



ORIGINAL ARTICLE

Smoking among dental students at King Saud University: Consumption patterns and risk factors



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Received 7 November 2013; revised 21 February 2014; accepted 31 March 2014

Available online 14 May 2014

KEYWORDS

Smoking;
Tobacco;
Dental Student;
Shisha;
Curriculum

Abstract Objective: To assess smoking prevalence among dental students at King Saud University (KSU) and to determine possible risk factors of tobacco use.

Methods: A self-addressed invitation letter was sent to all dental students (males and females) at KSU requesting participation in this study. Data on smoking habits, associated risk factors, and demographic factors, such as age, marital status, residency status, the student's year of study, and grade point average, were collected by an electronic self-administered questionnaire sent via email. Data were analyzed using SPSS. Significant differences between different groups were assessed with a Pearson Chi-Square test at $\alpha = 0.05$. Logistic regression analysis was used to calculate the odds ratio (OR) and 95% confidence interval (95% CI) and to determine the effect of different risk factors on students' smoking habits.

Results: Of the 600 registered dental students, 400 students responded (230 males, 170 females), representing a response rate of 67%. More male than female students were current smokers (27.6% vs. 2.4%, $p < 0.001$). Most smokers used shisha tobacco only ($N = 35$, 51.5%), followed by both shisha tobacco and cigarettes ($N = 17$, 25%), or cigarettes only ($N = 16$, 23.5%). Male students were about 4 times more likely to be smokers if all or most of their friends were smokers compared to students who had some friends who smoked (OR = 3.9, 95% CI = 1.9–7.7). A high proportion of current smokers (47.8%) reported stress as the main reason for smoking. Twenty-six percent of dental students ($N = 87$) who are currently nonsmokers reported that they have used tobacco at some point in their lives. Over two thirds of sampled students (63%) believed that public tobacco usage is not well addressed in the current college curriculum.

Conclusion: Approximately one in every four male dental students at KSU is a smoker. Having friends who are smokers was the most important risk factor associated with smoking. There is a general belief among dental students that public tobacco use is not well addressed in the dental college curriculum.

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Peer review under responsibility of King Saud University.



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1. Introduction

Tobacco use is a major risk factor for many health problems. The World Health Organization (WHO) estimates that over one billion individuals currently smoke tobacco, with

approximately five million deaths a year being attributed to tobacco. If this pattern of smoking continues, WHO estimates that tobacco-attributable mortality will exceed eight million deaths per year by 2030 (WHO, 2008). Among men in industrialized countries, smoking contributes to 40–45% of all cancer deaths and 35% of cardiovascular disease deaths, as well as to 90–95% of lung cancer death, over 85% of oral cancer death, and 75% of deaths due to chronic obstructive lung disease in those 35 to 69 years old (Johnson, 2001).

Tobacco use has many oral adverse effects. Cancers of the oral cavity and larynx rank second for the highest relative risk of cancer due to smoking (IARC, 2004). In addition, the risk of developing oral cancer is significantly associated with the amount of tobacco smoked and the duration of smoking in all countries that have reported epidemiological studies (Warnakulasuriya et al., 2010). Other oral adverse effects include staining of teeth, reduced abilities to smell and taste, smoker's melanosis, smoker's palate, oral candidiasis, and implant failure (Reibel, 2003). Smoking increases the severity of periodontal disease and jeopardizes almost all forms of periodontal therapy (Johnson and Slach, 2001). The adverse risks of smoking may extend to those living with smokers. For example, children who are exposed to smoking have almost double the risk of developing dental caries in primary teeth compared to children not exposed to smoking (Aligne et al., 2003).

Tobacco can be consumed in forms besides cigarette smoking. For example, pipe smoking (nargile, shisha) is commonly practiced in the eastern Mediterranean region (Baddoura and Wehbeh-Chidiac, 2001; Maziak et al., 2004a,b,c). This type of smoked tobacco contains high concentrations of carbon monoxide, nicotine, tar, and heavy metals (Sajid et al., 1993; Shafagoj and Mohammed, 2002). Because of the presence of these products and other toxins, pipe smokers may be at a greater risk of serious respiratory diseases and cancers (Al-Fayez et al., 1988; Gunaid et al., 1995). The high prevalence of pipe smoking can be attributed to positive sensory characteristics, such as the attractive smell and taste, especially to the younger generation (Maziak et al., 2004a). Tobacco can also be consumed as smokeless tobacco, where tobacco is placed in the oral vestibule in contact with the mucous membrane to allow nicotine absorption (Johnson, 2001). Smokeless tobacco contributes significantly to the incidence of oral cancers (Critchley and Unal, 2003).

Despite the widespread recognition that tobacco contributes to serious health problems, the prevalence of tobacco use continues to increase globally (Muzyka et al., 2009). With many restrictions and regulations on tobacco use in developed countries, the tobacco industry has opted to search for other markets. More than one billion people worldwide smoke tobacco, corresponding to about one quarter of all adults (WHO, 2008). The burden of tobacco use is the greatest in low- and middle-income countries and is expected to increase more rapidly in these countries in coming decades (WHO, 2009). In Saudi Arabia, tobacco consumption is a major public health problem, with increasing use among adolescents (Abdalla et al., 2007; Mandil et al., 2011). It has been reported that the prevalence of smoking among university students in Saudi Arabia ranges between 2.4 and 37% (Bassiony 2009). Smoking prevalence among students varies based on the major of study, with lower smoking prevalence in science and professional colleges (Koura et al., 2011; Abolfotouh et al., 1998). In

addition, smoking among males is consistently higher, both at the general population and university student levels (Al-Haqwi et al., 2010; Al-Kaabba et al., 2011; Al-Turki et al., 2010).

Several investigations have examined tobacco use among dental students (Alomari et al., 2006; Dumitrescu, 2007; Komu et al., 2009; Khami et al., 2010). Dental professionals have a lower smoking rate than other health professionals (Smith and Leggat, 2007) or the communities in which they live. Furthermore, smoking tobacco is relatively uncommon among contemporary dental students in industrialized countries compared to dental students in developing countries (Smith and Leggat, 2007). In Saudi Arabia, cigarette smoking has been reported among 13% and 2% of male and female dental students, respectively (Almas et al., 2003).

Physicians are generally perceived as role models for their patients (Bolinder et al., 2002) and may play a significant role in encouraging smokers to quit (CDC, 2005). However, physicians that smoke may not be as effective as nonsmoking physicians in addressing tobacco cessation interventions (Olive and Ballard, 1992; Pipe et al., 2009). The current smoking habits among dental students at King Saud University (KSU) are unknown. Therefore, the purpose of this study was to assess the smoking prevalence among dental students at KSU and to determine possible risk factors of tobacco use.

2. Methods

This cross-sectional study was conducted at the dental school-KSU. The dental school at KSU was the first dental school established in Saudi Arabia in 1975 and is located in the capital city of Saudi Arabia (Riyadh) in the central region. It consists of two separate campuses for male and female students. An electronic self-administered questionnaire was developed in Arabic language based on WHO-Global Adult Tobacco Survey (GATS) questionnaires (WHO-GATS) and relevant literature. Ethical approval to conduct this study was granted by the Ethics Committee of the College of Dentistry Research Center at KSU. Data collected included smoking habits, associated risk factors, and demographic factors, such as age, gender, marital status, residency status, current level of study, grade point average (GPA), and parents' educational levels.

Smoking habits were categorized as nonsmoker, current smoker, or former smoker. Students' smoking habits were assessed as: time starting smoking (before or after starting college), duration of smoking (in years), types (cigarettes, shisha, or both), frequency (daily or weekly), and quantity (number of cigarettes smoked daily). Students were also asked to determine their preferred place for smoking, as well as what triggered the initiation of smoking (friends' influence, smoking parents, stress, experimenting, reward for hard work, and boredom). Students' intentions to quit in the future were assessed, as were smoking habits among parents, siblings, and friends. Students' opinions were collected regarding passive smoking, banning of smoking in public places, role of the dentist in patients' smoking cessation, and the adequacy of current dental school curriculum in addressing the problem of tobacco consumption. The accuracy and clarity of the designed questionnaire were assessed on a sample of 20 dental interns.

Dental students were recruited for the study by first obtaining a complete list of names and email addresses from the

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