0.77) than alcohol (4.00 \pm SD 1.13) ($p < 0.001$). Female participants rated harmfulness of smoking (Likert scale) higher (4.85 ± 0.46) than male participants (4.49 ± 0.82) ($p < 0.01$). Likewise, female participants rated alcohol use more harmful (4.46 ± 0.90) than male participants (3.85 ± 1.16) ($p < 0.05$). No statistically significant difference was found in these ratings between basic and clinical year students.

A total of 67.0% of participants reported they had not received education on smoking cessation counselling although 81.7% reported an interest in receiving such education. A total of 86.2% considered that dentists and physicians should help patients to quit smoking

Table 1. Participants' characteristics.

	<i>n</i>	%
Gender		
Male	83	76.1
Female	26	23.9
Age		
20 and under	2	1.8
21-24	37	33.9
25-30	61	56.0
30 and over	9	8.3
Year of study		
1	15	13.8
2	22	20.2
3	30	27.5
4	17	15.6
5	25	22.9

Table 2. Reported smoking among basic science and clinical year students by gender.

	<i>Basic study students</i>				<i>Clinical year students</i>				<i>Total</i>	
	<i>Males</i>		<i>Females</i>		<i>Males</i>		<i>Females</i>			
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Non-smoker	43	91.5	20	100	26	72.2	6	100	95	87.2
Occasional smoker	2	4.3	0	0	7	19.4	0	0	9	8.3
Regular smoker	2	4.3	0	0	3	8.3	0	0	5	4.6
Total	47	100	20	100	36	100	6	100	109	100

Table 3. Smoking status (occasional and regular smokers versus non-smokers) and associated factors.

<i>Factors associated with smoking</i>		<i>Participants n</i>	<i>Smokers n (%)</i>	<i>Non-smokers n (%)</i>	<i>Unadjusted odds ratio (95% CI)</i>	<i>p-value</i>
Gender	Male	83	14 (16.9)	69 (83.1)	4.45 (1.20, 16.50)	0.038
	Female	26	0 (0)	26 (100)		
Study year	Basic science	67	4 (6.0)	63 (94.0)	0.20 (0.059, 0.70)	0.0091
	Clinical year	42	10 (23.8)	32 (76.2)		
Alcohol consumption in the last 30 days*	Yes	25	8 (32.0)	17 (68.0)	7.06 (2.05, 24.28)	0.0021
	No	80	5 (6.3)	75 (93.8)		
Family history of alcohol or drug use	Yes	67	9 (13.4)	58 (86.6)	1.14 (0.36, 3.69)	1.0
	No	42	5 (11.9)	37 (88.1)		
Campus accommodation	Yes	57	6 (10.5)	51 (89.5)	0.63 (0.20, 1.96)	0.57
	No	51	8 (15.7)	43 (84.3)		
Smoking is a risk factor for oral/pharyngeal cancer	Yes	85	12 (14.1)	73 (85.9)	1.81 (0.38, 8.70)	0.52
	No	24	2 (8.3)	22 (91.7)		
Smoking is a risk factor for lung cancer	Yes	95	13 (13.7)	82 (86.3)	2.06 (0.25, 17.11)	0.69
	No	14	1 (7.1)	13 (92.9)		

p-values (two-tailed) calculated using chi-square test, odds ratios by logistic regression.

Table 4. Reported alcohol consumption during the last 30 days (yes/no) and associated factors.

<i>Factors associated with alcohol use</i>		<i>Participants n</i>	<i>Yes n (%)</i>	<i>No n (%)</i>	<i>Unadjusted odds ratio (95% CI)</i>	<i>p-value</i>
Gender	Male	80	22 (27.5)	58 (72.5)	2.78 (0.76, 10.23)	0.18
	Female	25	3 (12.0)	22 (88.0)		
Study year	Basic science	66	8 (12.1)	58 (87.9)	0.18 (0.068, 0.47)	<0.001
	Clinical year	39	17 (43.6)	22 (56.4)		
Family history of alcohol or drug use	Yes	50	15 (30.0)	35 (70.0)	1.93 (0.77, 4.81)	0.18
	No	55	10 (18.2)	45 (81.2)		
Campus accommodation	Yes	55	16 (29.1)	39 (70.9)	1.82 (0.72, 4.61)	0.25
	No	49	9 (18.4)	40 (81.6)		
Age	Under 25	66	20 (30.3)	46 (69.7)	2.87 (0.98, 8.43)	0.059
	25 and over	38	5 (13.2)	33 (86.8)		

p-values (two-tailed) calculated using chi-square test, odds ratios by logistic regression.

while 39.4% of students reported they were adequately trained to do so. Occasional and regular smokers reported significantly more often that they had enough information about methods of cessation counselling compared to non-smokers (50.0% versus 8.4%) ($p < 0.001$).

Discussion

This was the first survey assessing smoking, drinking habits and attitudes to smoking cessation counselling among Tanzanian dental students. Before interpreting the results, limitations common in survey studies should be considered. According to Sjöström *et al.*, it is conceivable that surveys may not necessarily reveal the real behaviour of the respondents (Sjöström and Holst, 2002). As people tend to answer more according to the social norm than to the actual situation, the real rates of smoking and alcohol use among Tanzanian dental students, especially among females, is assumed to be greater than reported. Thus

our results on the prevalence of smoking and alcohol use should be interpreted with caution.

The reported prevalence of smoking was lower among dental students (12.8%) compared to the adult population in Tanzania, where it has been reported that approximately 21% of adult males and 3% of females smoked (World Health Organization, 2008). Based on current knowledge, the prevalence of smoking among dental students in MUHAS remains relatively low compared to other health professional students worldwide (Warren *et al.*, 2008). An encouraging point is that all of the regular and 66.7% of occasional smokers have tried to quit smoking at least once and 80.0% of regular smokers at least three times. The willingness to be smoke-free among future Tanzanian dentists seems promising.

Only sub-national data exists on alcohol use in Tanzania, and the most recent survey from Temeke district, Dar-es-Salaam, found that 28% of adult males and 16% of females use alcohol (Chande and Salum, 2007). Among

dental students, reported alcohol use during the previous 30 days was 27.5% for males and 12.0% for females. Alcohol use was more common among clinical (43.6%) compared to basic science students (12.1%) ($p < 0.001$). Similar findings were reported from Romania where roughly one-fourth (24%) of first-year dental students drank at least once a week compared with 41% of final year students (Dumitrescu 2007). Binge drinking during the last two weeks among MUHAS students was quite high (11.9%) considering the low prevalence of alcohol use. While it seems that only one-fourth of MUHAS dental students do use alcohol, the situation is very different from Europe for example, where alcohol use, and binge drinking in particular, is very common (Barber and Fairclough, 2006; Dumitrescu 2007).

Even though the participating students have not been followed longitudinally, it is a concern that smoking and drinking rates are higher among clinical year students compared to basic science students. This might be due to increased study-related stress, developing from early to later years in dental school (Gorter *et al.*, 2008). Interestingly, a positive association has been found between counselling practices and healthy personal behaviours among health care students; both counselling frequency and perceived counselling relevance were positively associated with attending a school that encouraged healthy personal practices, and also correlated with personal health practices (Frank *et al.*, 2008). While binge drinking and smoking are reported to be remarkably prevalent among dental students (Barber and Fairclough, 2006; Dumitrescu 2007), dental schools should promote healthy student lifestyles. This is particularly important in developing countries in order for preventive strategies to become a top public health priority.

When asked about smoking cessation training, the current study parallels the findings from previous studies on dental students (Warren *et al.*, 2008). The results indicate that although the majority (86.2%) of dental students at MUHAS reported that dentists and physicians should help in reducing smoking, only 39.4% considered themselves to be adequately trained to do so. However, 81.7% were interested in acquiring more information about cessation approaches. In the same way, the Global Health Professions Student Survey indicates that over 80% of students thought health professional students should receive specific training in cessation techniques while less than 40% of the students reported having had such training (Warren *et al.*, 2008).

Conclusion

The present study shows that smoking and drinking were more common among clinical year students than basic science students in Tanzania. A lack of competence in providing smoking cessation counselling was evident while interest in education on smoking cessation counselling was significant. As future dentists and role models for patients, dental students should be adequately trained to provide smoking and alcohol use interventions effectively.

Acknowledgements

This work has been funded by Helsinki Biomedical Graduate School.

References

- Barber, M.W and Fairclough, A. (2006): A comparison of alcohol and drug use among dental undergraduates and a group of non-medical, professional undergraduates. *British Dental Journal* **201**, 581-4.
- Carr, A.B. and Ebbert J.O. (2006): Interventions for tobacco cessation in the dental setting. *Cochrane Database Systematic Review*, CD005084.
- Chande H. and Salum I. (2007): Prevalence of and factors associated with alcohol consumption in Temeke in August/September, 2002. *East African Journal of Public Health* **4**, 64-66.
- Corrao, G., Bagnardi, V., Zambon, A., La Vecchia, C. (2004): A meta-analysis of alcohol consumption and the risk of 15 diseases. *Preventive Medicine* **38**, 613-619.
- Dumitrescu A.L. (2007): Attitudes of Romanian dental students towards tobacco and alcohol. *Journal of Contemporary Dental Practice* **8**, 64-71.
- Frank, E., Elon, L., Naimi, T., Brewer, R. (2008): Alcohol consumption and alcohol counselling behaviour among US medical students: cohort study. *British Medical Journal* **337**, a2155.
- Gorter, R., Freeman, R., Hammen, S., Murtomaa, H., Blinkhorn, A., Humphris, G. (2008): Psychological stress and health in undergraduate dental students: fifth year outcomes compared with first year baseline results from five European dental schools. *European Journal of Dental Education* **12**, 61-68.
- Mathers C.D. and Loncar D. (2006): Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Medicine* **3**, e442. doi:10.1371/journal.pmed.0030442
- Needleman, I., Warnakulasuriya, S., Sutherland, G., Bornstein, M.M., Casals E., Dietrich, T., Suvan, J. (2006): Evaluation of tobacco use cessation (TUC) counselling in the dental office. *Oral Health & Preventive Dentistry* **4**, 27-47.
- Petersen, P.E. (2008): World Health Organization global policy for improvement of oral health - World Health Assembly 2007. *International Dental Journal* **58**, 115-121.
- Peto, R., Lopez, A.D., Boreham, J., Thun, M., Heath, C.Jr., Doll, R. (1996): Mortality from smoking worldwide. *British Medical Bulletin* **52**, 12-21.
- Peto, R. and Lopez, A.D. (2001): Future worldwide health effects of current smoking patterns. In: Koop C.E., Pearson C.E., Schwarz M.R., edn. *Critical issue in global health*. pp154-161.
- Sjöström, O. and Holst, D. (2002): Validity of a questionnaire survey: response patterns in different subgroups and the effect of social desirability. *Acta Odontologica Scandinavica* **60**, 136-140.
- Stein, J., Glass, K., Coburn, K., Sisson, J., Birnkrant, J., Bravo, A., *et al.* (1997): A medical school's plan for anti-tobacco-use education in community schools and hospitals. *Journal of Cancer Education* **12**, 157-160.
- Telivuo, M., Vehkalahti, M., Lahtinen, A., Murtomaa, H. (1991): Finnish dentists as tobacco counselors. *Community Dentistry and Oral Epidemiology* **19**, 221-224.
- Warren, C.W., Jones, N.R., Chauvin, J., Peruga, A., GTSS Collaborative Group (2008): Tobacco use and cessation counselling: cross-country. Data from the Global Health Professions Student Survey (GHPSS), 2005-7. *Tobacco Control* **17**, 238-247.
- Wechsler, H., Davenport, A., Dowdall, G., Moeykens, B., Castillo, S. (1994): Health and behavioral consequences of binge drinking in college. A national survey of students at 140 campuses. *The Journal of the American Medical Association* **272**, 1672-1677.
- World Health Organization (2004). *Global Status Report on Alcohol 2004*. Pp 9-14. www.who.int/substance_abuse/publications/global_status_report_2004_overview.pdf
- World Health Organization (2008). *WHO Report on the Global Tobacco Epidemic, 2008 - The MPOWER Package*. p268. www.who.int/tobacco/mpower/mpower_report_full_2008.pdf