

# Smoking Prevalence, Attitude, Knowledge and Practice Among Applied Medical Sciences Saudi Students in King Abdulaziz University



Shehab M Abd El Kader<sup>2</sup> and Ahmed A Al Ghamdi<sup>1\*</sup>

<sup>1</sup>Department of Medical Laboratory Technology, King Abdulaziz University, Saudi Arabia

<sup>2</sup>Department of Physical Therapy for Cardiopulmonary Disorders and Geriatrics, Cairo University, Egypt

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\*Corresponding author: Shehab M Abd El Kader, Department of Physical Therapy, Faculty of Applied Medical Sciences, King Abdulaziz University, P.O. Box 80324, Jeddah, 21589, Saudi Arabia, Email: [profshehab@live.com](mailto:profshehab@live.com)

## Abstract

**Background:** Smoking is one of the major causes of death as and it has been predicted to cause the deaths of 10 million per year by 2020 worldwide. However, In Saudi Arabia, tobacco consumption is a major public health problem, with increasing use among adolescents.

**Objective:** The aim of this study was to detect smoking prevalence, attitude, knowledge and practice among Applied Medical Sciences Saudi students in King Abdulaziz University.

**Material and Methods:** The present study included 494 students who are in the 2<sup>nd</sup> to the 4<sup>th</sup> year participated in this study. Hard copy questionnaire were distributed among the students during lecture times. The questionnaire was composed of four sections. The first section contained the questions related to demographic data (Gender, age, marital status etc.) of the participants. Second section of the questionnaire which contained 3 questions in total was about the knowledge of students regarding effects of smoking on health. Third section was about the general attitude of participants regarding smoking and it contained 11 questions. The fourth and last section contained 9 questions about the practicing of smoking among medical students and family members as well. The questionnaire was anonymous, self-written and adopted from Global Adult Tobacco Survey (GATS). The questionnaire takes around 10 minutes to be answered.

**Results:** The current study revealed a considerable higher prevalence of smoking among male than female students in Faculty of Applied Medical Sciences, King Abdul-Aziz University, Jeddah City, Saudi Arabia. One of the major and important findings of this current study was the positive attitudes of all studied students and smokers in particular towards smoking.

**Conclusion:** This finding of this study has to motivate and encourage the Ministry of Health to increase the number of smoking clinics and activate them and make them more popular and attract the smoker students to utilize helping them to quit smoking. In addition, it would be very helpful to organize smoking campaigns in the various faculties at the university to increase the awareness about the dangerous of smoking.

**Keywords:** Smoking; Prevalence; Attitude; Students; Saudi arabia

## Introduction

World Health Organization (WHO) 2015, reported that case fatality rate in case of tobacco smoking addiction is more than 15% of the total population around the globe. Estimates in 2015 have shown that 6 million people die because of direct cost of tobacco smoking (or other less common addiction methods). More than 3/4th of all such deaths are due to direct smoking causes; and the rest are attributed to passive smoking. Nearly 80% of smokers are residents of low or middle income and/or developing countries [1].

In Saudi Arabia, for the general population many studies investigated the prevalence of smokers. These studies indicated that the prevalence of current smoking in Saudi Arabia ranged between (9-35%), and among school students, the smoking prevalence was 16.5%, in university students 13.5%, among

adults 22.6%, elderly peoples 25%, and males 26.5% while in females 9% [2-4].

In fact, some studies investigated the prevalence of smokers among Saudi universities and colleges students in general, which found to be 14.5% [5]. Other studies focused on students who study in the health colleges (such as medicine and dentistry), and found the prevalence to be 16%, which considered be higher than the previous percentage, and when it compared male students in different health colleges on a national scale in Saudi Arabia as (Central: Kind Saud University ,King Fahad Medical City, Qassim university; North: Aljouf university, Hail university, Tabuk university ;South: Najran university, Jazan university, King Khalid University; East: Dammam university; and West: King Abdulaziz University and Taibah university) and indicated that

dental students smoke more than medicine students [6]. As the prevalence among dental students was 18% compared to medical students with a prevalence of 14%. However, this study did not include females, and did not consider Universities of Makkah city, despite the fact Makkah is considered one of the major cities nationally. Furthermore, a recent study was conducted in Najran university among health college students and found that the prevalence of smoking in male and female students (30.1%, 0.5%) respectively, the students at the college of applied medical sciences had the highest prevalence of smoking 34% followed by the students at colleges of pharmacy (15%) and dentistry (9%), and the lowest prevalence (4%) was at the college of medicine [7].

During medical school education, students are considered more cautious and logical about the hazards of smoking. However, opposite situation has been noticed in this case, as medical students are more likely to become smokers during their medical studies and an increase in the consumption of tobacco has noticed for the students who are already smokers. However, medical college students are different from non-medical college students as they are more likely to become occasional smokers [8].

There were no smokers in the first year of medical course but in the final year prevalence was 45.5% in Bahrain [9]. However, there is a study to measure the prevalence of smokers in the Umm al-Qura in college of medicine among male students and found that the prevalence of smoking was 30% [10]. According to our knowledge there was no previous studies carried out to investigate smoking among undergraduate students of Applied Medical Sciences in King Abdulaziz University. Thus, the aim of the present study was to detect smoking prevalence, attitude, knowledge and practice among Applied Medical Sciences Saudi students in King Abdulaziz University.

### Subjects & Methods

#### Research design

A descriptive cross-sectional study was conducted among students of the Faculty of Applied Medical Sciences in King Abdulaziz University, Jeddah, Saudi Arabia, from 10 September to 7 December 2017 with the aim of assessing their awareness, attitudes and practices of smoking. The survey was conducted with permission and an approval from the Ethical Research board at the faculty of Applied Medical Sciences, King Abdulaziz University. As there have been no invasive procedure would be used, only verbal consent was taken from the participants.

#### Settings

This study was conducted in the Faculty of Applied Medical Sciences, included Department of Medical Laboratory Technology, Department of Diagnostic Radiology, Department of Physical Therapy and Department of Clinical Nutrition in King Abdulaziz University.

#### Subjects of the study

A sample of 494 students at the faculty of Applied Medical Sciences, King Abdulaziz University, Saudi Arabia who are in the 2<sup>nd</sup> to the 4<sup>th</sup> year was included in this study. Students in the 1<sup>st</sup> (preparatory year) and interns were excluded from this study. A hard copy questionnaire was distributed among students. Inclusion criteria included students who accepted to participate in this study, while exclusion criteria included students who refused to give informed consent. The questionnaire was disseminated to the students during lecture times by the assistance of the academic office in each college, and after the permission of lecturers, to be filled after the lecture time. The data collector was available to answer any question raised by students. After students fill the questionnaires, they were taken back.

#### Instrumentation

The data of the study was collected through a self-written questionnaire which was mainly adopted from Global Adult Tobacco Survey (GATS). This survey has been developed by many organizations and institutes including World Health Organization (WHO) and Centers of Disease Control and Prevention (CDC), and was designed to assess major issues related to smoking. The validity of the questions could be assumed as the same questionnaire has been used in many previous studies, in addition to the validation of the developing institutes [11,12]. The questionnaire has translated into Arabic language, and had been modified according to the local culture and religion. Another researcher to ensure accuracy did back translation. The questionnaire included 31 core questions related to social and smoking status, as well as the knowledge and attitude towards cigarette smoking. The questionnaire takes around 10 minutes to be answered.

An interview questionnaire sheet was developed by the researchers in Arabic language to collect information which divided into 4 major sections were used in this study. Both open and close-ended questions were included in questionnaire. The first section contained the questions related to demographic data (Gender, age, marital status etc.) of the participants. Second section of the questionnaire which contained 3 questions in total was about the knowledge of students regarding effects of smoking on health. Third section was about the general attitude of participants regarding smoking and it contained 11 questions. In this section, mostly question was answerable by choosing the options among, "disagree, undecided or agree" option. This section contained questions like effect of smoking status of physicians on their patients and relationship of medical education on smoking prevalence among medical professionals. The fourth and last section contained 9 questions about the practicing of smoking among medical students and family members as well. Mostly questions in this question were of multiple choice questions type in which participant has to choose one or more than one option. Questions regarding smoking

status of their family members were included in this section so that the correlation of family member's smoking status and smoking status of participants could be assessed.

### Data collection

After obtaining the ethical approval from the Research Ethical Committee at Faculty of Applied Medical Sciences, King Abdulaziz University and once the participants who meet inclusion criteria are identified, the research assistants explained the aim of the questionnaire to all students. Then the questionnaires were distributed to the students after informed consent obtaining from all participants. The questionnaire was administered to participants in their classrooms in order to get maximum response rate. Sufficient time was allotted to fill in the questionnaire. If the participation rate was low in any class, a second visit was done to cover those students who were absent in the first session. Finally, questionnaire was collected from all the participants and the information contained in these questionnaires was saved.

### Data analysis

Data was analyzed by using Statistical Package for the Social Sciences (SPSS) version 23. However, descriptive statistics were accomplished for the participant's knowledge, attitude and practice regarding smoking. Moreover, Chi- square test was used for categorical variables ( $p \leq 0.05$ ).

## Results

### Demographic characteristics

Out of 494 medical students participated in this study only 47 students (9.5%) were smokers while remaining 447 (90.5%)

were not smokers. Average age of the participants was  $20.56 \pm 1.93$  years, and 96.1% of the participants were from Jeddah area and 3.9% from outside Jeddah areas. There was an increase in smoking trend as the students were promoting from the second to fourth professional years that is in second professional year there was only 10 smokers (6.3%) as compared to the fourth professional year which had 20 smokers (11.2%) which means a double upsurge was observed in the presence of smokers when comparison was done between the second and fourth professional year. Third and fourth year had the same percentage of smokers' that is 10.8% and 11.2% respectively with a minor difference. However, second professional year had the least presence of smokers and they counted only 10 (6.3%). While, the income of families per month imposes an influence on the smoking status of a person as the students who had reward and extra money sources were more prone to smoking as compare to the students had Reward only (18.3% versus 8.3%). Moreover, data depicts that tobacco usage was about 5 times (19.2%) among males as compare to the smoking prevalence among females (2.75%). Correspondingly, proportion of female non-smokers (97.2%) is much higher as compare to the non-smokers present among the male students (80.8%). Finally, there was an increase in smoking trend as the students were resident alone to with family that was in resident alone there was only 3 smokers (27.3%) as compared to with family where 37 smokers (8.3%) which means a triple upsurge was observed in the presence of smokers when comparison was done between the resident alone and with family. However, resident with friends and resident alone had the same percentage of smokers' that was 27.3% and 20.0% respectively with a minor difference (Table 1).

**Table 1:** Demographic characteristics of study sample.

Variable		Smokers No. (%)	Not Smokers No. (%)	Total
Age	[19-21]	19 (5.3%)	341 (94.7%)	360
	>=22	28 (20.9%)	106 (79.1%)	134
Gender	Male	39 (19.2%)*	164 (80.8%)	203
	Female	8 (2.75%)	283 (97.2%)	291
Marital Status	- Single	46 (9.5%)	436 (90.5%)	482
	-Married	1 (8.3%)	11 (91.7%)	12
Current Professional Year	2nd Year	10 (6.3%)	148(93.7%)	158
	3rd Year	17 (10.8%)	140 (89.2%)	157
	4th Year	20 (11.2%)	159 (88.8%)	179
Scientific Department	Medical Lab. Tech.	10 (9.1%)	101 (90.9%)	111
	Physical Therapy	26 (12.9%)	176(87.1%)	202
	Diag. Radiology	7 (6.7%)	98(93.3%)	105
	Clinical Nutrition	2 (2.6%)	74 (97.4%)	76
Residency	With Family	37 (8.3%)	411 (91.7%)	448
	With Friends	7(20.0%)	28 (80.0%)	35
	Alone	3 (27.3%)	8 (72.7%)	11

Place of Residence	Jeddah	42 (8.8 %)	433(91.2%)	475
	Outside Jeddah	5 (26.3%)	14 (73.7%)	19
Monthly Income	- Reward only	36 (8.3%)	398 (91.7%)	434
	- Reward and extra sources	11 (18.3%)	49 (81.7%)	60

**Knowledge of students regarding smoking effects on health**

Generally, all the FAMS students (98.9%) participated in this study were well aware about the harmful effects of smoking irrespective of their medical professional year. However only 5 students (1.1%) out of 494 FAMS students took the effects of the smoking in a positive way that smoking is beneficial during the examination period, as nicotine stimulates the nervous system and improves the cognitive ability. In addition, FAMS Students had thorough knowledge of the major diseases which are directly or indirectly associated with smoking. However, Table 2 depicts the familiarization of 494 FAMS students regarding a number of diseases and malignancies which are linked with usage of tobacco. From the table it is clear that, lung malignancies and other pulmonary diseases (bronchitis, emphysema, COPD etc.)

were the most common complication about which students knew their association with the smoking in a well manner. In this regard, 472 students (95.5%) were acquainted with the bronchitis, emphysema, COPD etc. and 470 students (95.1%) knew that lung malignancies were directly related with smoking. However, a very few number of students (0.4%) had knowledge regarding link of lung malignancies with the smoking. On the contrary, malignancies, which are apart from lungs and including other organs as breast, urinary bladder etc. were the least complications about which students, had knowledge about it. Approximately 74.7% of the students were well aware about relation of such malignancies with the smokers. Likewise, long-term complications like hypertension and hypercholesterolemia, which are the results of regular smoking, were well acquainted among the medical students (77.1%).

**Table 2:** knowledge level of FAMS students regarding various diseases associated with smoking.

Smoking Related Complications	Unfamiliar No. (%)	Some knowledge No. (%)	Familiar No. (%)
Lung Malignancies	2 (0.4)	16 (3.2)	472 (95.5)
Other Pulmonary Diseases (Bronchitis, Emphysema, COPD etc.)	4 (0.9)	20 (4)	470 (95.1)
Malignancies apart from Lungs (Breast, urinary bladder etc.)	63 (12.7)	62(12.5)	369 (74.7)
Chronic adverse Health Effects (Hypertension, Hypercholesterolemia)	52(10.5)	61 (12.3)	381(77.1)

**General attitude of FAMS students regarding smoking**

Table 3 represents the general attitude of medical students regarding smoking usage and influence of friends and family members who smoke, on themselves. About 86.6% students thought that there is a solid inspiration of smoking on the non-smoker members of a family if a family member smokes. Chances of becoming a smoker for a non-smoker are increased up to more than 94% if a person has smoking friends as compared to smoking family members. Similarly, 416 students (84.2%) out of 494 had same thought in this regard that if someone smokes in

a community it can disturb his or her relation with the others. In addition, only 25.1% students considered that they could be open to their guardians regarding their tobacco usage as compare to 60.9% students who preferred to be quiet about their tobacco usage. Moreover, smoking status can affect smoker’s relation with someone fellows or friends and this is the reason that 411 students (83.2%) also had the same opinion. Likewise, in the opinion of 470 (95.1%) medical students if they smoke, it will not inspire the others to smoke, as smoking is based on person’s own discretion usually.

**Table 3:** General attitude of FAMS students regarding smoking.

Questions Type	Response No. (%)		
	Disagree	Undecided	Agree
You think people are influenced by their family members who are smokers?	41(8.3)	25(5.1)	428(86.6)
Do you think people are influenced by their friends who are smokers?	9(1.8)	16(3.2)	469(94.9)
Do you think your smoking status affects your relations with the others?	35(7.1)	43(8.7)	416(84.2)
Would you like to be open to your parents about your smoking status?	301(60.9)	69(13.9)	124(25.1)
Do you feel more acceptable if you smoke?	411(83.2)	65(13.2)	18(3.6)
Will you encourage others to smoke?	470(95.1)	8 (1.6)	16 (3.2)



**Table 4:** General attitude of FAMS students regarding influence of education and smoking.

Questions Type	Response No. (%)		
	Disagree	Undecided	Agree
The Ministry of Health in Saudi Arabia is working properly to reduce smoking?	184(37.3)	167(33.8)	143(28.9)
Statuary warnings on the cigarettes packs are enough to limit smoking?	379(76.8)	62(12.5)	53(10.7)
Do you think education helps to reduce smoking trends?	120(24.3)	123(24.9)	251(50.8)
If medical students and doctors smoke, does it convey negative message to patients/ public?	35(7.1)	43(8.7)	416(84.2)

Table 4 represents the attitude of medical students about association of education and usage of tobacco, and about the initiatives, which has taken by the government to halt the smoking. From the table it can be illustrated that more than 37% of the students were very unsatisfied by the steps that Ministry of Health in Saudi Arabia has taken to reduce the usage of tobacco in the country. Moreover, in the opinion of 379(76.8%) students' statutory warnings that is imposed by the cigarette manufacturing companies on the cigarette packs are not enough that it can help or motivate a smoker to quit smoking. Educational level of a person is the major obstacle which can prevent a person to indulge yourself in smoking, and 251 students (50.8%) had the same opinion in this regard, however less than quarter of the total students (24.3%) thought that education has nothing to do with a person's choice regarding usage of tobacco. More than 84% of the medical students contemplated that as the medical professionals and medical students are the prime model of health for the society so if they smoke then it may discourage a patient to give up his or her smoking habit.

**General Performance regarding smoking**

Regarding usage of electronic cigarette is not as common in Saudi Arabia as it is a contemporary way of consuming

tobacco and this is the reason that FAMS students had not much cognizance about such practice of tobacco smoke inhalation. Out of 494 FAMS students, only 26 participants (5.3%) had ever heard about electronic cigarette whereas remaining never heard about its usage among the smokers. Concerning the intake of the anti-smoking drugs offered by the Ministry of Health in Saudi Arabia, out of 47 FAMS smoker students, only 3 participants (6.4%) had ever used these anti-smoking drugs whereas remaining never used these drugs among the smokers. However, Table 5 categorizes the students as a smoker and non-smoker according to the presence of smoker or non-smoker family member within the family. If a family member smoke in a family, it definitely effects the other members of the family who are non-smokers (p-value = 0.013). Therefore, it is concluded that students who had smoking family member in their family were more likely to become tobacco user as compared to students who did not have any family member who smoke. Out of 47 smoking medical students, 31 medical students (8.1%) had smoking family member whereas families of 16 FAMS students (14.7%) did not have any smoking family member (Table 5).

**Table 5:** Influence of smoking family member on medical student's smoking status.

Chi-square test	Smokers No. (%)	Non-smokers No. (%)	p-value
Student's family having smoker No. (%) 385 (77.9%)	31 (8.1)	354(91.9)	0.013
Student's family having no smoker No. (%) 109 (22.1%)	16 (14.7)	93(85.3)	

Concerning the anti-smoking campaigns, there was very less proportion of FAMS students who had participated in some sort of anti-smoking campaign to play their role as medical professionals to tackle the problem of smoking in their

community. Out of 494 medical students, only 139(28.1%) FAMS students had attended anti-smoking campaign in their career (Table 6).

**Table 6:** Participation of medical students in anti-smoking campaign.

Medical Professional Year (Total no. of students)	Participation in Anti-Smoking Campaign No. (%)
2 <sup>nd</sup> Year	48 (9.7)
3 <sup>rd</sup> year	44 (8.9)
4 <sup>th</sup> Year	47 (9.5)

### Discussion

Smoking has been classified by the WHO as an epidemic because of its fast spread among peoples and its dangerous effect on human worldwide [13]. However, our study showed that the total percentage of FAMS students who are currently smoking was 9.5%. The findings of this study confirm lower smoking prevalence among high schools and Universities students in other region and cities in Saudi Arabia. A high prevalence of adolescent and young adult smoking was also reported in recent Saudi studies conducted in Jeddah [14] and Riyadh [15]. The reported prevalence rates in those studies were 37%, 29.0% and 31.0%, respectively, with a significant higher prevalence of smoking among male compared to female students in a study conducted in Riyadh study [15]. In addition, a cross-sectional study was conducted to assess the smoking prevalence among dental students at King Saud University revealed that the overall 17% of the sampled students reported that they are current smokers [16]. Although this prevalence seems to be high considering their work in a health-related profession, similar prevalence rates have been reported among medical students. For example, Al-Kaabba and colleagues reported that 18% of medical students in Riyadh, Saudi Arabia smoked [17]. Similarly, Al-Haqwi and colleagues found that 19% of students smoked in two new medical colleges in Riyadh [12]. In a review of smoking rates among dental students in 19 countries, Smith and colleagues reported rates between 3% in Canada to 47% in Greece [18]. Moreover, the findings of the Agilley and colleagues study indicated that, the percentage of smokers among students of health colleges is only 8% [19]. The low percentage of health care students who smoke may be due to the greater awareness of them with respect to tobacco, to being health care professionals and being able to see its pernicious effects directly in their daily clinical practice. These results were agreed with previous study which shown that the prevalence of smokers among dentists is considered a small percentage compared with the public [20].

Regarding gender, our results revealed that tobacco usage was about 5 times (19.2%) among males as compare to the smoking prevalence among females (2.75%). The findings of this study confirm similar smoking prevalence among high schools and Universities students in other region and cities in Saudi Arabia [21], these findings consistent with other studies [12,17,22,23]. In addition, Al-Swuailem and colleagues found a significant difference in smoking rates between male (27.8%) and female (2.4%) dental students [16]. However, these results agreed with Agilley and colleagues reported that smoking behaviors are more prevalent among males than females [19]. Lower smoking rates among female students could reflect the fact that smoking by females is culturally unacceptable, especially in conservative societies like Saudi Arabia [18,24].

Concerning comparison between senior year students and junior year students Tobacco smoking, There was an increase in smoking trend as the students were promoting from the second

to fourth professional years. These findings agreed with Alrehaili and colleagues found significantly higher rate of smoking among the former student group [21]. In contrast, previous studies conducted at Saudi Arabia have been reported the same findings regarding age group in addition to other studies found higher smoking rates among senior dental students than junior students [25,26]. Moreover, Newbury-Birch and colleagues assessed changes in smoking rates among 47 dental students in the University of Newcastle, UK, in the second year, fifth year, and 1 year after graduation. In that study, the prevalence of cigarette smoking dropped as students' progress in school from 11% in the second year to 4% and 6% in the fifth year and after graduation as dentists, respectively [27]. This higher rate of smoking among students of the fourth professional years is probably due to increased stress faced by the students with their progression, over the years.

The results of the present study showed that chances of becoming a smoker for a non-smoker are increased up to more than 94% if a person has smoking friends, so that the main reason for smoking is the pressure and simulation of their friends practiced smoking. These results are congruent with findings of previous studies reported that, friends were considered the major reason for starting smoking [25,26,28,29,30]. The effect of having close friends that smoke may increase the rate of smoking among medical students in Saudi Arabia as much as 5-fold [28].

We found an association between the presence of a smoking family member (father, mother, brother, or sister) and smoking habits. This finding agreed with the findings of Dar-Odeh and his group who reported a significant association between student and parental smoking habits [29]. Similarly, for students in the College of Applied Medical Sciences at King Saud University reported that the existence of smoking parents or siblings was significantly associated with higher rates of smoking among students [30]. Similarly in several studies, parental smoking was an important risk factor in adolescents' and young adults' smoking [3,4,14,15,21] and international studies [31,32]. As most of youths look up to their parents and other close relatives in their society and attempt to mimic their demeanor, parents smoking showed to be the most important factor related to adolescents and young adults smoking in this and other studies [33].

Concerning knowledge level of FAMS students regarding various diseases associated with smoking, about 99% of students participated in this study were well aware about the harmful effects of smoking irrespective of their medical professional year. These findings agreed with findings of many previous studies [34-36] as our study results showed that Applied Medical Sciences students are more knowledgeable and aware about smoking negative effects and showed greater willingness to stop smoking than non- medical students do. This may be explained as curriculum courses of medical specializations- in general- addresses to smoking hazardous effects and how

to stop smoking. Despite their awareness, about 9.5% of the medical students in this study keep on smoking, it is obvious from the results of this study that there is defect in advisory and educational roles of health and community organizations in spreading health awareness in society, and this will affect the behaviors of citizens toward smoking especially young people [37].

Concerning the anti-smoking campaigns, there were only 28.1% of FAMS students participated in some sort of anti-smoking campaign to play their role as medical professionals to tackle the problem of smoking in their community. However, more than 37% of the students were very unsatisfied by the steps that Ministry of Health in Saudi Arabia has taken to reduce the usage of tobacco in the country. Moreover, less than quarter of the total students (24.3%) thought that education has nothing to do with a person's choice regarding usage of tobacco. The active participation of healthcare providers in tobacco cessation programs is important because most smoking patients either want or have attempted to stop smoking, but have failed due to uncertainty on "how to quit" [24]. Thus, a gap exists between the knowledge of tobacco health risks and the level of training in tobacco counseling among students [38,39]. The available literature encourages reforming curricula to accommodate tobacco cessation programs [23,40].

The present study has points of strengths and limitations. Strengths of this study include being a university-based with a high response rate from the participated students, and according to our best knowledge, this study is the first to study smoking habit and attitudes among Faculty Applied Medical Sciences male students of King Abdul-Aziz University. However, limitations of this study include using a self-administered questionnaire without validation of the collected data through biochemical tests due to financial constraints, which might underestimate the actual prevalence of smoking in the studied students. One limitation of this study is related to the issue of validity for self-reported information, a common issue for surveys.

### Conclusion

The current study revealed a considerable high prevalence of smoking among students in Faculty of Applied Medical Sciences, King Abdul-Aziz University, Jeddah City, Saudi Arabia. One of the major and important findings of this current study was the positive attitudes of all studied students and smokers in particular towards smoking. This finding of this study has to motivate and encourage the Ministry of Health to increase the number of smoking clinics and activate them and make them more popular and attract the smoker students to utilize helping them to quit smoking. In addition, it would be very helpful to organize smoking campaigns in the various faculties at the university to increase the awareness about the dangerous of smoking.

### Recommendations

From the results of current study, it recommend to:

- a. Critically integrate cessation-counseling training into medical and non-medical sciences education.
- b. Develop educational program for people early in adolescence stage, and activate the role of medical related organization in spreading health awareness in the community.
- c. Medical students must be acquainted with the latest methods of smoking like electronic cigarettes, so that they can deal with their patients with full competency.
- d. It should be compulsory for all the medical students to be involved in some anti-tobacco policies and programs and similar workshops regarding smoking cessation techniques and other related matters so that before practicing as professional doctors they become fully trained in this field.
- e. Introduce special courses for smoking behaviors and cessation in the curriculum for medical students to increase their awareness and encourage them to stop smoking and this boost their credibility as health care providers especially in cases of health education and consultation.
- f. Activate the celebration of World No Tobacco Day on 31st May each year.
- g. In addition, it would be very helpful to organize smoking campaigns in the various faculties at the university to increase the awareness about the dangerous of smoking.

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