Tobacco Smoking among Medical Students in the Middle East: Identifying Areas for Intervention

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Abstract

A cross sectional study was conducted on medical students enrolled in the Arabian Gulf University in the Kingdom of Bahrain. The objective was to describe medical students' tobacco smoking behavior and to provide recommendations for promoting a healthy lifestyle among them. A self administered anonymous questionnaire was used, which included questions on demography and tobacco smoking behavior. The study showed that 10.8% only of the medical students were current smokers, either on daily or occasional basis. However, 27.0% of the males were current smokers compared to 4.2% of the females (p<0.001). The mean and median ages of starting to smoke were 17.43±2.3 and 18 years, respectively. The prevalence of smoking was higher among students of years 3 and 4 than in years 1 and 2.

Tobacco smoking behaviors cluster among students according to gender and medical year. Urgent interventions are needed to promote smoking cessation among medical students.

1. Introduction

Globally, tobacco is considered to be one of the leading causes of death (Jayakumary, Jayadevan, Ranade, & Mathew, 2010). Despite the good knowledge on the hazards of tobacco consumption, 24.8% male, and 9.1% female medical students in Jeddah, Saudi Arabia continue to smoke (Wali, 2011). The prevalence of smoking was higher among medical students than the general population as reported by a European survey (La Torre et al., 2011). Unlike medical students in the United States (U.S.), who are less likely to smoke than other young adults in the U.S., however, they are still more likely than U.S. physicians (Frank, Elon, Spencer, & Ernst, 2009).

Studies in the Arabian Gulf region have addressed specific lifestyle behaviors of health professionals such as smoking behavior and health-promoting lifestyle (Al-Kandari & Vidal, 2007; Behbehani et al., 2004; Hamadeh, 1994). Grant, Gibbs, Naseeb, & Garf (2007) concluded that Arabian Gulf University (AGU) students were valuable advocates for families as they were able also to offer practical help in lifestyle behavior changes, communication, and community-resource use.

Hamadeh (1994) concluded that smoking increased among AGU male medical students while they were at medical school as most of them took up the habit during their medical training. Furthermore, the percentage of current smokers was highest in the final year and ex-smokers the lowest. These results suggested that medical education and knowledge about the harmful health effects of smoking had relatively little impact on smoking behavior.

Hamadeh (2007) concluded in her study about smoking among AGU medical students that smoking prevalence among males and females students were 35.2% and 7.5%, respectively. Hamadeh & Musaiger

(2000) reported that prevalence of smoking was 32.1% and 20.7% among men and women aged 30-79 years, respectively in Bahrain. A statistically significant association ($p< 0.001$) was observed with respect to smoking status and educational level in both sexes. Smoking was associated with less exercise and more television watching. The findings suggest that smokers should be counseled about their unhealthy lifestyle habits in addition to quitting smoking.

Arabian Gulf University (AGU) is a regional university established in 1983 and based in the Kingdom of Bahrain. It has two colleges, the College of Medicine and Medical Sciences (CMMS) and the College of Graduate Studies. AGU hosts students of both genders from Gulf Cooperation Council (GCC) countries (Bahrain, Saudi Arabia, Kuwait, Oman, UAE and Qatar), where students are admitted based on their country's quota. Thus, AGU provides a unique opportunity to suggest guidelines to medical schools in the GCC countries. The CMMS follows a problem-based, student-centered and community-oriented curriculum. The problem-based learning (PBL) curriculum integrates basic medical sciences with related professional skills training, and community health activities. The program is of six years duration divided into three phases: the basic Sciences Phase (Phase I: Year 1), Pre-clerkship Phase (Phase II: Years 2-4), Clinical Clerkships Phase (Phase III: Years 5 and 6). The students learn about the hazards of tobacco smoking throughout phase II and III due to the spiral nature of the medical curriculum. At CMMS, English is the language of instruction (Hamdy & Anderson, 2006). The objective of the study was to describe the Arabian Gulf University medical students tobacco smoking behavior and to provide recommendations for promoting a healthy lifestyle among them.

2. Methods

A cross sectional study was conducted among AGU Years 1 to 4 medical students, during May 2009. A census of all AGU Years 1 to 4 medical students (535) who were enrolled during the Academic Year 2008-2009, was obtained from the Admission and Registration Unit. A self administered anonymous questionnaire in the English language was used. The questionnaire has been abridged from the adult questionnaire of the United Arab Emirates Health and Lifestyle Survey 2000 (Badrinath et al., 2002), which was validated and field tested. It was distributed to the students during May 2009 in the following manner: For Year 1 students, the questionnaire was distributed at the beginning of the Biostatistics class. As Years 2 to 4 students are divided into groups of 8-10 students in the tutorial sessions which are held twice per week, hence those students were given the questionnaires by their respective tutors during their first session. The respective tutors were briefed about this process by a covering letter which was kept along with the questionnaires in the tutorial boxes that contain the teaching materials. These boxes were collected from the medical education office by tutors before the tutorial sessions and returned back after the tutorial sessions. The completed questionnaires were put in sealed envelopes by the students and returned to the tutor who placed them in the tutorial boxes. The questionnaires were resent in the following week to the tutors for the students who were absent the day of data collection during the tutorial session. A covering letter was enclosed in the tutorial box to the respective tutors instructing them to distribute the questionnaires only to the students who were absent in the previous tutorial session. Data entry and analysis were done using the Statistical Product and Service Solutions (SPSS), Version 17.0. Descriptive statistics and the chi-square test was applied when appropriate.

3. Results

Of the 535 medical students who were enrolled in years 1-4 during the academic year 2008-2009, only 443 responded to the questionnaire resulting in an overall response rate of 82.8%. One hundred thirty one students

(29.6%) were from Year 1, 109 (24.6%) from Year 2, 90 (20.3%) from Year 3 and 113 (25.5%) from Year 4. The highest response rate was from Year 4 (90.4%) and the lowest from Year 3 (73.2%). The response rates for Years 1 and 2 were 82.9% and 84.5%, respectively. Eighty six percent of the female students responded to the questionnaire compared to 73.7% of the male students. Seventy one percent of the students were females, 45.4% in the age group 20-21 years, 26.5% in the age group 18-19 years, 26.3% in the age group 22-23 years, and only 1.8% were 24 years or older. Forty two percent of the students lived with their families, 33.8% in university housing, and the rest either living alone or with their friends (10.7% and 11.1%, respectively).

Tables 1 - 2 show that 10.8% only of the medical students were current smokers, either on daily or occasional basis. However, 27.0% of the males were current smokers compared to 4.2% of the females ($p<0.001$). The mean and median ages of starting to smoke were 17.43±2.3 and 18 years, respectively. The minimum age of starting to smoke was 11 years and the maximum 20 years. Further analyses of smoking by medical year and gender showed that 11.3% of the male students were tobacco smokers in Year 1 compared to 35.5% in Year 2, 36.9% in Year 3 and 34.4% in Year 4. One percent of the female students were tobacco smokers in Year 1 compared to 1.4% in Year 2, 7% in Year 3 and 7.7% in Year 4.

The prevalence of cigarette smoking among male students was 23.0% and that of female students 1.9%. The corresponding figures for Sheesha and pipe smoking were 23.8%, 4.5%, and 1.8%, 0.2% respectively. Two percent of male students smoked cigars compared to none of the female students. More male and female students smoked cigarettes and Sheesha than pipe and cigar. They smoked cigarettes and *Sheesha* on both daily and occasional basis but there were no daily of pipes and cigar smokers (Figures 1 - 2).

Table 1: Smoking Behavior of Medical Students by Gender and Medical Year

	Daily	**Occasional**	**Ex-Smoker**	**Never Smoker**
Gender n=436*				
Male	12.7%	14.3%	4.8%	68.3%
Female	0.3%	3.9%	1%	94.8%
Total	3.9%	6.9%	2.1%	87.2%
p value	< 0.001			
Medical Year n=436*				
Year 1	1.5%	3.1%	1.5%	93.9%
Year 2	4.7%	6.6%	3.8%	84.9%
Year 3	4.4%	8.9%	0%	86.7%
Year 4	5.4%	9.8%	2.7%	82.1%
p value	0.193			

* missing data for 7 persons

Table 2: Smoking Behavior of Male and Female Medical Students by Medical Year

	Male				Female			
	Daily	Occasional	Ex-Smoker	Never Smoker	Daily	Occasional	Ex-Smoker	Never Smoker
Medical Year n=436*								
Year 1	4.5%	6.8%	2.3%	86.4%	0%	1.1%	1.1%	97.7%
Year 2	16.1%	19.4%	9.7%	54.8%	0%	1.4%	1.7%	97.3%
Year 3	15.8%	21.1	0%	63.2%	1.4%	5.6%	0%	93%
Year 4	18.8%	15.6%	0.3%	59.4%	0%	7.7%	1.3%	91%
Total	12.7%	14.3%	4.8%	68.3%	0.3%	3.9%	1%	94.8%
p value	0.156				0.280			

* missing data for 7 persons

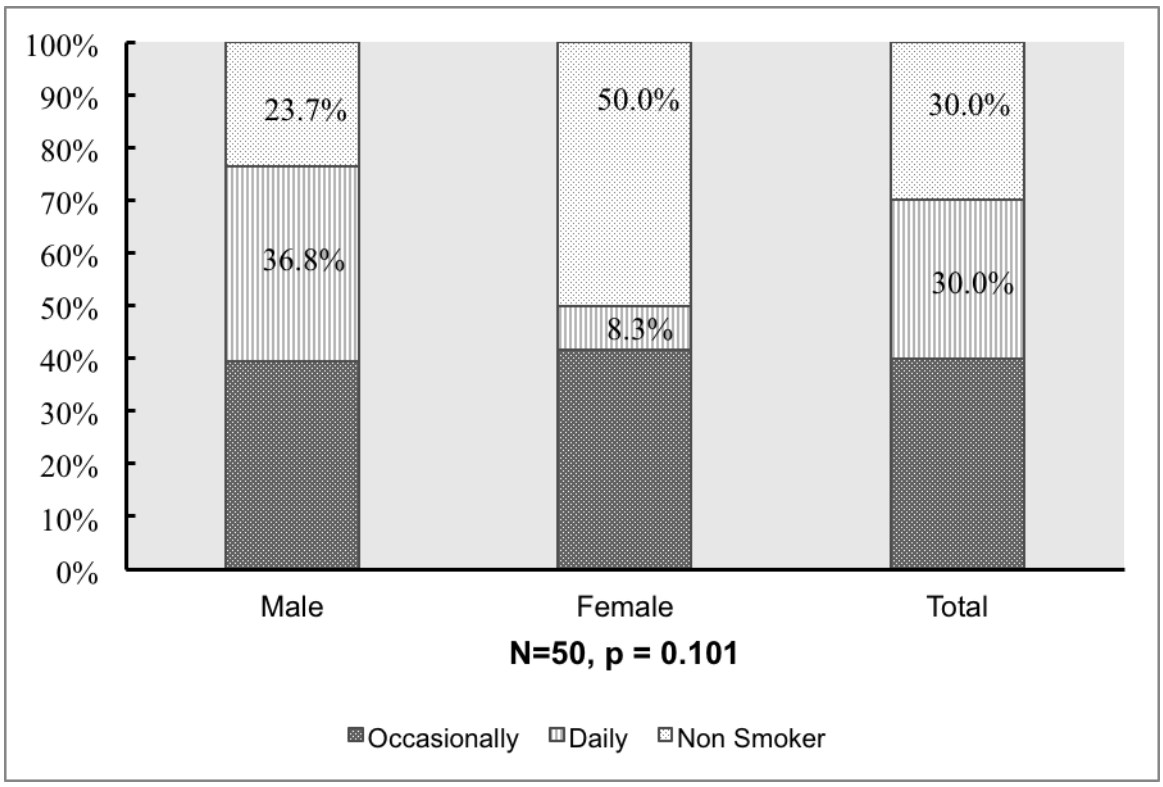

Figure 1: Frequency of cigarette smoking among current tobacco smokers by gender

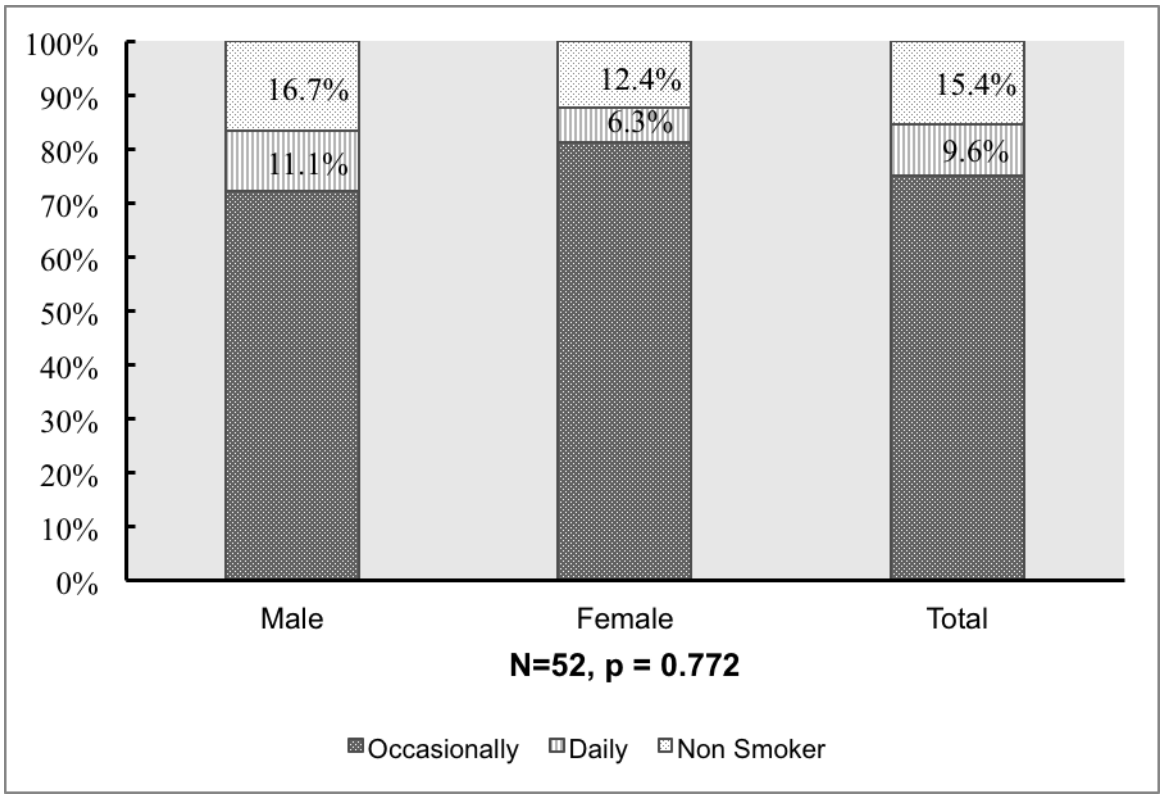

Figure 2. Frequency of *Sheesha* smoking among current tobacco smokers by gender

4. Discussion and conclusion

About eleven percent of the medical students were current tobacco smokers, either on daily or occasional basis. 27% of the male students were current smokers, compared to 4.2% of the females. The prevalence of cigarettes smoking was 23% among male students and 1.9% among female students. The corresponding percentages for Sheesha smoking were 23.8% and 4.5% respectively. Similar findings were reported among health science university students in Saudi Arabia by Subhan, Al-Khlaiwi, & Ghandourah (2009) were one tenth of respondents smoked, and being more prevalent in males than females. Although Sheesha was smoked more occasionally than cigarettes, Sheesha smoking seems to be gaining popularity among university students. Al-Turki & Al-Rowais (2008) reported that the prevalence of active smoking among male (13%) and female (2.4%) students in the College of Medicine was lower than that of their counterparts in this study. Furthermore, Bassiony (2009) concluded that smoking behavior in Saudi Arabia is prevalent at different age groups and the prevalence of current smoking is much higher in males than in females at different ages. In United Arab Emirates, it was observed that smoking prevalence is on the rise among females in health related colleges especially *Sheesha* (Mandil et al., 2007). An earlier study on CMMS students, at AGU concluded that the prevalence of smoking among male medical students was relatively high and that the majority of male smokers started to smoke during their medical training (Hamadeh, 1994). Another study emphasized the importance of focusing on tobacco smoking intervention in addition to the tobacco smoking health impacts (Hamadeh, 1995). Results of the current study confirm the findings of Hamadeh (1995), since the majority of AGU medical students knew about the hazards of smoking but their attitude towards their preventive and exemplary role was ambivalent. Similar suggestions were made by Fadhil (2009) who noted that there were major training deficiencies in medical schools about smoking cessation interventions. Moreover, in the United States, gaps still exist within undergraduate medical education, including lack of integration of tobacco

dependence information throughout all 4 years of medical school curricula (Spangler, George, Foley, & Crandall, 2002).

There should be caution in the generalization of the results as the study included years 1-4 students and the response rates varied according to gender and medical year, which might limit the generalization of the results. In addition the possibility of recall bias could not be excluded, as the questionnaire focused on events that happened during the past, ranging from the previous week to the previous six months. Thus, the prevalence of smoking of AGU medical students in this study are most likely underestimated.

Urgent interventions are needed at AGU on promoting smoking cessation among medical students. Such interventions include modifying the university's admission policy to include information on applicants smoking behavior to facilitate early intervention. In addition, reinforcing smoking cessation techniques in the medical curriculum, providing counseling services at the university for smoking cessation and continuously reinforcing the norm that AGU is a smoke free university for faculty, administrators and students. Further, students should be encouraged to actively participate in the health promotion and smoking control activities in Bahrain and their respective countries.

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