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Research Article

KNOWLEDGE, PRACTICE, AND ATTITUDE OF SMOKING AMONG MALE MEDICAL STUDENTS IN KING ABDUL-AZIZ UNIVERSITY IN JEDDAH, SAUDI ARABIA2016

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ARTICLE INFO

ABSTRACT

Background: Usually smokers start smoking during teen ages or early adulthood. It will not be possible to reduce tobacco related deaths unless adult smokers are encouraged to prevent it at early ages, particularly future health professionals who could have a main role through the health care system to motivate and advise smokers to quit.

Objectives: To assess the knowledge, attitude and practice of male medical students at King Abdul Aziz University in Jeddah regarding smoking and its cessation.

Subjects and Methods: Quantitative cross sectional study design was carried out included a representative sample of male medical students at King Abdul-Aziz university, Jeddah, Saudi Arabia (Second grade to Sixth grade). Stratified random sampling technique with proportional allocation was adopted to select students. Data were collected using an English self-administered questionnaire adopted from the Global Tobacco Survey (GTS). It included questions about demographic characteristics of the participants, general knowledge of the consequences of smoking, attitude towards smoking and its cessation and detailed practice of smoking. Positive attitude was described among most of the participants (74.6%) with no significant difference according to age or academic level.

Results: The study included 228 medical students. More than one third of them (39%) aged below 22 years. Overall, knowledge of medical students regarding smoking consequences was described as "good" among 61% of the students and "poor" among the remaining 39%.Good knowledge regarding smoking consequences increased steadily with the increasing in academic level (from 42.9% among 2nd year students to 79.2% among 6th year students), p=0.006.Prevalence of current smoking among medical students was 25.1% whereas that of ex smoking was 18.8%. The main reasons for starting smoking among current smokers were having smoker friends (82.4%), stress (71.2%), family smoking (62.7%) and curiosity (50%). Health concerns (45.9%), and religious believes (20.2%) were the most frequent factors influenced non-smokers to not smoke

Conclusion: Smoking is highly prevalent among male medical students at College of Medicine, King Abdul-Aziz University, Jeddah, Saudi Arabia. The main reasons for starting smoking among current smokers were having smoker friends, stress, family smoking and curiosity.

INTRODUCTION

The use of tobacco is one of the largest public health dangers that face the world. It kills approximately 6 million people every year. (More than 5 million of those deaths are because of direct tobacco use, also more than 600 000 are the result of non-smokers being exhibited to second-hand smoke.) [1]

Smoking is considered to be one of the most common shapes of recreational drug use. Also Tobacco smoking is the most popular form, it has been used by nearly over one billion people all over the world, most of them in the developing world.[1]

Smokers usually say that cigarettes help relieve feelings of stress. It has been found that, the stress levels of adult smokers are little bit more than those of nonsmokers. (Young adult smokers show increasing levels of stress as they establish regular patterns of smoking, and smoking cessation leads to decrease stress.)[2]

Usually smokers start smoking during teen ages or early in adult life. Some behavioral research indicates that adolescents begin their smoking habits as a result of peer pressure, and cultural influence.

The causes given by some smokers for their habit have been divided and classified as pleasure from smoking, addiction, relaxation, and stress relieving.[1]

Tobacco use cause diseases that affect the lungs and heart. Moreover, smoking is a main risk factor for heart diseases, strokes, chronic obstructive pulmonary disease (COPD),and cancer (mainly mouth, laryngeal, esophageal, lung, and pancreatic cancers). Cigarette smoking raises the risk of Cohn's disease and also the severity of the course of the disease. It is also the main cause of bladder cancer.[3]

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The ages of smokers in Saudi Arabia are varying between the ages of 17 and 40. In 2010, a health official reports that the number of smokers in Saudi Arabia is approximately six million, 600,000 women, and 772,000 teenagers.[4]

Study Rationale

I started personally smoking at the 4th grade of college of medicine, King Abdul-Aziz University. Therefore, I am interested to have an overview of the problem at this place and among medical students in order to explore their knowledge, attitude and practice of smoking.

A cigarette smoking is one of the leading preventable causes of death in the world and considered a main public health problem all over the world. It would not be logical to decrease tobacco related deaths unless adult smokers are encouraged to prevent it at early ages, particularly future health professionals who could have a major aspect through the health care system to promote and encourage smokers to quit. Therefore, understanding of their knowledge and attitude towards smoking is essential in this regard.

Aim of study

The main reason of this study is to improve attitude, reduce smoking habits and emphasis non-smoking style among male medical students in King Abdul-Aziz University in Jeddah, Saudi Arabia.

Specific Objectives

1. To assess the knowledge of male medical students at King Abdul Aziz University in Jeddah regarding smoking related diseases during 2016.
2. To evaluate the attitude and to explore the practice of smoking of male medical students at King Abdul Aziz University toward smoking and its cessation.

There are many researches that estimate the prevalence, knowledge, attitudes, and risks of smoking in Saudi Arabia, Arabian countries and internationally.

I will start by a study conducted by Talal J. Hashim. It's tilted" Smoking Habits of Students in Colleges of Applied Medical Science, Saudi Arabia".[5]

This study is designed to determine the habits of smokers among health science students in Saudi Arabia Universities, which was an experimental study type. The number of participating students was 712 aged between 18 to 26 both males and females. The author used pre structured questionnaires .The result was 186 (29 %) were current smokers, out of these current smokers 127 (20 %) males and 59 (9%) females. He found that the main cause of smoking prevalence was the effect of peers and siblings. When the author asked participants about their knowledge of the health side effects of smoking, 73% answered that they knew the health side effects, 70% of the smokers showed a desire to quit smoking. In this study the author did not mention the criteria and the cities that were involved in his study.

The second study was conducted by Youssef A. Al Turki, it's topic was " Smoking Habits Among Medical Students in Central Saudi Arabia".[6]It was designed to know the prevalence of smoking between male medical students in King Saud University in Riyadh Saudi Arabia. The author used cross sectional study with Arabic questionnaire .The number of students who responded was 322. He found the following:

13% were current smokers, 5.3 % were ex smokers, and 38.2% were passive smokers. For the current smokers the main motivation was effect of friends. The types of smoking were used among those medical students were Cigarette 32.2%, Sheesha 44%, and both 23.7%. This was an interesting study but it was conducted in King Saud University in Riyadh.

There was another study conducted by Yousef Al Turkey and Norah Arawis to assess "The Prevalence of Smoking Among Female Medical Students in the College of Medicine, Riyadh Saudi Arabia".[7]The whole number of students was 337 and the results were 2.4%smokers, 3.6% ex smokers, and 93.8% never smoke. Regarding the type of smoking used, they found that more than 70% smoked Sheesha. That was a good study, but again it was conducted on female medical students in Riyadh.

Also there was another study conducted by SirajO. Wali and titled "Smoking Habits among Medical Students in Western Saudi Arabia".[8]

The author used cross sectional study and applied to 643 students in King Abdul-Aziz University. The result showed the prevalence of smoking among males was 24.8 % while among females were 9.1 %. The main cause of smoking habit was friends, parents, and media. The author noticed that all participants were aware of medical hazards of smoking and the medical disease related to it. He also found that non-smokers had better awareness than smokers regarding medical diseases of smoking. This was good study. It also was applied to both sexes.

The last study was conducted by Azhar A. and Al Sayed N. and it's title was " The Prevalence of Smoking Among Female Medical Students of Saudi Arabia".[9]The main purpose of this article was to compare the popularity of smoking between female in medical college and female innon-medical college at King Abdul-Aziz University in Jeddah. The study was conducted to 320 female students; the females in medical college were 50 % of the sample. They used self-administrated questionnaire and the result was that the popularity of smoking is more in non-medical female students 4.2 % while was 0.32 % among female medical students.

When we talk about the prevalence of smoking between medical students in Arabic countries there were plenty of studies, starting by study conducted in Lebanon to assess the prevalence of cigarettes and water pipe smoking between medical students in 2009 to 2010.[10] The sample has been taken from 6 medical colleges and the result was 26.3% for cigarette and 29.5% for water pipes out of 191 students. The total number was 354 and respond rate was 191 (54.3%). The authors found that smoking Sheesha was an important factor for cigarette smoking and both sexes were equally affected.

There was a study conducted in Morocco and titled "Attitudes and behavior in relation to smoking among medical students in Casablanca 2010".[11]The authors used a cross sectional study to 736 medical students. The result was 7.9% smokers, 16% male and 3% female, 10% ex smokers. They found the average number of cigarette smoking daily was 8. The main reason for smoking initiation was occurrence of certain stress.

Another study titled " Smoking Behavior and Attitude to Smoking of Medical Students Tunisian Sahel ".[12] The study was conducted to 501 medical students and they have found 33% smokers, including 15% occasional smokers. The

students knew the bad effect of smoking on lung and heart diseases, but 75% did not recognize the effect of smoking on bladder cancer.

Regarding international studies, we have many studies conducted to detect the prevalence of smoking between medical students, as in this study titled "Prevalence and factors associated with smoking among Japanese medical students".[13]The authors chose 20 random medical schools in Japan and the results were as follow, out of 1619 respondents, 13.7% were smokers 18.1% men and 5.1 %women. There were some factors that motivate smoking like coffee, alcohol, male gender, sibling, private medical school, and not getting enough sleep (less than 6 hours per night).

Last study that I am going to mention is study from Pakistan, titled "Prevalence, Pattern and Knowledge of Effects on Health of Smoking Among Medical Students in Pakistan".[14]The authors applied questionnaire to students of 3 different colleges of medicine. Out of 1529 responses, they have found 9.1% smokers, 0.7% ex smokers, 11.7% occasional smokers, and 21.5% ever smokers (they smoked at leastonce life). The knowledge of health effect and the diseases caused by smoking was well known to non-smokers more than smokers.

SUBJECTS AND METHODS

Study Areas and Population

Study population is male students, College of Medicine, King Abdul-AzizUniversity, Jeddah, Saudi Arabia.
Study area:Male students, College of Medicine, King Abdul-Aziz University are mostly Saudis and from Jeddah. Some of them are from outside of Jeddah city. Those who are out of Jeddah, they live in the University Dorms or in rental apartments. Male medical students represent different socioeconomic classes (from low to middle and high classes).

Inclusion Criteria

All male medical students from King Abdul-Aziz university (Second grade to Sixth grade).

Study Design

Quantitative cross sectional study design was carried out.

Sample Size

There were 921students enrolled in College of Medicine, King Abdul-Aziz University, Jeddah, Saudi Arabia (1436-1437 H) distributed as follows:

Academic year	Number of students
Second year	222
Third year	195
Fourth year	181
Fifth year	145
Sixth year	178
Total	921

The sample size was calculated by using the single proportion equation in Raosoft software package.[15]The required sample size is 219 students at 95% confidence level (expected frequency 24.8%, margin of error accepted was 5%.

Sampling Technique: (by using stratified sampling technique with proportional allocation).

The sample size was distributed between the 5 years male medical students and determined as a percentage proportionally related to the total number of the students in the faculty of medicine.

The total number of students in the faculty of Medicine is 921 and sample size=219 (23.8%). Within each stratum, students were selected by systematic random technique from lists of students for each grade obtained from students` affairs at the college as follows:

1. From 222 second yearmale students, 52 studentswere selected (approximately one every 4th students will be randomly chosen).
2. From 195 third year male students, 46 students were selected (approximately one every 4th students were randomly chosen).
3. From 181 fourth year male students, 43 students were selected (approximately one every 4th students were randomly chosen).
4. From 145 fifth year male students, 35 students were selected (approximately one every 4th students were randomly chosen).
5. From 178 sixth year male students, 43 students were selected (approximately one every 4th students were randomly chosen).

Data Collection Tool

Data were collected using an English self-administered questionnaire. It is adopted from the Global Tobacco Survey (GTS). [16] It has been used previously in Saudi Arabia by S.Wali.[8] Permission was obtained from the author to utilize it through personal communication.

It included questions about demographic characteristics of the participants (age and academic level), general knowledge of the consequences of smoking, attitude towards smoking and its cessation and detailed practice of smoking suchas type of smoking, smoking duration, and severity, reasons for starting and quitting (if any), any smoking cessation intervention.

For the purposes of this study, current smokers were those who had smoked any tobacco product daily or socially, and were still a smoker at the time of this study. If these subjects were not smoking at the time of the study, they were considered as ex-smokers whereas non-smokers were those who had never smoked before.

Data Collection Technique

The researcher visited medical students at their classes and handle the questionnaire manually. Care was taken to not disturb their classes.

Study Independent Variables

1. Age and grade of the student.
2. Score of knowledge.
3. Score of attitude.
4. Smoking information like:
   i. Smoking Status (current, ex smoker, occasional, never).
   ii. Years of smoking (less than 5 years, more than 5 years).
   iii. Types of smoking (Cigarettes, Water pipes, other).
   iv. Number of cigarettes per day.

Scoring System

Knowledge questions was scored as the correct answers was given a score of "1" whereas wrong or don't know answers was given a score of "0". Total knowledge score was computed for each student and the percentage of total knowledge score was obtained. Students who will get less than 60% were considered as having "poor knowledge" whereas those who got 60% or more of knowledge score were considered as having "good knowledge".

Regarding attitude questions, a score of "1"was given to Yes answer whereas "0" score was given to No or not sure answer. Total attitude score was computed for each student and median score was computed. Students who got less than the median score were considered as having "negative attitude" whereas those who got the median score or more were considered as having "positive attitude"

Data Entry and Analysis

The data werecoded before computerized data entry. The statistical Package for Social Sciences (SPSS) software version 22.0 was used for data entry and analysis. Descriptive statistics in the form of frequency and percentage were computed and analytic statistics, using chi-square test was applied. P-values <0.05 was shown as statistically significant.

Pilot Study

It was conducted on 10% of the sample size only and among subjects not included within the actual study to test feasibity of the methodology and wording of the questionnaire

Budgets and Fund

Self-Funded

Ethical Considerations

- Consent to participate in the study was obtained from each participant.
- Confidentiality was granted.
- Approval from JPFCM was obtained.
- Approval from King Abdul-Aziz University was obtained.

RESULTS

The study included 228 medical students. Their age and academic level were summarized in table 1. More than one third of them (39%) aged below 22 years whereas 7% of the participants aged over 24 years. They were almost equally distributed among various academic years; being highest in the sixth year (23.2%) and lowest in the second year (18.4%).

Table 1 Age and academic level distribution of the participants (n=228)

	Frequency	Percentage
Age in years		
<22	89	39.0
22	48	21.1
23	50	21.9
24	25	11.0
>24	16	7.0
Academic level		
2nd	42	18.4
3rd	47	20.6
4th	43	18.9
5th	43	18.9
6th	53	23.2

Knowledge

Table 2 shows the responses of the medical students on questions concerning consequences of smoking. Majority of them recognized that lung cancer (96.9%), heart diseases (95.6%) and yellow teeth (93.4%) are amongst smoking bad consequences. Most of them could recognize that stroke (86%) and low birth weight (75.9) are smoking consequences. Almost two-thirds of them (69.3%) knew that peptic ulcer is a possible smoking consequence. More than half of them knew that impaired olfaction & taste (59.6%), increased risk of post-operative complications (58.3%) and facial wrinkles (50.4%) are smoking consequences. Exactly half of them knew that bladder cancer is a smoking consequence. Less than half of the students could recognize that cervical cancer (48.6%) and increased risk of osteoporosis (36.4%) are smoking-related consequences.

Overall, knowledge of medical students regarding smoking consequences was described as "good" among 61% of them and "poor" among the remaining 39% as obvious from figure1.

From table 3, it is shown that the highest rate of good smoking knowledge was reported among students aged 24 years (84%) compared to 52.8% among those aged less than 22 years. However, the difference did not reach a statistically significant level (p=0.066). Regarding students` academic level, good knowledge regarding smoking consequences increased steadily with the increasing in academic level (from 42.9% among 2nd year students to 79.2% between 6th year students). This was statistically significant, p=0.006.

Table 2 Knowledge of medical students regarding consequences of smoking

|	Right answers	
	Frequency	Percentage
Lung cancer	221	96.9
Bladder cancer	114	50.0
Cervix cancer	111	48.6
Stroke	196	86.0
Heart disease	218	95.6
Peptic ulcer	158	69.3
Facial wrinkles	115	50.4
Yellow teeth	213	93.4
Increased risk of osteoporosis	83	36.4
Impaired olfaction & taste	136	59.6
Increased risk of post-operative complications	133	58.3
Low birth weight (newborn of smokers)	173	75.9
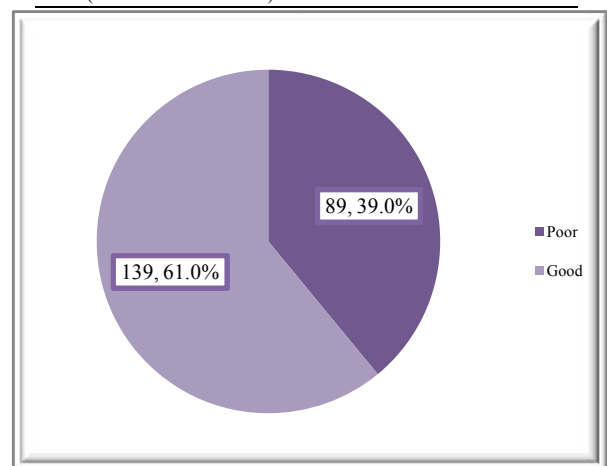
Figure 1 Level of knowledge regarding smoking risks between male medical students, King Abdul-Aziz University, Jeddah

Table 3 Association between smoking knowledge and students` age and academic level

	Smoking knowledge			
	Poor N=89 N (%)	Good N=139 N (%)	χ^2	p-value
Age in years				
<22 (n=89)	42 (47.2)	47 (52.8)		
22 (n=48)	20 (41.7)	28 (58.3)		
23 (n=50)	18 (36.0)	32 (64.0)	8.80	0.066
24 (n=25)	4 (16.0)	21 (84.0)		
>24 (n=16)	5 (31.3)	11 (68.7)		
Academic level				
2nd (n=42)	24 (57.1)	18 (42.9)		
3rd (n=47)	22 (46.8)	25 (53.2)		
4th (n=43)	16 (37.2)	27 (62.8)	14.54	0.006
5th (n=43)	16 (37.2)	27 (62.8)		
6th (n=53)	11 (20.8)	42 (79.2)		

Attitude

Majority of the medical students thought that smoking is really harmful to health (97.4%), in the future as a doctor, they are going to advise patients to stop smoking (95.6%), they consider Sheesha or Moassel as harmful as cigarette smoking (92.1%), believed that doctors should be played a role model by not smoking (84.6%) and they read any posters or pamphlets about smoking related dangers (80.3%). Most of the medical students (79.4%) thought that there is still a need for public awareness campaigns about smoking. Tables 4, the reasons mentioned for this need are summarized in figure 2.

Increase awareness about the different choices available to quit smoking was mentioned by 41.7% of the respondents whereas increase awareness about its harmful effect and fight the impression that smoking is cool were mentioned by 30.7% and 23.3% of them, respectively. More than half of the students (55.3%) reported that they learned the health-problems related to smoking inside the medical school as illustrated in figure 3.

Also, from table 4, more than half of them (58.3%) studied smoking-related health problems in their curriculum. Almost one-third of the medical students (33.8%) attended any seminars, workshop or symposium about the effects of smoking. Overall, positive attitude was described among most of the participants (74.6%) whereas negative attitude was reported among the remaining (25.4%). Figure 4

Positive attitude towards smoking was higher among students aged over 24 years (87.5%) and those of the sixth year (81.1%) compared to those younger than 22 years (74.2%) and those in the second year (66.7%). However, this was not statistically significant as illustrates in table 5.

Table 4 Attitude of the medical students towards smoking

| Attitude questions	Positive attitude answers	
	Frequency	Percentage
Do you think doctors should be played a role model by not smoking?	193	84.6
In the future as a doctor, are you going to advise patients to stop smoking?	218	95.6
Did you attend any seminars, workshop or symposium about the effects of smoking?	77	33.8
Did you read any posters or pamphlets about smoking related dangers?	183	80.3
Do you consider Sheesha or Moassel as harmful as cigarette smoking?	210	92.1
Do you think smoking is really harmful to health?	222	97.4
Do you think that there is still a need for public awareness campaigns about smoking?	181	79.4
Did you study smoking-related health problems in your curriculum?	133	58.3
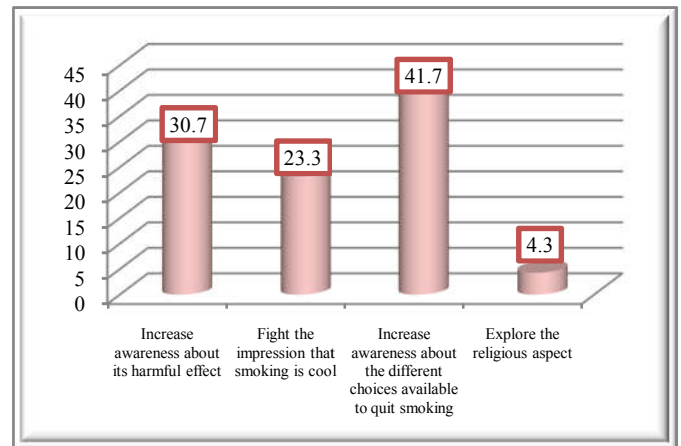
Figure 2 Reasons for a need of public awareness campaigns about smoking: Students` perspective.
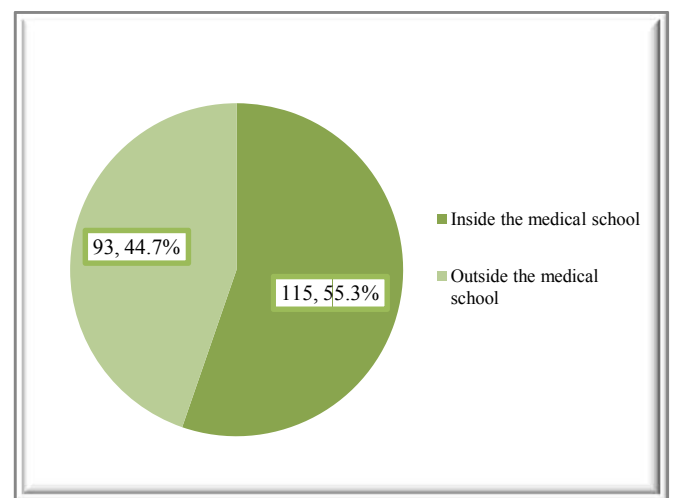

Figure 3 Place of learning the health-problems related to smoking among medical students
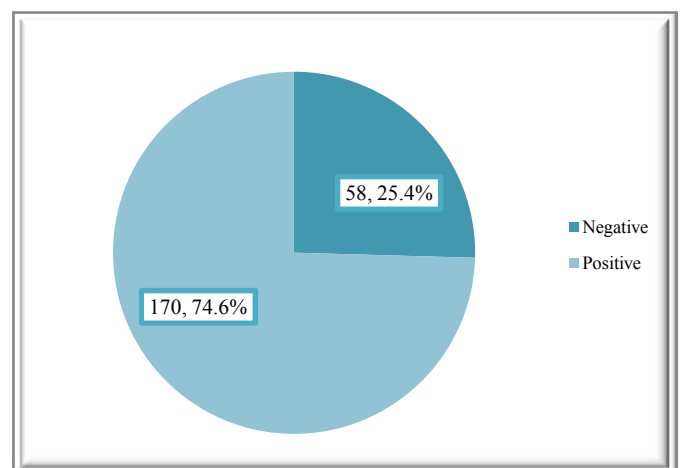

Figure 4 Attitude towards smoking between male medical students, King Abdul-Aziz University, Jeddah

Table 5 Association between attitude towards smoking and students` age and academic level

	Smoking attitude			
	Negative N=58 N (%)	Positive N=170 N (%)	χ^2	p-value

Age in years		
<22 (n=89)	23 (25.8)	66 (74.2)
22 (n=48)	14 (29.2)	34 (70.8)
23 (n=50)	16 (32.0)	34 (68.0)
24 (n=25)	3 (12.0)	22 (88.0)
>24 (n=16)	2 (12.5)	14 (87.5)
Academic level		
2ⁿᵈ(n=42)	14 (33.3)	28 (66.7)
3ʳᵈ(n=47)	11 (23.4)	36 (76.6)
4ᵗʰ(n=43)	12 (27.9)	31 (72.1)
5ᵗʰ(n=43)	11 (25.6)	32 (74.4)
6ᵗʰ(n=53)	10 (18.9)	43 (81.1)

(χ² 5.29, p 0.259 for Age in years; χ² 2.83, p 0.587 for Academic level)

Practice

Figure 5 demonstrates that prevalence of current smoking between medical students was 25.1% whereas prevalence of ex-smoking was 18.8%. Most students aged over 24 years were current smokers (73.3%) compared to 17.1% of those aged less than 22 years. Almost one-quarter of students aged 24 years (26.1%) compared to only 6.7% of those aged over 24 years were ex-smokers. The association between students` age and current smoking status was statistically significant, p=0.001. On the other contrary, there was no statistically significant association among student`s in academic level and smoking status as illustrated in table 6.
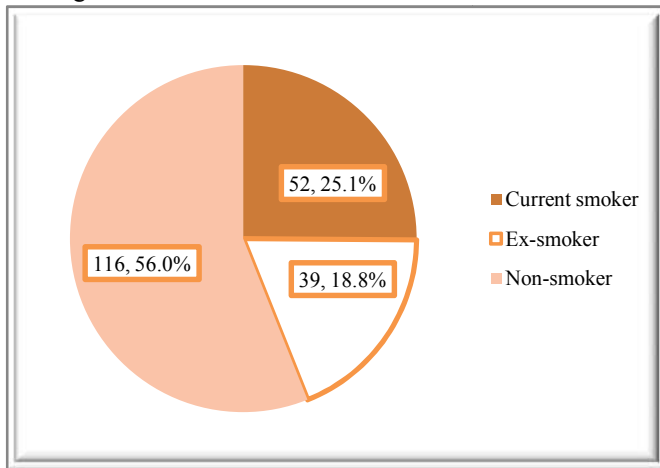

Figure 5 Prevalence of smoking between male medical students, King Abdul-Aziz University, Jeddah (n=207)

Table 6 Association between smoking status and students` age and academic level

	Smoker N=52 N (%)	Ex-smoker N=39 N (%)	Non-smoker N=116 N (%)	χ²	p-value
Age in years					
<22 (n=82)	14 (17.1)	19 (23.2)	49 (59.8)		
22 (n=45)	8 (17.8)	8 (17.8)	29 (64.4)		
23 (n=42)	12 (28.6)	5 (11.9)	25 (59.5)	26.14	0.001
24 (n=23)	7 (30.4)	6 (26.1)	10 (43.5)		
>24 (n=15)	11 (73.3)	1 (6.7)	3 (20.0)		
Academic level					
2ⁿᵈ(n=36)	9 (25.0)	4 (11.1)	23 (63.9)		
3ʳᵈ(n=47)	6 (12.8)	12 (25.5)	29 (61.7)		
4ᵗʰ(n=39)	10 (25.6)	8 (20.5)	21 (53.8)	8.99	0.344
5ᵗʰ(n=38)	10 (26.3)	7 (18.4)	21 (55.3)		
6ᵗʰ(n=47)	17 (36.2)	8 (17.0)	22 (46.8)		

Details of current smoking

Table 7 presents the detailed smoking history of current smokers. Twenty-three students (44.2%) claimed that they smoke for a duration between one and three years whereas 4 students (7.7%) smoke for a period exceeds 10 years. Twenty-two students (42.3%) smoke occasionally and 28.8% smoke between more than 10 and 20 cigarettes/day. Among current smokers, 28.8% smoke Moassel or Shesha once per week and 51.9% did not smoke them. Place of most smoking was coffee

shop (25%) and home (13.5%) whereas 44.2% them mentioned no specific place. More than half of them (59.6%) had trials to stop smoking. Off them, 48.4% reported three or more trials and only 22.6% succeeded to stop smoking for at least 6 months. No specific methods were reported by most of them (61.3%). Majority of them (84.6%) read the warning on the cigarette pack and 65.4% claimed that they feel the ability to stop smoking once deciding.

As obvious from figure 6, the main reasons for starting smoking among current smokers were having smoker friends (82.4%), stress (71.2%), family smoking (62.7%) and curiosity (50%).

Figure 7 presents the main reasons that encourage continuing smoking. Stress relieving (80.4%) and feeling good (74.5%) were commonest reported. Can't quit was mentioned by 40.4% of current smokers.

Table 7 Details of smoking among current smoker medical students (n=52)

|	Categories	Frequency	Percentage
Duration of smoking (years)	<1	3	5.8
	1-3	23	44.2
	>3-5	10	19.2
	>5-10	12	23.1
	>10	4	7.7
Number of cigarettes smoked /day	Occasionally	22	42.3
	≤10	7	13.5
	>10-20	18	28.8
	20-40	8	15.4
Frequency of smoking Sheesha or Moassel	Once/week	15	28.8
	Twice/week	6	11.5
	Once/day	2	3.9
	Twice or more /day	2	3.9
	Don't smoke	27	51.9
Place of most smoking	At university	3	5.8
	At home	7	13.5
	At coffee shop	13	25.0
	While driving	6	11.5
	Not specific	23	44.2
Having trials to stop smoking	Yes	31	59.6
	No	21	40.4
Number of trials to stop smoking(n=31)	One	6	19.4
	Two	10	32.3
	Three or more	15	48.4
History of succeeding to stop smoking (n=31)	Yes	7	22.6
	No	24	77.4
Method/s tried to stop smoking (n=31)	Counseling	10	32.3
	Medication	1	3.2
	Acupuncture	10	32.3
	None of the above	19	61.3
Reading of the warning on the cigarette pack	Yes	44	84.6
	No	8	15.4
Feeling the ability to stop smoking once deciding	Yes	34	65.4
	No	18	34.6
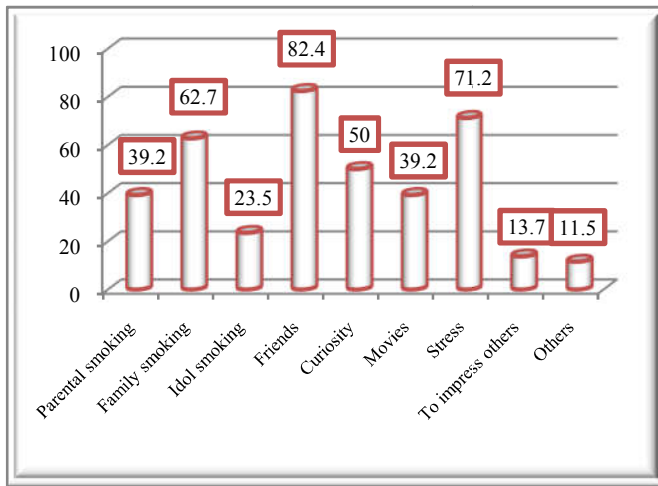
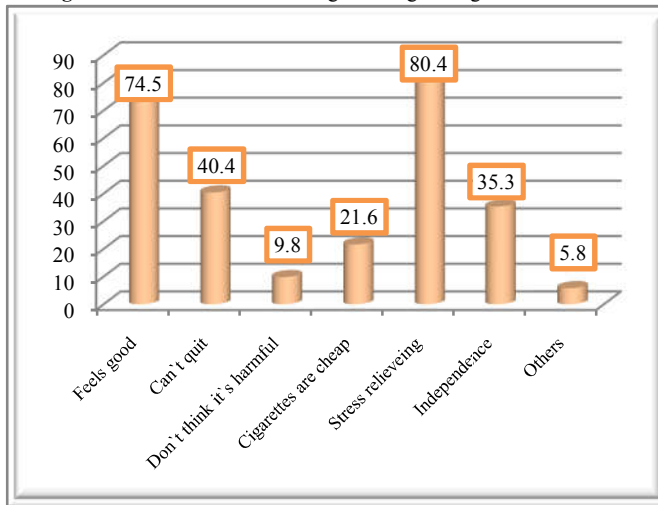**Figure 6** Main reasons for starting smoking among current smokers

Figure 7 Main reasons that encourage continuing smoking
Smoking history among ex-smokers

As shown in table 8, more than two-thirds (69.4%) of ex-smokers smoked for less than one year before quitting and majority of them (84.4%) smoked occasionally. Almost one-third of them (35.1%) smoked Shesha or Moassel once/week whereas 40.6% of them did not smoke them.

Health concern was the main factor that prompted ex-smokers to quit smoking as it was mentioned by 63.9% of them. Knowing someone who suffered from a smoking-related complication and religious believes were mentioned by only 8.3% of them for each factor. (Figure8)

Gathering with friends (46.2%), stress (12.8%) and social occasions (12.8%) were the reasons for smoking more in the past among ex-smokers. Figure 9

Table 8 Smoking history among ex-smoker medical students (n=39)

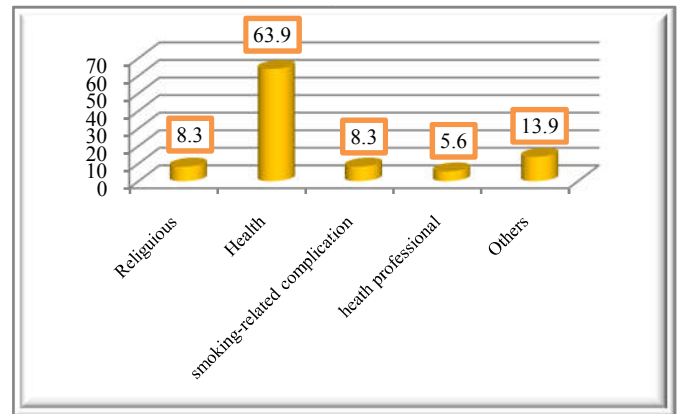|		Frequency	Percentage
Duration of smoking before quitting (years) (n=36)	<1	25	69.4
	1-3	6	16.7
	>3-5	3	8.3
	>5-10	2	5.6
Number of cigarettes smoked /day (n=32)	Occasionally	27	84.4
	<10	1	3.1
	10-20	4	12.5
Frequency of smoking Sheesha or Moassel (n=37)	Once/week	13	35.1
	Twice/week	7	18.9
	Once/day	2	5.4
	Don't smoke	15	40.6

Figure 8 Important factors that prompted ex-smokers to quit smoking
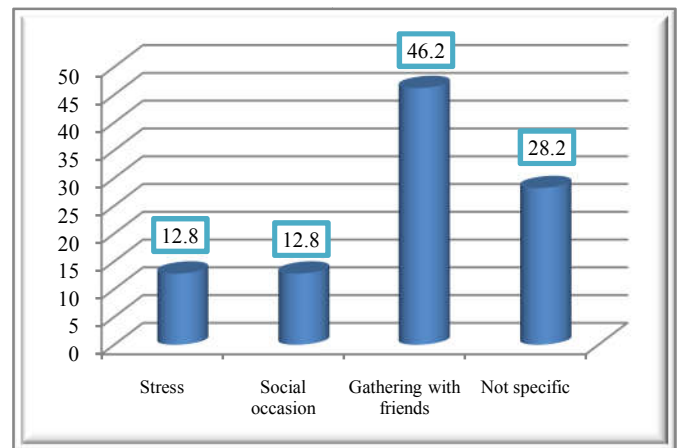

Figure 9 Reasons for smoking more in the past among ex-smokers

Non-smokers

Health concerns (45.9%), and religious believes (20.2%) were the most frequent factors influenced non-smokers to not smoke as demonstrated in figure 10
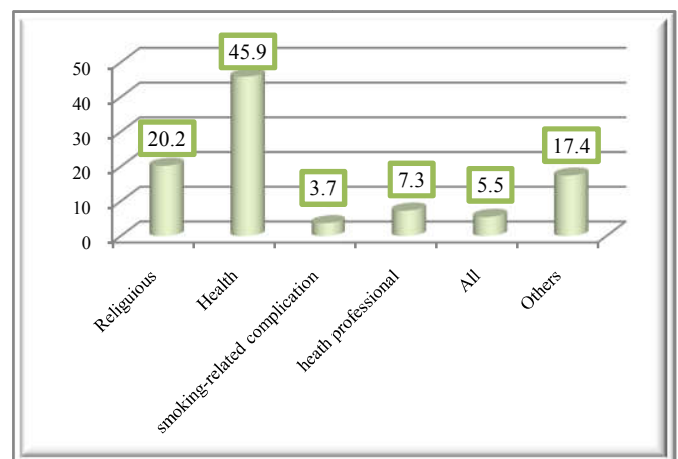

Figure 10 Factors influencing non-smokers to not smoke

Relation between smoking status and knowledge & attitude towards smoking

As shown in table 9, there was no statistically significant association between smoking status of medical students and their knowledge level regarding smoking risks.

Table 9 Association between smoking status and knowledge of smoking risks among medical students

Smoking-related knowledge	Smoking condition			χ^2(p-value)
	Current N=52 N (%)	Ex-smoker N=39 N (%)	Non-smoker N=116 N (%)	
Poor (n=82)	23 (44.2)	12 (30.8)	47 (40.5)	1.78 (0.411)
Good (n=125)	29 (55.8)	27 (69.2)	69 (59.5)	

It is obvious from table 10 that majority of ex-smokers (84.6%) and non-smokers (80.2%) compared to 61.5%) of current smokers had positive attitude towards dangerousness of smoking. This difference was statistically significant, p=0.013

Table 10 Association between smoking status and attitude towards smoking among medical students

Attitude towards smoking	Smoking condition			χ^2(p-value)
	Current N=52 N (%)	Ex-smoker N=39 N (%)	Non-smoker N=116 N (%)	
Negative (n=49)	20 (38.5)	6 (15.4)	23 (19.8)	8.73 (0.013)
Positive (n=158)	23 (61.5)	33 (84.6)	93 (80.2)	

DISCUSSION

Medical students, as future physicians present the primary goal of tobacco prevention programs, as they should have a positive role in preventing smoking among people in their circumstances.[17]Also, they should be a role model for their public in discouraging people from smoking. Therefore, the goal of this study was to explore their knowledge regarding risks of smoking, attitude towards smoking seriousness as well as their smoking practice.

The present study revealed that, almost one-quarter (25.1%) of the male medical students at King Abdul-Aziz University (Second grade to Sixth grade) was current smokers. This figure is comparable to the figure reported by Al-Haqwi et al in their study on medical students of two colleges at Riyadh (24%).[18]However, it is more than that noted in another study conducted at King Fahad Medical City, Riyadh (18%).[19]

On the other hand, it is less than the figure reported between medical students at King Saud University in Riyadh where 33% were currently smoked.[20]

The variation in the prevalence rate of smoking between medical students at national level is also observed on international level with prevalence ranging from 3 to 58%.[2124] Current smoking was more reported among older students compared to younger. This finding agrees with others,[25-27]as the risk of smoking increases with students' progression. This is could be attributed to the increased stress faced by the older students who were usually at final years of their progression. This is supported by finding that stress relieving was the most frequent reason that encouraged current smokers to continue smoking.

The high prevalence of smoking between medical students in the present study and even in other similar studies carried out in Saudi Arabia is alarming. It may reflect a degree of failure of the medical school curriculum to alert health-conscious behaviors and attitudes among future health professionals.

Students showed high knowledge of the smoking adverse outcomes especially lung cancer, heart diseases and stroke. The same has been reported in the study carried out by Al-Haqwi, *et al* (2010).[18] However, deficient knowledge has been observed regarding the role of smoking in bladder cancer, cervical cancer and osteoporosis. As expected, older students and those of higher academic levels were more knowledgeable regarding smoking hazards than younger and those of lower academic levels because of the nature of their study as more than half of the students reported that they learned the health-problems related to smoking inside the medical school.

Overall, positive attitude was observed among students in the present study as majority of them thought that smoking is really harmful to health, in the future as a doctor, they are going to advise patients to stop smoking, they consider Sheesha or Moassel as harmful as cigarette smoking, believed that doctors should be played a good example by not smoking, read any posters or pamphlets about smoking related dangers and thought that there is still a need for public awareness campaigns about smoking. Similar positive attitude among medical students has been reported in Riyadh. [18]

In the present study, smoking status of medical students was not significantly associated with knowledge of smoking hazards whereas nonsmokers and ex-smokers had significant attitude towards smoking hazardous compared to current smokers. In two studies conducted in the Bosnia and Herzegovina and Netherlands,[28, 29] there was significant differences between ever and never smokers in their attitude towards smoking.

The reasons to initiate smoking among current smokers in the present study were having smoking friends and family members, relieving stress and curiosity. Studies carried out in KSA and worldwide reported that people start smoking to enhance their social status, to relieve stress, for stimulation, curiosity, peer pressure or contact with smokers.[30,31]

In the current study, health concern was identified as the main factor influencing non-smokers, not to smoke and ex-smokers to stop smoking. These results are in agreement with the findings of other previously reported studies.[6, 20, 32]

The present study showed that 59.6% of current smokers had trials to stop smoking. This figure is similar to what has been reported in another study carried out in Riyadh (57.1%). [6] However, 22.6% of them succeeded to quit smoking for at least 6 months

This study showed that almost half of current smoker male medical students smoke Shesha or Moassel. In Riyadh, 44.1% of male smoker students smoked Shesha and 23.7% smoked both cigarettes and Shisha. [6]Shesha or Moassel smoking prevalence is increasing, but public awareness of its risk factors is nonexistent or still premature. In general, there is a misconception that Shesha or Moasel smoking is a safe alternative to cigarette smoking.

Among important limitations of the present study that should be mentioned is the inclusion of only male students despite the fact that female smoking is increasing recently in Saudi Arabia although it is considered inappropriate behavior in Saudi culture.[33]The cross-sectional design of the study proves only association and not causality. Also, self-reporting of medical students was the base for data collection with the possibility of under-reporting or over-reporting. Finally, the study included

male students from one college of medicine in Jeddah, so findings cannot be generalized to all other medical -colleges in Saudi Arabia.

CONCLUSION

Knowledge of smoking hazards between male medical students at College of Medicine, King Abdul-Aziz University, Jeddah, Saudi Arabia was good among most of them, however, deficient knowledge regarding important smoking risks were identified.

Attitude towards smoking hazards is generally positive among male medical students.

Smoking is highly prevalent among male medical students at Faculty of Medicine, King Abdul-Aziz University, Jeddah, Saudi Arabia. The major reasons for starting smoking among current smokers were having smoker friends, stress, family smoking and curiosity. Health concerns, and religious believes were the most frequent factors influenced non-smokers not to smoke.

Recommendations

1. Teaching of tobacco and related issues should be an essential component of the undergraduate medical course.
2. Promotion of multi-disciplinary cigarette-specific teachingexercises at wide ranges of age groups in order to inhibitand limit teen-age students from smoking, and to assist smokers to stop smoking.
3. Medical school administration should build and establish an excellent primary training directed at fine preparing medical students for their lead in smoking prevention.
4. Special attention should be given to health professionals, particularly medical studentsas they should act as nonsmoking idols for their patients and the public.
5. More studies regarding determinant causes of smoking will help us to greater understand the multiple etiology of smoking related disorders.
6. Including female medical students in another study is highly recommended.

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