Smoking Habits and Social Nicotine Dependence among Dental Students in Romania

Andreea Didilescu[1], Koji Inagaki[2], Ruxandra Sfeatcu[3], Stela Carmen Hanganu[4], Jorma I Virtanen[5]

[1]Department of Embryology, Faculty of Dental Medicine, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania. [2]Department of Dental Hygiene, Aichi-Gakuin University Junior College, Nagoya, Japan. [3]Department of Oral Health and Behavioural Sciences, Faculty of Dental Medicine, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania. [4]Department of Community Dentistry, Gr.T. Popa University of Medicine and Pharmacy, Iasi, Romania. [5]Department of Community Dentistry, Institute of Dentistry, University of Oulu; Oulu University Hospital, Oulu, Finland.

Abstract

Background: To evaluate the smoking habits and social nicotine dependence among dental students, and to find out applicability of the Kano Test in detecting smokers and non-smokers.

Methods: The representative sample comprised 223 first-year and sixth-year undergraduate Romanian dental students from the same university, all of whom completed a self-administered questionnaire. Data were collected using the Kano Test for Social Nicotine Dependence (KTSND), designed to assess psychological nicotine dependence. The Student t-test, one-way ANOVA test, Chi-square test and a logistic regression model served in the statistical analysis.

Results: The smoking rate among the dental students was 35%. The students reporting a higher KTSND score were more likely to be current smokers (OR=1.2, 95% CI: 1.1 to 1.3; $p<0.001$). Among smokers, the females displayed the highest social nicotine dependence. In the logistic regression model, current tobacco use was associated with male gender (OR=2.5, 95% CI: 1.34-4.69) and KTSND scores (OR=1.18, 95% CI: 1.1-1.27).

Conclusions: Our study showed high smoking rate among the undergraduate dental students. The social nicotine dependence was high in smokers and the KTSND was suitable in detecting smokers and non-smokers in the high prevalence smoking population. More emphasis ought to focus on tobacco prevention and cessation activities in the dental curriculum.

Key Words: Dental Students, Social Nicotine Dependence, Tobacco Use.

Introduction

Smoking is a serious worldwide health threat and an avoidable cause of mortality. A multitude of research has shown that the beginning and continuation of smoking behaviour is associated with several personal, environmental and socio-cultural factors which vary between age groups and regions. Among the European countries, Romania has one of the highest rates of smoking-related mortality [1], and research has shown a high prevalence of smoking among different segments of Romanian adolescents and youth [2,3], and even high rates of smoking and alcohol use among Romanian dental and medical students [4].

The impact of dentists on the prevention of smoking and smoking cessation is of vital importance [5,6]. Firstly, integration of oral disease prevention and oral health promotion with chronic disease prevention and general health promotion requires a multi-professional approach [7,8]. Secondly, dental professionals are well positioned to provide their patients with advice on both smoking cessation and prevention because of frequent patient encounters and the easy identification of the oral effects of patients' tobacco use [9-12]. Consequently, the WHO has emphasised relevant training and education for oral health professionals in the detection, early diagnosis and treatment of the serious adverse effects of tobacco in the oropharyngeal area of the body [13]. Despite these efforts, the dental profession has devoted little time and effort to patient information of these detrimental untoward effects [14,15].

To identify effective strategies for training in *Tobacco Control* actions, it is vital to begin by identifying the causes and factors contributing to attitudes in favour of or against smoking among dental students [16]. Researchers have previously brought to light associations between educational activities and nicotine dependence, as well as the concept of social nicotine dependence [17-19]. The "Kano Test for Social Nicotine Dependence" (KTSND) has been defined as a "misperception of smoking caused by smokers' attempts, for example, to deny the ill effects of tobacco and/or justify themselves by regarding smoking as acceptable cultural and social behaviour" [20,21]. Thus, smokers' misperceptions affect not only smokers' social opinions, but also non-smokers' opinions through their tolerant attitude partly based on the social nicotine dependence. Therefore, in order to achieve tobacco-free societies, the social nicotine dependence needs to be assessed and the KTSND is convenient to quantify the social nicotine dependence [20]. The reliability and validity of KTSND as a scale to assess an altered recognition that blocks smoking cessation have recently been confirmed [20,22]. The tool may also be useful to assess the effects of interventional antismoking education [20,22]. In Romania, medical and dental students' smoking rates are among the highest (39%) in Europe [23]. Therefore, our aim was to evaluate smoking habits and the social nicotine dependence among Romanian dental students and to find out suitability of the KTSND in detecting smokers versus non-smokers.

Subjects and Methods

Ethical approval

The Ethics Committee for Research from the Carol Davila University of Medicine and Pharmacy, Bucharest, approved the study (# 27411/2008), and the students' informed consent was based on their understanding the aims and nature of the study.

A cross-sectional survey was employed. The undergraduate dental curriculum in Romania lasts six years and includes three

Corresponding author: Prof. Jorma I Virtanen, Department of Community Dentistry, Institute of Dentistry, University of Oulu, Oulu University Hospital, Oulu, Finland, Tel : +358 29448 5584; e-mail: jorma.virtanen@oulu.fi

years of basic sciences and three years of clinical studies. The target population of this study comprised of all first-year and sixth-year undergraduate Romanian dental students (n=255) at the Faculty of Dental Medicine, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania. The KTSND questionnaire, originally developed in the Japanese language and already validated in terms of its internal consistency [20], has also been validated into English version [24]. The English version was first translated into Romanian and retranslated into English by a different interpreter. A pilot study was then carried out on 30 students to test the questionnaire, and it showed the translation to be adequate and the tool feasible. The students were asked whether they had difficulties in understanding questions. Several words were checked during translation process in order to be sure that their meaning was correctly understood. The pilot form of the questionnaire served as a self-administered questionnaire which was delivered to all students in their ordinary classroom settings during the autumn term of 2010.

The course instructor, together with two researchers (ACD and RS) explained to the students, the aim and voluntary nature of the study. The questionnaire enquired about the students' backgrounds (i.e., age and gender), their smoking experience, smoking status, and social nicotine dependence, and targeted additional questions specifically to smokers (stages for quitting smoking, number of cigarettes per day, time until the first cigarette of the day). Those who had smoked 100 cigarettes during their lifetime and currently smoked cigarettes weekly were defined as current smokers [25]. The participants were assigned numbers in order to ensure confidentiality and to match their answers to further studies. After completion, the questionnaires were immediately returned to the course instructor.

Evaluation of nicotine dependence

Data on the students' social nicotine dependence were collected using the KTSND version 2 [21], consisting of ten items (*Table 1*), among which Q1 is reverse-scored. The measurements were done on a four-point Likert scale with the following choices: "strongly agree", "somewhat agree", "somewhat disagree" and "strongly disagree". The possible range of KTSND scores is from 0 (indicating low social nicotine dependence) to 30 (indicating high social nicotine dependence).

After calculating the total KTSND scores per person, the scales measuring KTSND attitudes were dichotomised to: *agreement* ("definitely yes" and "probably yes") and *disagreement* ("definitely no" and "probably no"). We then analysed the associations between agreement/disagreement and smoking status.

Statistical analyses

Data distributions were expressed as means, Standard Deviations (SD), ranges, and percentages, as appropriate. Mean scores were compared using the Student *t*-test and one-way ANOVA test (Bonferroni correction). Associations were tested using the Pearson Chi-squared test and Fisher's exact test.

In the analyses, we dichotomised smoking status to current smoker or non-smoker (including former smokers and those who had never smoked). We investigated the relationship between current tobacco use and background characteristics using a binary logistic regression method.

All tests of significance were two-tailed. We used Stata 11IC (StataCorp LP, Texas, USA, version 2009) in the data analyses. A *p*-value <0.05 was considered statistically significant.

Results

A total of 223 dental students participated in the study (response rate: 87%), 71 of whom were males (32%) and 152 females (68%). The mean age of the students was 22.7 years (SD 3.8, range 17 to 40). Of the students, 35% (n=78) were current smokers, 4% (n=8) former smokers, and 61% (n=137) never smokers. The percentage of males (48%) among the current smokers was significantly higher than of females (29%) (OR= 2.26; 95% CI: 1.26-4.04; *p*<0.01). The background characteristics of all subjects appear in *Table 2*.

According to their smoking status, the mean Kano scores were 14.1 (13.1-15.1, 95% CI) for smokers and 10.9 (10.2-11.7, 95% CI) for non-smokers. Dental undergraduate students reporting a higher KTSND score were more likely to be current smokers (OR=1.2, 95% CI: 1.1 to 1.3; *p*<0.001). The Kano scores for the participants according to gender appear in *Table 3*. Currently smoking females had significantly higher scores than did non-smoking females and males (*p*<0.001).

We observed no significant difference in total Kano scores between first-year and sixth-year students, although the sixth-year students recorded significantly higher scores for Q1 ("smoking itself is a disease"), Q2 ("smoking is part of culture"), and Q6 ("tobacco has positive physical and mental effects").

Figure 1 shows the percentage of dental students who agreed with the individual KTSND questions/statements. The highest rates of agreement were recorded for Q10 and Q4, whilst Q8 and Q9 received the highest rates of disagreement.

The rates of agreement for statements Q6 "tobacco has positive physical or mental effects" and Q7 "tobacco has effects to relieve stress" were significantly higher in smokers than in non-smokers (64.1% *vs*. 31.7%; *p*<0.001; 79.5% *vs*. 60%; *p*<0.01, respectively). The corresponding odds ratios between these two groups were 3.8 (95% CI: 2.2 to 6.9) and 2.6 (95% CI: 1.4 to 4.9), respectively.

Table 1. The Kano Test for Social Nicotine Dependence (KTSND) [21].

Questions	Choices	(Scores)*
Q1	Smoking itself is a disease	DY (0), PY (1), PN (2), DN (3)
Q2	Smoking is a part of culture	DY (3), PY (2), PN (1), DN (0)
Q3	Tobacco is one of life's pleasures	DY (3), PY (2), PN (1), DN (0)
Q4	Smokers' lifestyles may be respected	DY (3), PY (2), PN (1), DN (0)
Q5	Smoking sometimes enriches people's life	DY (3), PY (2), PN (1), DN (0)
Q6	Tobacco has positive physical or mental effects	DY (3), PY (2), PN (1), DN (0)
Q7	Tobacco has effects to relieve stress	DY (3), PY (2), PN (1), DN (0)
Q8	Tobacco enhances the function of smokers' brains	DY (3), PY (2), PN (1), DN (0)
Q9	Doctors exaggerate the ill effects of smoking	DY (3), PY (2), PN (1), DN (0)
Q10	People can smoke at places where ashtrays are available	DY (3), PY (2), PN (1), DN (0)

DY: Definitely Yes, PY: Probably Yes, PN: Probably No, DN: Definitely No.
* Numbers in parentheses denote each score.

The rates of agreement for Q9 "doctors exaggerate the ill effects of smoking" and Q10 "people can smoke wherever ashtrays are available" were significantly higher in smokers than in non-smokers (19.2% vs. 8.3%, $p<0.05$; 94.9% *vs*. 79.3%, $p<0.01$). The odds ratios between these two groups were 2.6 (95% CI: 1.2 to 6) and 4.8 (95% CI: 1.6 to 14.3), respectively.

The logistic regression model showed that current tobacco use was significantly associated with male gender and total Kano scores (*Table 4*).

Discussion

Our study found high smoking rates and high social nicotine dependence in dental students, and the Kano social nicotine dependence test proved applicable in a high-prevalence smoking population and was efficient in distinguishing smokers from non-smokers.

The KTSND used in the present study, with the first version released in 2004 [19] and validated in 2009 [20], presents several advantages over other tests. As this test showed, social nicotine dependence, a newly-coined phrase describing a psychological and psychosocial state associated with smoking, is expected to serve as a useful index for selecting a method to support smoking cessation and to predict the success or failure of smoking cessation treatments [26] as well as to predict one's relapse into smoking thanks to the option of assessing misperceptions among abstainers. In addition to its ability to assess smokers and abstinents, the KTSND may also prove useful in measuring the affinity toward smoking among never-smokers and adolescents who have not started smoking, and to predict their risk for eventually starting to smoke [20].

The present findings suggest that social nicotine dependence and male gender influence current tobacco use among Romanian dental students. The prevalence of smoking in Romania, by gender, for the period 2002-2005, was of 33.2% in males, and 10.3% in females [27]. The smoking rate among dental students was notably high [28], possibly due to specific factors which influence smoking behaviour, such as cognitive factors or social and cultural influences.
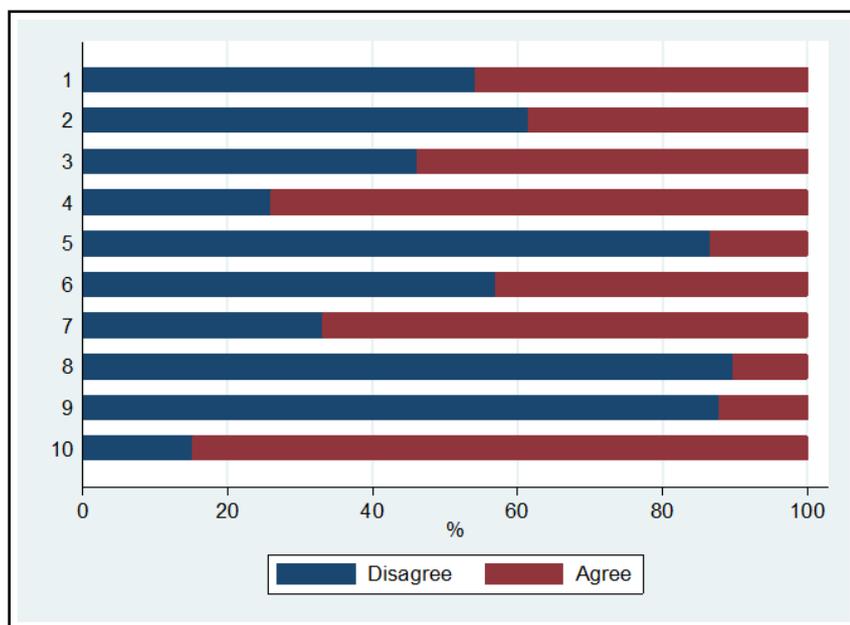

Figure 1. The percentage of Romanian dental students (n=223) who agreed with the Kano statements.

Table 2. Current smoking, smoking experience and motivation for smoking cessation by gender among Romanian dental undergraduate students (n=223).

	Male		Female		Total
	n	**%**	**n**	**%**	**n**
Current smoking					
Yes	34	47.9	44	28.9	78
No	37	52.1	108	71.1	145
Number of cigarettes/day					
1-10	18	52.9	31	70.4	49
11-20	15	44.1	12	27.3	27
21-30	1	2.9	1	2.3	2
> 31	0	0	0	0	0
Time until 1st cigarette of the day					
Within 5 minutes	2	5.9	0	0	2
6 to 30 minutes	8	23.5	10	22.7	18
31 to 60 minutes	11	32.4	13	29.6	24
After 60 minutes	13	38.2	21	47.7	34
Stages for quitting smoking					
Immotive	8	23.5	2	4.6	10
Precontemplator	10	29.4	14	31.8	24
Contemplator	10	29.4	20	45.4	30
Preparer	6	17.7	8	18.2	14

Table 3. *Mean Kano scores for currently smoking and non-smoking dental students according to gender.*

Group	Mean Kano scores	P-value*
Non-smoking females (n=108)	10.8 (SD 4.7)	
Smoking females (n=44)	14.9 (SD 3.7)	
Non-smoking males (n=37)	11.4 (SD 4.1)	<0.001
Smoking males (n=34)	13.1 (SD 5)	

*One-way ANOVA test.

Table 4. *Results of the logistic regression model predicting current tobacco use among Romanian students attending the Faculty of Dental Medicine.*

	OR (95% CI)	P-value
Gender (male-female)	2.5 (1.34 to 4.69)	0.004
Kano Scores	1.18 (1.1 to 1.27)	<.001
Stage of dental education (6th year- 1st year)	0.71 (0.38 to 1.3)	0.276

In Romania, smoking enjoys high social acceptance, and Romanian youth often see teenagers and adults smoking [2]. Compared to similar studies previously carried out in Australia, Japan, and Taiwan [18,24], the mean KTSND scores obtained in the present study were slightly lower in smokers, whilst the prevalence of smoking among Romanians was clearly higher (35% *vs*. 4.8% in Australia, 2.4% in Taiwan, and 26% in Japan). This result demonstrates that, even in a high-prevalence smoking population, KTSND is able to distinguish smokers from non-smokers and that identifying social nicotine dependence is a likely predictor for current tobacco use. Furthermore, the results obtained after stratification by gender supported the applicability of the test by revealing that both smoking females and males displayed the highest social nicotine dependence.

With respect to gender as a predictor, some studies have reported that smoking is more frequent among Romanian boys than girls [2,3]. Our study revealed similar results among Romanian dental students. Conversely, gender showed no association with current tobacco use among Australian dental students [24]. Gender differences found in the present study may also stem from cultural influences. The higher rate of smoking among Romanian boys compared to girls could be attributed to existing cultural traditions that depict smoking as a more masculine behaviour [29]. Another explanation could be that girls use more effective strategies to resist smoking temptation, as compared to boys. For example, in order to avoid smoking, girls apply more cognitive methods, while boys rely more on alternative behaviours such as practicing sports [29]. Interestingly, the highest KTSND mean score was recorded in smoking female students, suggesting different gender-related perceptions regarding smoking. A recent study revealed that Romanian girls aged 13-14 years were more convinced than boys that smoking would result in helping them getting more attention and becoming easier part of the crowd, declaring lower self-efficacy in refraining from smoking when friends smoke or offer them a cigarette [30].

A clear majority of the smoking students were in the contemplator stage, suggesting the students' awareness of the negative effects of smoking. Nevertheless, the lack of preparedness for tobacco cessation was evident in the study group. One explanation for this negligence could be that the effects of smoking on oral and, in particular, periodontal health are insufficiently appreciated or underestimated [14,15]. Other explanations may be related to local legislation and the economic situation in Romania. Although smoking in public areas and workplaces in Romania is banned, the law is poorly enforced [2]. A recent study demonstrated that legislation prohibiting smoking increases success at smoking cessation [31]. Conversely,

financial difficulties may negatively impact the likelihood of success at quitting smoking [32].

The rate of agreement with Q6 ("tobacco has positive physical or mental effects") and Q7 ("tobacco has effects to relieve stress") was higher among smoking students. Q6 and Q7 represent the rationalisation and justification of smoking. Two items denying the ill effects of smoking – Q9 ("doctors exaggerate the ill effects of smoking") and Q10 ("people can smoke wherever ashtrays are available") – also elicited higher rates of agreement among smokers. Moreover, Q7 and Q10 are considered to be among the core issues of psychological nicotine dependence, as they reveal a positive image of tobacco, which may pose the greatest obstacle to smoking cessation or to *Tobacco Control* in society [21]. The high prevalence and wide-ranging social acceptability of smoking in Romania likely may explain our findings, which in this framework suggest a need for tobacco prevention and cessation in the curriculum.

In our study, we found no difference in smoking rates between dental students in the early and late phases of their studies, although some studies have reported conflicting findings with respect to the age of dental students. On the one hand, some studies have reported higher smoking rates among senior students [4,33,34], but on the other hand, a recent paper by Huang et al. [24] demonstrated that the year of dental study showed no association with the smoking rate among students in Australia. In our study, the similar findings in the two subgroups may stem from the absence of a tobacco-control programme during dental studies. Exposure to more evidence-based information about tobacco use during the students' studies could significantly affect smoking rates [35].

Senior students were more likely to smoke in order to relax (Q6), as were other students [36]. This attitude may result from the stress induced by exams, social responsibilities, fear of failure to graduate, or unemployment [37]. Common attitudes and motives toward smoking among dental students, as well as differences recorded between the two subgroups, may serve as effective starting points for various interventions and messages [38,39]. In this regard, smoking dental students lent their support to *Tobacco Control* programmes that stressed specific items. Highlighting the negative consequences of smoking and teaching how to conduct oneself in different social situations where smoking may occur, as well as how to handle stress and negative emotions, are possible target interventions.

The cross-sectional study design has its limitations. A longitudinal study would enable one to test changes in the relationship between social nicotine dependence and smoking attitudes. In this regard, our study is a good departure point for a six-year follow-up study of

dental students after implementing a tobacco-control programme. Even though the study does not reflect the characteristics of all Romanian dental students it certainly provides valuable information regarding smoking attitudes and social nicotine dependence among the dental students.

In our study, we observed high smoking rates among Romanian dental students, the males being more frequently smokers than females. To our knowledge, no studies have used this tool in investigating the social nicotine dependence and smoking behaviour of European dental students. The Kano test was applicable in a high-prevalence smoking population and can be used in detecting smokers and non-smokers. More emphasis ought to focus on tobacco prevention and cessation activities in the dental curriculum.

Authors' contributions

All authors were involved in the study concept and design. AD and RS carried out data collection. AD and JV performed statistical analyses and interpretation of the data. All authors participated in writing of manuscript. All authors read and approved the final manuscript.

Acknowledgement

References

1. McCartney G, Mahmood L, Leyland AH, Batty GD, Hunt K. Contribution of smoking-related and alcohol-related deaths to the gender gap in mortality: evidence from 30 European countries. *Tobacco Control*. 2011; **20**: 166-168.

2. Lotrean LM, Ionut C, de Vries H. Tobacco use among Romanian youth. *Salud Pública de México*. 2006; **48** Suppl **1**: S107-112.

3. Lotrean LM, Kremers S, Ionut C, de Vries H. Gender differences regarding the alcohol-tobacco relationship among Romanian adolescents--a longitudinal study. *European Journal of Public Health*. 2009; **19**: 285-289.

4. Dumitrescu AL. Tobacco and alcohol use among Romanian dental and medical students: a cross-sectional questionnaire survey. *Oral Health & Preventive Dentistry*. 2007; **5**: 279-284.

5. Carr AB, Ebbert J. Interventions for tobacco cessation in the dental setting. *Cochrane Database Systematic Reviews*. 2012; **6**: CD005084.

6. Warnakulasuriya S. Effectiveness of tobacco counseling in the dental office. *Journal of Dental Education*. 2002; **66**: 1079-1087.

7. Petersen PE. Global policy for improvement of oral health in the 21st century--implications to oral health research of World Health Assembly 2007, World Health Organization. *Community Dentistry and Oral Epidemiology*. 2009; **37**: 1-8.

8. Sheiham A, Watt RG. The common risk factor approach: a rational basis for promoting oral health. *Community Dentistry and Oral Epidemiology*. 2000; **28**: 399-406.

9. Johnson GK, Guthmiller JM. The impact of cigarette smoking on periodontal disease and treatment. *Periodontology* 2000. 2007; **44**: 178-194.

10. Tomar SL. Dentistry's role in *Tobacco Control*. *Journal of American Dental Association*. 2001; **132** Suppl: 30S-35S.

11. Tomar SL, Winn DM, Swango PA, Giovino GA, Kleinman DV. Oral mucosal smokeless tobacco lesions among adolescents in the United States. *Journal of Dental Research*. 1997; **76**: 1277-1286.

12. Hashim R, Thomson WM, Pack AR. Smoking in adolescence as a predictor of early loss of periodontal attachment. *Community Dentistry and Oral Epidemiology*. 2001; **29**: 130-135.

13. Petersen PE. Oral cancer prevention and control--the approach of the World Health Organization. *Oral Oncology*. 2009; **45**: 454-460.

14. Amemori M, Michie S, Korhonen T, Murtomaa H, Kinnunen TH. Assessing implementation difficulties in tobacco use prevention and cessation counselling among dental providers. *Implementation Science*. 2011; **6**: 50.

15. Bergström J. Periodontitis and smoking: an evidence-based appraisal. *Journal of Evidence-Based Dental Practice*. 2006; **6**: 33-41.

16. Vanobbergen J, Nuytens P, van Herk M, De Visschere L. Dental students' attitude towards anti-smoking programmes: a study in Flanders, Belgium. *European Journal of Dental Education*. 2007; **11**: 177-183.

17. Croucher R, Islam S, Jarvis MJ, Garrett M, Rahman R, Shajahan S, Howells G. Oral tobacco cessation with UK resident Bangladeshi women: a community pilot investigation. *Health Education Research*. 2003; **18**: 216-223.

18. Inagaki K, Hayashi J, Ting C, Noguchi T, Senda A, et al. Dental undergraduates' smoking status and social nicotine dependence in Japan and Taiwan - comparison between two dental schools. *Japanese Journal of Tobacco Control*. 2008; **3**: 81-85.

19. Yoshii C, Kano M, Aizawa M, Harada H, Harada S, et al. The trial use of the Kano Test for Social Nicotine Dependence. *Nihon Kin-en Ishirenmei Tsushin*. 2004; **13**: 6-11.

20. Otani T, Yoshii C, Kano M, Kitada M, Inagaki K, Kurioka N, Isomura T, Hara M, Okubo Y, Koyama H. Validity and reliability of Kano Test for Social Nicotine Dependence. *Annals of Epidemiology*. 2009; **19**: 815-822.

21. Yoshii C, Kano M, Isomura T, Kunitomo F, Aizawa M, Harada H, Haradam S, Kawanami Y, Kido M. Innovative questionnaire examining psychological nicotine dependence, "The Kano Test for Social Nicotine Dependence (KTSND)". *Journal of University of Occupational and Environmental Health*. 2006; **28**: 45-55.

22. Kitada M, Musashi M, Kano M. Reliability and validity of Kano Test for Social Nicotine Dependence (KTSND), and development of its revised scale assessing the psychosocial acceptability of smoking among university students. *Hokkaido Igaku Zasshi* 2011; **86**: 209-217.

23. Ionescu C, Mihaescu T. Smoking behaviour, knowledge and attitudes of medicine, dentistry, and pharmacy students. *Revista medico-chirurgicala a Societatii de Medici si Naturalisti din Iasi*. 1986; **90**: 79-85.

24. Huang B, Inagaki K, Yoshii C, Kano M, Abbott PV, Noguchi T, Takahashi K, Bessho K. Social nicotine dependence in Australian dental undergraduate students. *International Dental Journal*. 2011; **61**: 152-156.

25. Centers for Disease Control and Prevention (CDC). State-specific secondhand smoke exposure and current cigarette smoking among adults - United States, 2008. *MMWR Morbidity and Mortality Weekly Report*. 2009; **58**: 1232-1235.

26. Kurioka N, Morooka Y, Yoshii C, Inagaki K, Sezai I, et al. Efficacy and ongoing problems in a three-month smoking cessation program establishedunder the *Public Health* insurance system in Japan. *Japanese Journal of Tobacco Control*. 2008; **3**: 4-6.

27. Padjen I, Dabić M, Glivetić T, Biloglav Z, Biočina-Lukenda D, Lukenda J. The analysis of tobacco consumption in Croatia--are we successfully facing the epidemic? *Central European Journal of Public Health*. 2012; **20**: 5-10.

28. La Torre G, Kirch W, Bes-Rastrollo M, Ramos RM, Czaplicki M, Gualano MR, Thümmler K, Ricciardi W, Boccia A; GHPSS Collaborative Group. Tobacco use among medical students in Europe: results of a multicentre study using the Global Health Professions Student Survey. *Public Health*. 2012; **126**: 159-164.

29. Craciun C, Baban A. Exploring smoking in Romanian adolescents: prevalence, predictors and meanings of smoking. *Cognition, Brain, Behavior.* 2008; **12**: 435-452.

30. Lotrean LM, De Vries H. Identifying gender differences among Romanian non-smoking junior high school students. *Central European Journal of Public Health.* 2012; **20**: 33-37.

31. Nagelhout GE, de Vries H, Boudreau C, Allwright S, McNeill A, van den Putte B, Fong GT, Willemsen MC. Comparative impact of smoke-free legislation on smoking cessation in three European countries. *European Journal of Public Health.* 2012; **22** (Suppl) 1: 4-9.

32. Caleyachetty A, Lewis S, McNeill A, Leonardi-Bee J. Struggling to make ends meet: exploring pathways to understand why smokers in financial difficulties are less likely to quit successfully. *European Journal of Public Health.* 2012; 22 Suppl **1**: 41-48.

33. Furukawa S, Tokunaga R, Abe S, Shinada K, Kawaguchi Y. [Dental students' smoking behavior and their attitude towards smoking]. *Kokubyo Gakkai Zasshi.* 2005; **72**: 201-208.

34. Pizzo G, Licata ME, Piscopo MR, Coniglio MA, Pignato S, Davis JM. Attitudes of Italian dental and dental hygiene students toward tobacco-use cessation. *European Journal of Dental Education.* 2010; **14**: 17-25.

35. Haresaku S, Hanioka T, Yamamoto M, Ojima M. Impact of a tobacco curriculum on smoking behaviour and attitudes toward smoking in dental students in Japan: a three-year follow-up study. *International Dental Journal.* 2010; **60**: 99-105.

36. Piko BF, Wills TA, Walker C. Motives for smoking and drinking: country and gender differences in samples of Hungarian and US high school students. *Addictive Behaviors.* 2007; **32**: 2087-2098.

37. Berg CJ, An LC, Thomas JL, Lust KA, Sanem JR, Swan DW, Ahluwalia JS. Smoking patterns, attitudes and motives: unique characteristics among 2-year versus 4-year college students. *Health Education Research.* 2011; **26**: 614-623.

38. Kreuter MW, Wray RJ. Tailored and targeted health communication: strategies for enhancing information relevance. *American Journal of Health Behavior.* 2003; 27 Suppl **3**: S227-S232.

39. Niederdeppe J, Farrelly MC, Haviland ML. Confirming "truth": more evidence of a successful tobacco countermarketing campaign in Florida. *American Journal of Public Health.* 2004; **94**: 255-257.