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Crescent Journal of Medical and Biological Sciences
Vol. 6, No. 2, April 2019, 140–145
eISSN 2148-9696

The Incidence of Smoking Among Male and Female Medical Students at Taif University: Analysing the Possible Influences

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Abstract

Objectives: Smoking is an essential and unavoidable risk factor for the disease and death worldwide. In addition, smoking is believed to be highly common among medical students and those studying in a clinical field who plan for becoming healthcare professionals, educators, and researchers. Thus, they are considered the prime targets for smoking prevention programs. Accordingly, the present study was designed to measure the prevalence and patterns of smoking among both male and female medical students. More specifically, it aimed to evaluate the reasons for smoking among medical students in order to recommend solutions to reduce or stop this habit.

Materials and Methods: This cross-sectional study was conducted during (December) 2017-(January) 2018. An online questionnaire was completed by 249 students attending the main College of Applied Medical Sciences at Taif University in Taif, Saudi Arabia.

Results: The results demonstrated that smoking was extremely prevalent among male and female medical students. In this population, the common types of smoking were tobacco (64%) followed by shisha (28%) and electronic cigarettes (8%). Further, based on the results, stress was regarded as the greatest common cause of smoking including 56% of the total students.

Conclusions: In general, more practical approaches are required to assist this group of students to reduce tobacco using or even stop their smoking habits. Therefore, the top priority should be to promote anti-smoking programs for medical students, which would definitely help manage the public health issues related to smoking.

Keywords: Smoking, Health, Medical students, Taif University

Introduction

Smoking is a growing global public health issue which murders nearly 6 million people annually (1). In addition, it is considered to be an important unavoidable reason for morbidity and mortality. Based on the reports, the percentage of smokers in countries with low and middle-income is 80%, and it is expected to increase to 1.7 billion by 2025 (2,3). Internationally, smoking is estimated to kill eight million people by 2030 if the current trend continues (2).

Further, smoking is accompanied by an extensive array of diseases such as gastrointestinal disease (4), pulmonary and cardiovascular diseases, and different types of cancer (5). Various research studies demonstrated the risks of smoking within the educational institutions including high schools and universities. However, the most important population who plays an essential role in fighting against smoking is healthcare professionals since they are able to educate other populations. Furthermore, they can support anti-smoking policies within their communities and inspire national and global tobacco control programs (6). Moreover, physicians are exceptionally well-placed to support smoking cessation within their communities. They can provide information and assistance to their patients in terms of health-related matters (7), and specifically, help them stop smoking. Finally, physicians can perceive the serious and permanent problems related to the health outcomes of their patients who smoke. However, different studies reported that the frequency of smoking has increased among healthcare workers even though they have a wider awareness of the negative outcomes of smoking (8-10). Thus, smoking prevention programs should primarily focus on medical students. Understanding the dangers of smoking is increased within this group and their knowledge regarding diseases related to smoking is extended through their studies (11).

Received 16 June 2018, **Accepted** 10 September 2018, **Available online** 9 October 2018

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Physicians and medical personnel who smoke any kind of tobacco products represent controversy and concern within the public health environment. Therefore, an understanding based on precise and historical data is required regardless of which countries this information comes from (6).

Although the World Health Organization has worked hard to prevent and treat smoking addiction, mainly in developing countries (12), there is still a need to evaluate the prevalence of smoking within an educated population who can have a positive impact on their surrounding communities. A systematic review of 66 studies, reflecting a global evaluation of tobacco smoking among the medical students, indicated that the overall prevalence of smoking ranged from 3% in Australia to 44% in Spain (6). Additionally, a crop of surveys related to smoking in Saudi Arabia demonstrated that the frequency of smoking among young adults of university age varied from 2.4%–37.0% (13). In addition, an increasing prevalence of smoking, in particular, shisha (water-pipe) and cigarettes were identified over time (13). It was further revealed that most of the smokers began their smoking habit before the age of 18 (14,15).

Generally, along with all the global and national studies, particularly those performed within the Saudi Arabian universities, the current study attempted to measure the occurrence and patterns of smoking between male and female students at the College of Applied Medical Sciences at Taif University in the Kingdom of Saudi Arabia. More importantly, this study sought to investigate the reasons for the students' smoking in order to consider solutions beyond the suggested problems.

Materials and Methods

Study Context and Period

The present study was undertaken at the College of Applied Medical Sciences at Taif University in Taif, Saudi Arabia during (December) 2017-(January) 2018. The data covered those students enrolled in four departments of the college including Clinical Laboratories, Nursing, Physiotherapy, and Radiology and were collected over 4 weeks.

Study Design and Data Collection Procedure

After an extensive literature review, an online questionnaire was established for this cross-sectional study. The highly useful data collection instrument was developed after group discussion with all co-authors. This was further improved by consulting with other experts in the field. Then, the questionnaire was piloted on a group of 25 participants who were similar to those of the main study. Finally, modifications were applied based on the experts' observation from the pilot study in order to improve and make the questionnaire more valid. During the lectures, the questionnaires were completed by the students under the supervision of the designated students in each class.

The first few questions focused generally on all the students who participated in the study including the smokers, ex-smokers, and non-smokers. The questions were related to their age, gender, family history, and knowledge regarding the dangers of smoking. The following questions were only related to the smokers and ex-smokers and evaluated the age at starting smoking, the type of smoking (e.g., cigarettes, shishas, and electronic cigarettes), the number of cigarettes smoked per day/week, and the reasons for beginning and continuing smoking.

Statistical Analysis

Qualitative data included numbers and percentages and were analyzed by the Statistical Package for the Social Sciences (SPSS) software, version 16 and Microsoft Excel using the student' t test. A $P > 0.05$ was considered statistically non-significant for all analyses.

Results

Smoking Incidence in Male and Female Medical Students

A total of 249 students participated in this study out of whom 116 cases in the Clinical Laboratories Department included smokers. Based on the results, no significant difference was detected regarding the prevalence of smoking among male and female students in that department ($P > 0.05$). The data respecting the incidence of smoking among medical students are provided in Table 1. The results indicated that approximately 46% of the females and 54% of the males were smokers within this department (Figure 1A).

Furthermore, the percentage of smokers was identical (50%) among the genders (29 students) in the Nursing Department, therefore there was no significant difference between male and female students regarding smoking ($P > 0.05$). The related data are shown in Table 1 and Figure 1B.

However, the results related to 29 students in the Radiology Department demonstrated that approximately 83% of the female students were smokers while only 17% of the male students were smokers. Therefore, the results were significantly different ($P < 0.05$). The data associated with this department is displayed in Figure 1C. Finally, a number of 77 students from the Physiotherapy Department participated in the study out of whom 17 students (23%) were smokers. It is noteworthy that all of these students were males (100%). These percentages were considerably significant ($P < 0.05$). Further details regarding these students are depicted in Figure 1D.

Table 1. Smoking Incidence in Male and Female Medical Students

Department	No. of Students	Smoker Students (%)
Clinical laboratory	116	20%
Radiotherapy	29	21%
Nursing	29	21%
Physiotherapy	75	23%

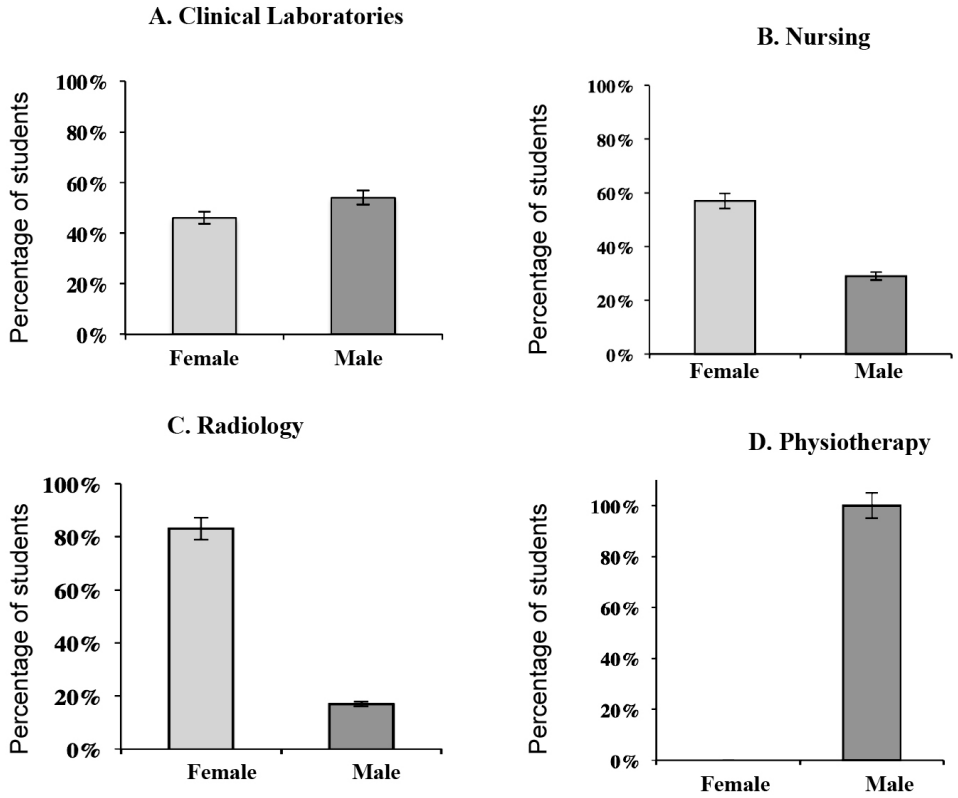

Figure 1. The Prevalence of Male and Female Smokers Among Different Departments at Collage of Applied Clinical Laboratories. This figure shows that the prevalence of smoking was different among the male and female medical students.

Evaluation of the Parameters Used to Assess the Status of smokers and Degree of Smoking

The age at which the students started smoking ranged between 17 and 21 years old for both female and male students. Totally, 51% of the females and 49% of the males were smokers (Figure 2A). Moreover, the frequency of daily and/or weekly smoking was analyzed and the results represented that 57% of the females and 43% of the males smoked more than four times per day (Figure 2B). However, these percentages did not significantly vary between these 2 groups.

Additionally, issues such as why the students previously continued smoking or tried to stop smoking were important factors which could help the researchers determine a way to treat the students' struggle for stopping smoking. The results indicated that 56% of both female and male students smoked to alleviate their stress. In addition, 21% of them smoked to cope with others (Figure 2C).

As regards the type of smoking, the results demonstrated that most of the students smoked tobacco (64%) followed by shishas (24%) and electronic cigarettes (8%), the details of which are illustrated in Figure 2D. Among 67% of the smokers (36 out of 53 students), a parent or one of their family members was a smoker, compared to 32% who had no family history of smoking (Figure 2E). The obtained results were significantly significant ($P<0.05$).

It is worth to mention that, knowing the risks associated with smoking was an essential parameter which was taken into consideration since this evaluation took place within the medical student community. More than 70% (38 out of a total of 53 students) of the smokers were aware of the health complications associated with smoking such as lung cancer, bladder cancer, and heart disease. This percentage was significantly significant ($P<0.05$). The related data are shown in Figure 2F.

Discussion

Over the past 20 years, numerous studies revealed that the epidemic of tobacco is definitely founded in the Kingdom of Saudi Arabia. Nevertheless, the majority of those studies addressed males. The results of one study conducted at the Medical College of King Abdulaziz University indicated that smoking is particularly popular within male medical students (16). However, the students represented worthy awareness of the smoking risks and its relationship with diseases, especially in relation to lung cancer and heart disease. The findings of this study further demonstrated that 13, 5.3, and 38.2% of the students were active, ex-, and passive smokers, respectively (16). Further, the smoking types included shishas or water-pipe (44.1%), cigarettes (32.2%), and both shisha and cigarette (23.7%). Eventually, friends' influence was the highest popular cause specified for smoking (35.6%).

Furthermore, using an improved form of the Global Youth Tobacco Survey, a cross-sectional study was performed on the undergraduate student population who

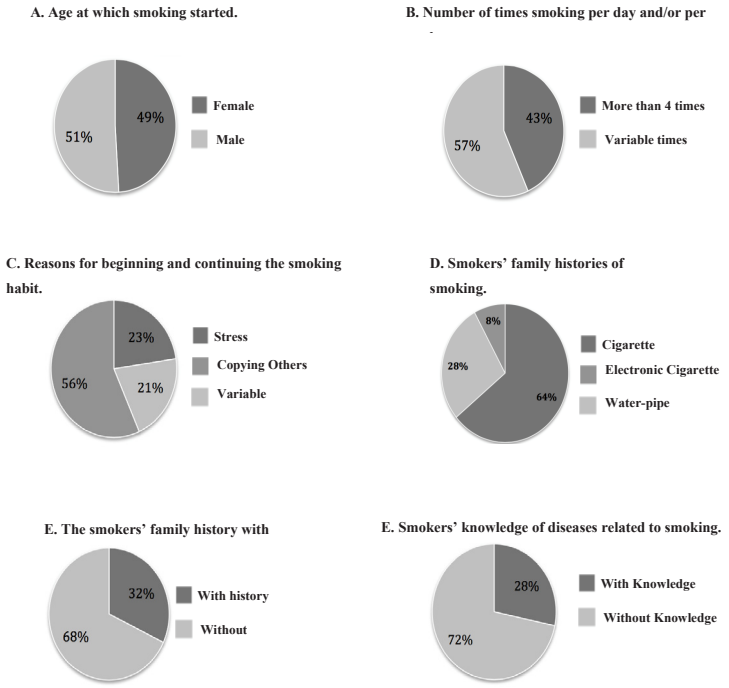

Figure 2. Evaluation of the Parameters Used to Assess the Status and Degree of the Smoking. A. The age at which the students started smoking ranged between 17 and 21 years old for both female and male students. B. The frequency of/ daily or weekly smoking was 57% for the females and 43% for the males who smoked more than four times a day. C. The pie chart displays that both female and male smokers smoke to alleviate their stress (56%) or cope with others (21%). D. Analyzing the smoking type indicated that most of the students smoked tobacco (64%) followed by shishas/hookahs (24%) and electronic cigarettes (8%). E. Among 67% of the smokers, a parent or one of their family members was a smoker compared to 32% who had no family history of smoking. F. More than 70% of smokers were aware of the health complications associated with smoking.

enrolled at King Saud University in Riyadh, Saudi Arabia during 2008-2009. The researchers investigated the rate and social forms of smoking among undergraduate students and the possible factors which induced the use of tobacco by the students (17). They found that the smoking frequency among students and their fathers and mothers were 14.5%, 22.2%, and 2.2%, respectively. However, the most significant smoking predictors were their smoking friends with a smoking frequency of 15.0% (17).

Moreover, another study implemented on female students at King Saud University aimed to define the prevalence of smoking, understand the risk factors of smoking, and study the effects of their family partners' smoking. The results demonstrated that the incidence of smoking varied in the dissimilar subject groups and that the major effect on individuals for beginning or discontinuing smoking was related to their family and friends. Additionally, it was particularly found that smoking was less dominant among the female students of distinctive colleges in Saudi Arabia, and the amount of shisha smoking was greater compared to cigarette smoking (18).

The current study was initially specific to the medical students at the College of Applied Medical Sciences. In addition, it attempted to compare the prevalence of smoking among female and male students. To this end, the study separately analyzed the frequency of smoking in each department. The results indicated that approximately 46% of the females and 54% of the males were smokers within the Clinical Laboratories Department. However, there was no meaningful difference in the smoking prevalence among male and female students in this department ($P < 0.05$). Similarly, no significant difference was observed between the percentages of female and male smokers in the Nursing Department ($P < 0.05$). Based on the results, the percentage of male and female smokers was 50%.

Conversely, the results of the Radiology Department represented a smoking rate of 83 and 17% among the females and males, respectively. In other words, the rate of smoking was significantly greater in female students compared to their male counterparts ($P < 0.05$). However, in the Physiotherapy Department, 17 (23%) out of 73 students (both males and females) were reported to be smokers all of whom were males (100%).

A study by Al-Kaabba et al focused on the cigarette smoking incidence and its associated harmful issues among the medical students at King Fahad Medical City in Riyadh and found a high prevalence of cigarette smoking. Further, they reported that contacting with their smoking friends was the major factor which caused the students to initiate smoking. In addition, they established a significant difference between the genders, with a higher smoking incidence in male smokers than female smokers (19). This could be due to cultural factors since smoking was considered to be inappropriate behavior for women. Earlier national, local, and global studies reported similar

trends among medical students (20,21). However, the results of the present study were not in line with those of Al-Kaabba et al who found a higher incidence of female smokers in the Physiology Department compared to male smokers. Contrarily, the results of the Radiology Department are in conformity with the findings of Al-Kaabba et al who reported a higher smoking incidence within the male students. Generally, the findings of the current study revealed that the prevalence of smoking varied among males and females in different departments.

Investigating different factors affecting the likelihood of smoking is considered extremely helpful for finding the right ways to prevent this dangerous habit. Accordingly, the age in which the students start smoking was studied within this specific group. The results demonstrated that nearly 51% of the students initiated smoking between the ages of 17 and 20 years old. Further, 57% of the students smoked more than four times a day. The results of the present study corroborate with the findings of previous studies indicating that most of the smokers began smoking before the age of 18 in rich countries (22). Furthermore, several studies indicated that the initiation of smoking in youth was closely related to consequent smoking behaviors including addiction to nicotine, difficulty in quitting, and an increase in the extent and rate of cigarette smoking (23,24). Moreover, the findings of the current study are in agreement with the results of a very recent study performed by Jallow et al who reported that the frequency and amount of smoking were typically correlated with the initiation age of the habit (3).

With regard to the type of smoking, the obtained data represented that the majority of the students smoked tobacco (64%) while the remaining students either smoked shishas (28%) or electronic cigarettes (8%). Thus, based on the findings, cigarette smoking was the major type of smoking among these students. However, other studies reported different prevalence rates for the types of smoking (16,18).

Additionally, the current study investigated the reasons for the students' smoking. The results revealed that a high percentage of the students smoked to alleviate their level of stress (56%) and this behavior was acceptable since they were in a studying community which put the students under high pressure, especially during their examination periods. In addition, copying with others (23%) was reported as another reason for smoking and the remaining 21% belonged to various other reasons such as liking the smell of the cigarette. The current results match those of Knopf who performed a similar study on British medical students and found that the elevated smoking prevalence among those students was due to training stress (25). Further, the current results represented a significant elevation with regard to the smokers' family histories (i.e., one or more family members were smokers). Based on the results, 68% of the students had a smoking parent or smoking family member (Figure 2E). This data are definitely in line with the findings of the above-mentioned studies by Al-Turki (16) and Abdulghani et al (18) who reported that family and friends were influential factors in directing the students toward starting or stopping smoking.

Furthermore, Jradi and Al-Shehri implementing a study regarding the tobacco epidemiology knowledge, smoking termination practices, and the requirements of tobacco treatment among 237 medical students. Based on their results, 91.4% of the students had not enough knowledge about smoking epidemiology (26). This finding contradicts the analysis conducted in the present study regarding being familiar with the known risks of smoking. The sample population used in the current study included 249 students and almost 72% of the males and females knew the harmful effects of smoking on behavioral and health factors. However, these results were undeniable since the sample population encompassed medical students.

Although the investigated population of the present study included medical students, all of the above studies discussed the differences in the degrees of the risk factors which played a role in increasing the occurrence of smoking among the students. Therefore, the findings of the current study are concurrent with those of various other studies focusing on the smoking prevalence. This study could be described as either international or local in terms of the high number of university students, specifically medical students. However, the problem pattern and degree varied in different contexts.

Conclusions

In general, the results demonstrated that the smoking popularity fluctuated among the male and female medical students in different departments of the College of Applied Medical Sciences. The majority of the students smoked tobacco while the others smoked shishas and electronic cigarettes. Based on the results, a high number of these students started smoking at university age, demonstrating the urgent need in finding the problems correlated with smoking. The extent and degree of smoking were extremely associated with the age at which the habit was initiated. Therefore, estimating the appropriate age is considered consequential for taking preventive actions regarding smoking. Moreover, there is a greater demand for initiating a smoking anticipation program during the young adolescence.

Being as the first research to be performed at Taif University, it was considered a unique study since it compared both male and female students specialized in different medical fields including Clinical Laboratories, Nursing, Radiology, and Physiotherapy.

Additionally, the increased need for promoting more health education activates during the academic period, especially during high-stress periods such as examinations. This should reduce the incidence of smoking among this population, which therefore can have a positive impact

on the smokers' families and friends, leading to the cessation of smoking within the community. Accordingly, preventing smoking in young people should be the main priority in order to manage the public health issues associated with smoking.

Conflict of Interests

None of the authors have any specific conflict of interest to declare.

Ethical Issues

The current study was approved by the Research Committee of the College of Applied Medical Sciences. Further, the purpose of the study and the information of the questionnaire was explained for the students before completing the questionnaires.

Financial Support

This study did not receive any specific funding from the grant agencies in the public, commercial, or charitable sectors.

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