

Smoking among Male Medical Students: Prevalence, Knowledge and Attitude in Faculty of Medicine Umm Al-Qura University Makkah, 2012

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Abstract

Background: Smoking was considered the number one cause of preventable mortality and morbidity in the 20th century. Smoking prevalence among hospital workers was found to be of the same extent as in the general population in different studies conducted all around the world. It was assumed that hospital workers were more informed than the general population concerning smoking hazards and are supposed to set an example for the rest of the community regarding smoking habits.

Objectives: To determine the prevalence of different types of smoking, among male medical students in Umm Al-Qura University, Makkah, 2010 as well as to identify their Knowledge and Attitude about smoking.

Subjects and Methods: This was a cross-sectional study included a representative randomly selected sample from all grades of male medical students in faculty of Medicine Umm Al-Qura University, Makkah. Self-administered Global Health Professions students questionnaire 2008 (GHPSS) was utilized for data collection.

Results: The study included 140 male medical students. Their ages ranged between 18 and 30 with a mean of 21.34 ± 1.98 years. 42.9% of the participated medical students claimed that they did not try cigarette smoking. Approximately one-fifth (20.7%) of them tried cigarette smoking after the age of 18 years (i.e. after entering the College of Medicine). The prevalence of current smoking among participants was 33.6%. Regarding other forms of smoking, 50% of students in grade 5 smoked shesha compared to only 28.6% among those in grade 1. Similarly, 30.8% of students in grade 3 smoked cigar compared to 20.6% and 21.4% of those in grade 2 and 1 respectively. Nearly, 24.3% and 17.1% of the medical students claimed that they smoked in school premises and buildings respectively. Overall, 114 medical students (81.4%) agreed that health professionals should get a specific training on cessation techniques and 104 (74.3%) agreed that health professionals should routinely advise their patients who smoke to quit smoking. Approximately one third of the participants documented that they received formal training in smoking cessation approaches to use with patients (34.3%).

Conclusion: The level of tobacco use among Saudi medical students is alarming and quite high even though they know the harmful effects of active and passive smoking. In addition, the awareness of the harmful effects of smoking and intention to perform smoking intervention in the future as doctors seemed unsatisfactory among Saudi medical students.

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Introduction

Tobacco smoking is a great health problem. Tobacco smoking is a direct cause of high morbidity and mortality all over the world, which could be prevented. Five million persons die from smoking-related diseases every year in the world, particularly in developing countries. Around 6.4 million children less than 18 years will die at an earlier age as adults because they initiated their smoking during adolescence.⁽¹⁾

Smoking prevalence among hospital workers is found to be of the same extent as in the general population in different studies conducted all around the world. It is assumed that hospital workers are more informed than the general population with regards to smoking hazards and are supposed to set an example for the rest of the community regarding smoking habits. The prevalence of smoking in the Kingdom of Saudi Arabia (KSA) is rising as the tobacco import had increased 40 fold from 1961 (1061 tons) to 1987 (41,440 tons) and the KSA moving up, among the tobacco importing countries, from 52nd position (1970-1972) to 23rd (1990-1992).⁽²⁾

It was estimated that more than 25% of smoke related deaths are in middle age (35-69 years) resulting in the reduced workforce of the affected countries.⁽²⁾ A study carried out in Riyadh, Saudi Arabia in 2005 showed that 13% of male medical students were smokers.⁽³⁾

The present study aimed determining the prevalence of different types of smoking among male medical students in Umm Al-Qura University, Makkah, 2010 as well as to identify their Knowledge and Attitude towards smoking.

Subjects and Methods

A cross sectional study was conducted throughout the period 1st July till 31 July, 2012, included all male medical students in faculty of Medicine Umm Al-Qura University.

The total number of male students in the faculty of medicine was 716 students from the first till the last year sixth year. The sample size was calculated by using Epi info version 6, it was 140 students at 95% confidence intervals (expected frequency 13%, worst acceptable 18% "worst prevalence in general community worldwide"). Stratified sampling technique with proportional allocation was adopted. The sample size was distributed among the six years medical students and determined as a percentage proportionally related to the total number of the students in the collage of medicine.

1. First year 144 students (20.1% =28 students) (one every 5 students was randomly chosen).
2. Second year 172 students (24% =34) (one every 4 students was randomly chosen).
3. Third year 135 students (18.9% =26) (one every 5 students was randomly chosen).
4. Fourth year 118 students (16.5% =23) (one every 6 students was randomly chosen).
5. Fifth year 72 students (10% =14) (one every 5 students was randomly chosen).

6. Sixth year 75 students (10.5% =15) (one every 10 students was randomly chosen).

Self-administered Global Health Professions students questionnaire 2008 (GHPSS), (4) the World Health Organization (WHO), CDC, and the Canadian Public Health Association, developed the GHPSS. This questionnaire was used to determine prevalence, knowledge and attitude of smoking among medical students.

A pilot study has been implemented on 14 students in medical science college (10%). A test –retest reliability of 97.3 was obtained.

Approvals from JPFCM, faculty of medicine, faculty of medical sciences were obtained.

Statistical analysis

The data was collected and verified by hand then coded before entry. Statistical Package for Social Sciences (SPSS) software version 19.0 was used for data entry and analysis. Descriptive statistics (e.g. number, percentage, range, standard deviation, arithmetic mean) and analytic statistics using Chi Square tests (χ^2) to test for the association and/or the difference between two categorical variables were applied. For all statistical tests done, P value equal or less than 0.05 was considered statistically significant.

Results

The study included 140 students enrolled in the faculty of Medicine, Umm-Al-Qura University, Makkah. Their ages ranged between 18 and 30 with a mean of 21.34 ± 1.98 years.

The results comprised of five main compartments as following:

I. Tobacco Use Prevalence among Health Professional Students

As obvious from figure (1), 42.9% of the participated medical students claimed that they did not try cigarette smoking. Approximately one-fifth (20.7%) of them tried cigarette smoking after the age of 18 years (i.e. after entering the College of Medicine), while another one-fifth (20.0%) tried cigarette smoking before the age of a 15 years.

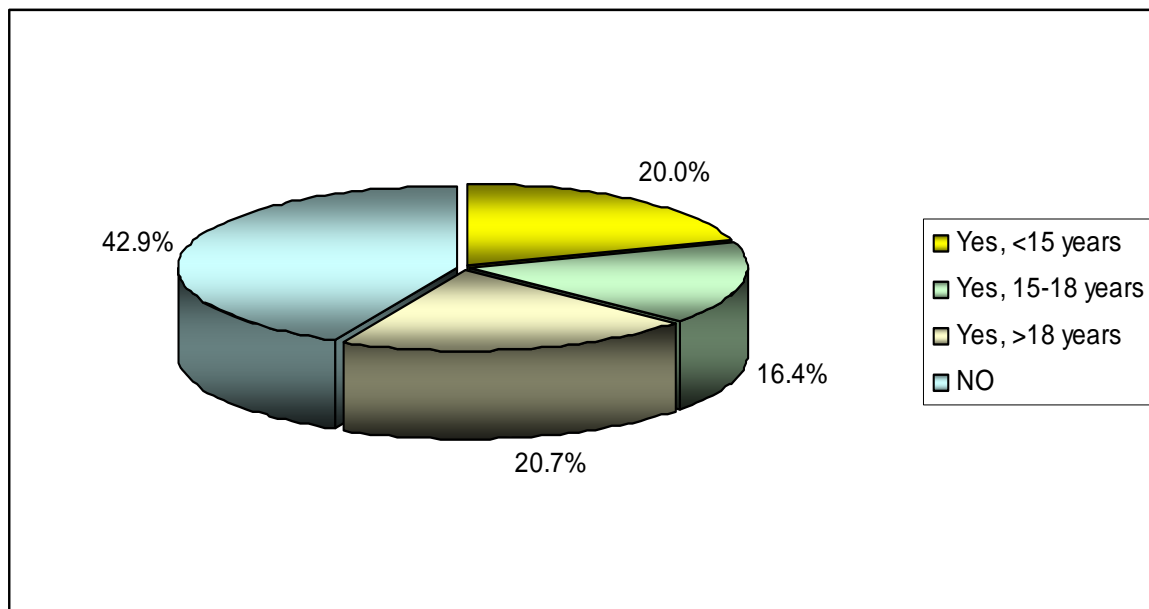


Figure (1): Distribution of the participated male medical students according to their history of trying cigarette smoking.

As displayed in figure (2), overall 60.7% of students never smoked while 14.3% smoked every day during the last month.

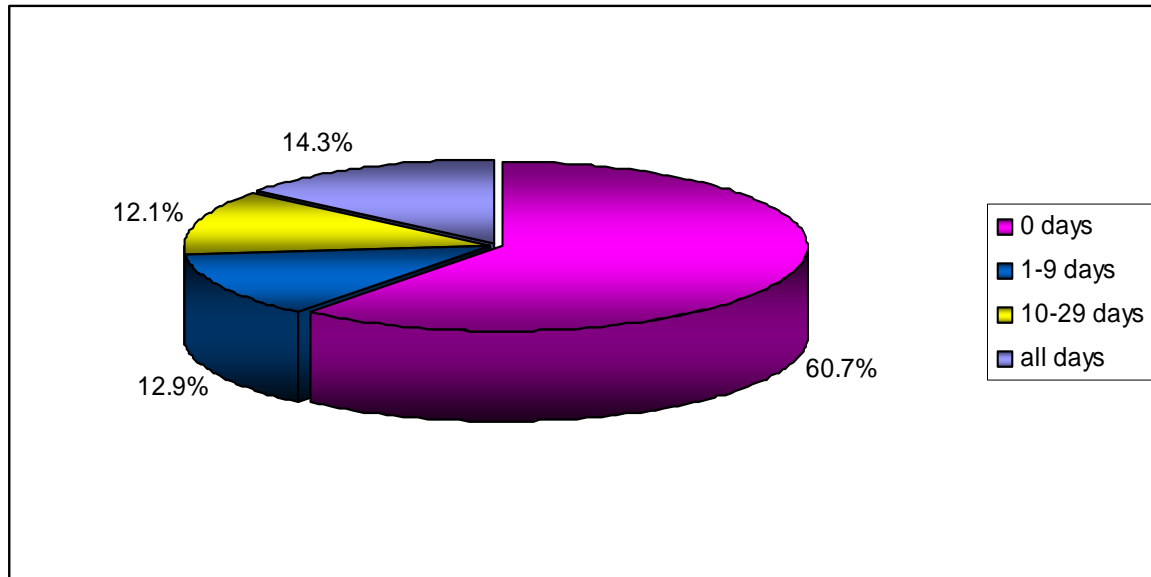


Figure (2): Distribution of the participated male medical students according to their history of cigarette smoking during the last month.

Regarding other forms of smoking, the prevalence of shisha smoking was 35%, cigar smoking 25%, moassil smoking 28.6% while the prevalence of other forms of smoking (pipes, bidis and snuff) was 11.4%. Exactly 50% of students in grade 5 smoked shesha compared to only 28.6% among those in grade 1. Similarly, 30.8% of students in grade 3 smoked cigar compared to 20.6% and 21.4% of those in grade 2 and 1 respectively. Twelve students in grade 1 (42.8%) and 4 students in grade 6 (26.7%) smoked moassil compared to only 3 students in grade 3 (11.5%). These differences were statistically significant, $P=0.039$ as illustrated in table (1).

Table (1): Tobacco use prevalence among male medical Students

Statement	Medical students` grades						X^2 (P)
	1 (n=28)	2 (n=34)	3 (n=26)	4 (n=23)	5 (n=14)	6 (n=15)	
-Tried cigarette smoking							
Yes	18 (64.3)	19 (55.9)	14 (53.8)	10 (43.5)	10 (71.4)	9 (60.0)	3.96 (0.595)
No	10 (35.7)	15 (44.1)	12 (46.2)	13 (56.5)	4 (28.6)	6 (40.0)	
- Age at trying smoking *							
< 15 years	8 (28.6)	7 (20.6)	4 (15.4)	3 (13.0)	3 (21.4)	3 (20.0)	8.79 (0.888)
15-18 years	6 (21.4)	4 (11.8)	6 (23.1)	3 (13.0)	2 (14.3)	2 (13.3)	
>18 years	4 (14.3)	8 (23.5)	4 (15.4)	4 (17.4)	5 (35.7)	4 (26.7)	
- Last month smoking							
0 days	14 (50.0)	17 (50.0)	21 (80.8)	16 (69.6)	8 (57.1)	9 (60.0)	13.98 (0.527)
1-9 days	5 (17.9)	5 (14.7)	2 (7.7)	0 (0.0)	3 (21.4)	3 (20.0)	
10-29 days	4 (14.3)	5 (14.7)	1 (3.8)	4 (17.4)	2 (14.3)	1 (6.7)	
All days	5 (17.9)	7 (20.6)	2 (7.7)	3 (13.0)	1 (7.1)	2 (13.3)	
- Other forms of smoking							
Shesha (49)	8 (28.6)	12 (35.3)	9 (34.6)	7 (30.4)	7 (50.0)	6 (40.0)	34.52 (0.039)
Cigar (35)	6 (21.4)	7 (20.6)	8 (30.8)	7 (30.4)	3 (21.4)	4 (26.7)	
Moassil (40)	12 (42.8)	9 (26.5)	3 (11.5)	7 (30.4)	5 (35.7)	4 (26.7)	
Others** (16)	4 (14.3)	4 (11.8)	2 (7.7)	1 (4.3)	1 (7.1)	1 (6.6)	

*Never smoker were excluded

** Bidis, snuff and pipes

As shown in figure (3), overall 57.9% of students had no history of chewing tobacco, snuff, bidis, pipes, shesha or moassil smoked while 6.4% had that history every day during the last month.

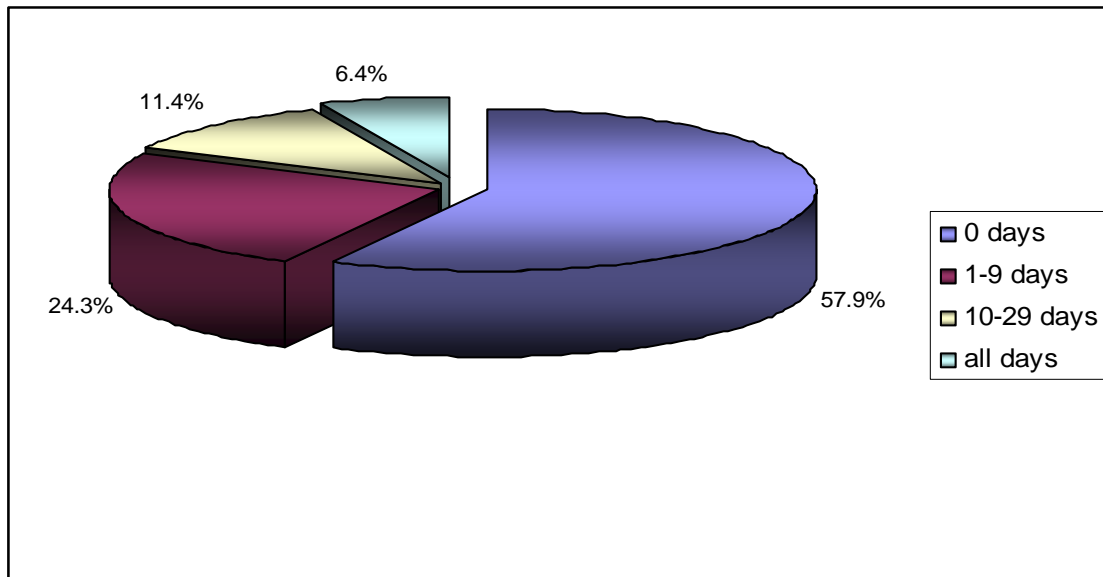


Figure (3): Distribution of the participated male medical students according to their history of chewing tobacco, snuff, bidis, pipes, shesha or moassil during the last month.

II. Exposure to environmental tobacco smoke

As shown in figure (4), overall 29 medical students (20.7%) claimed that they were exposed to people smoked where they live during the last week. Table (2) showed that four medical students were in grade 6 representing 26.7% of students in grade 6 and 3

were in grade 4 representing 13% of students in grade 4. However, these differences were not statistically significant. In addition, figure (4) showed that 27 medical students (19.3%) claimed that they were exposed to people smoked in places other than they live during the last week. Thirteen students were in grade 2 representing 38.2% of students in grade 2 and 3 were in grade 1 representing 10.7%% of students in grade 1. However, these differences were not statistically significant (Table 2).

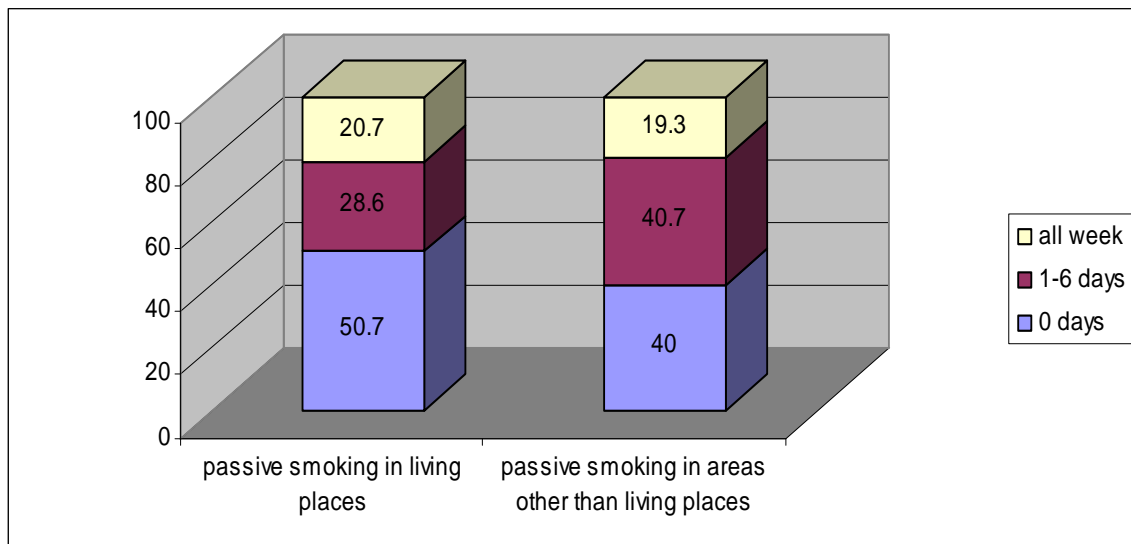


Figure (4): Distribution of the participated male medical students according to their history of exposure to passive smoking during the last week.

Table (2): History of exposure to environmental tobacco smoke among male medical students

Statement	Medical students` grades						X ² (P)
	1 (n=28)	2 (n=34)	3 (n=26)	4 (n=23)	5 (n=14)	6 (n=15)	
-Passive smoking exposure*							
0 days	14 (50.0)	11 (32.4)	17 (65.4)	13 (56.5)	7 (50.0)	9 (60.0)	11.89 (0.293)
1-6 days	9 (32.1)	15 (44.1)	3 (11.5)	7 (30.4)	4 (28.6)	2 (13.3)	
All days of the week	5 (17.9)	8 (23.5)	6 (23.1)	3 (13.0)	3 (21.4)	4 (26.7)	
-Passive smoking exposure**							
0 days	11 (39.3)	11 (32.4)	14 (53.8)	9 (39.1)	5 (35.7)	6 (40.0)	13.34 (0.205)
1- 6 days	14 (50.0)	10 (29.4)	8 (30.8)	11 (47.8)	7 (50.0)	7 (46.7)	
All days of the week	3 (10.7)	13 (38.2)	4 (15.4)	3 (13.0)	2 (14.3)	2 (13.3)	
- School policy***							
Yes, for buildings only	5 (17.9)	8 (23.5)	4 (15.4)	7 (30.4)	2 (14.3)	4 (26.7)	28.28 (0.020)
Yes, for clinics only	5 (17.9)	1 (2.9)	1 (3.8)	0 (0.0)	2 (14.3)	0 (0.0)	
Yes, both buildings and clinics	10 (35.7)	12 (35.3)	8 (30.8)	15 (65.2)	8 (57.1)	7 (46.7)	
No policy	8 (28.6)	13 (38.2)	13 (50.0)	1 (4.3)	2 (14.3)	4 (26.7)	
- School policy enforced[√]							
Yes, policy is enforced	12 (42.9)	14 (41.2)	6 (23.1)	13 (56.5)	6 (42.9)	6 (40.0)	1.80 (0.876)
No, policy is not enforced	8 (28.6)	7 (20.6)	7 (26.9)	9 (39.1)	6 (42.9)	5 (33.3)	

* Exposure to people smoked where the student live during the last week.

** Exposure to people smoked in places other than the student live during the last week.

*** Official policy banning smoking in school buildings and clinics.

[√] Is school's official smoking policy enforced (for those claimed that there was policy)

Overall, 41 medical students (29.3%) reported that there was no official policy banning smoking in their school buildings and clinics while 60 students claimed that there was that policy in both school buildings and clinics (42.9%) figure (5). As obvious from table (2), there was statistically significant association between grades of medical students and their claiming regarding that policy. Exactly half of students in grade 3 compared to 4.3% of students in grade 4 claimed that this policy was not existed.

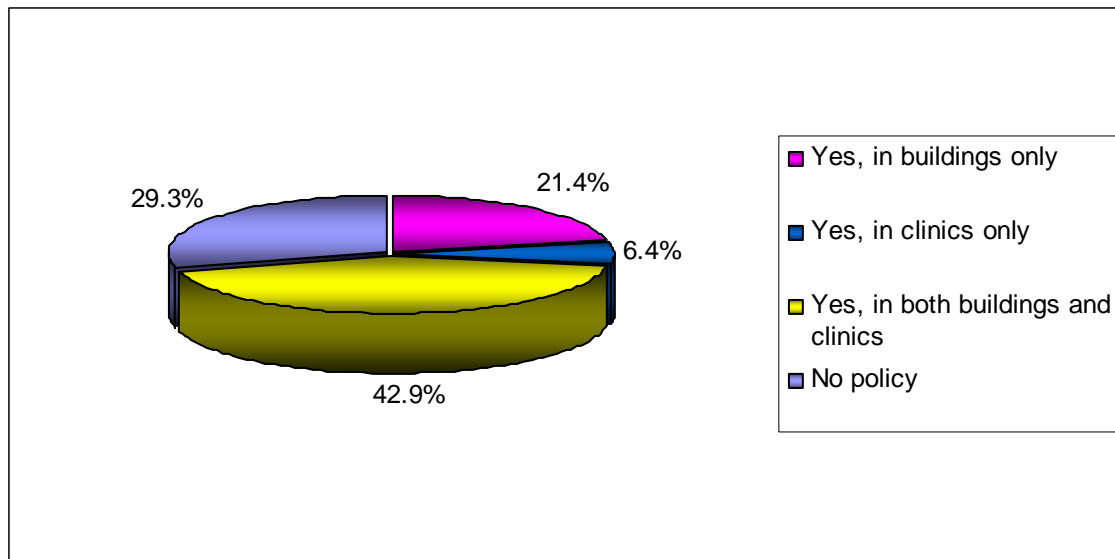


Figure (5): Official policy banning smoking in school buildings and clinics.

As illustrated in figure (6), 40.7% of participated medical students documented that the official school policy to ban smoking in school buildings and clinics is enforced compared to 30% reported that it is not enforced. As shown in table (2), a percentage of medical students ranged between 56.5% in grade 4 and 23.1% in grade 3 reported that school policy banning smoking in school buildings and clinics is enforced. This difference between students' grades was not statistically significant.

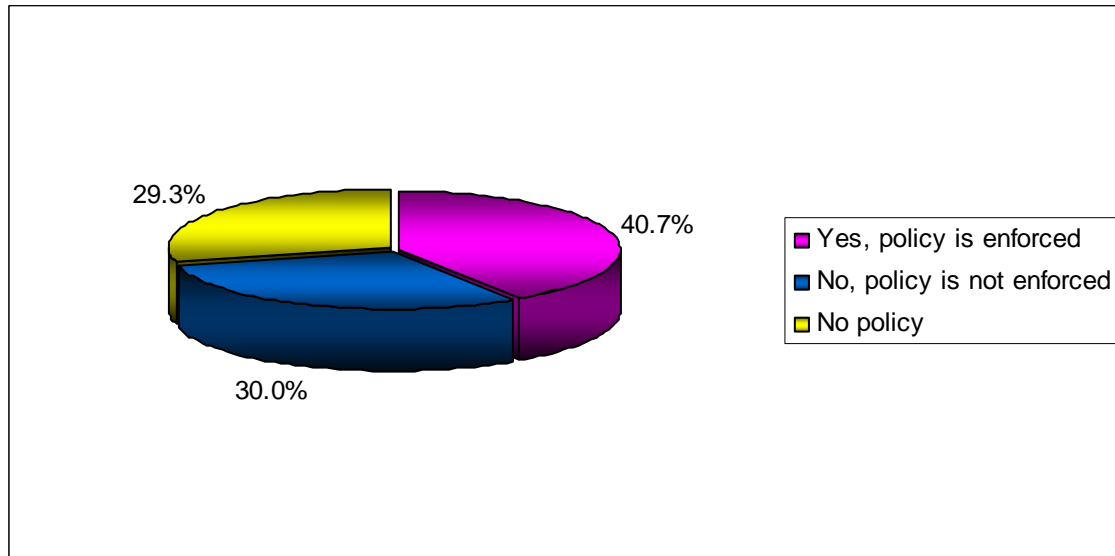


Figure (6): Enforcement of the school's official smoking policy to ban smoking in school buildings and clinics.

As shown in table (3), approximately half of medical students tried first cigarette before the age of 15 years (46.4%) were exposed to people smoked where they live throughout all days of the week as opposed to only 20.7% among those who tried first cigarette after the age of 18. Similarly, approximately one-third of medical students tried first cigarette before the age of 15 years (32.1%) were exposed to people smoked in places other than the student live throughout all days of the week as opposed to only 13.8% among those who tried first cigarette after the age of 18. However, these differences were not statistically significant. From the same table, it is obvious that there was no statistically significant association between age of trying first cigarette, from one side, and history of awakening and first cigarette, from the other side.

Table (3): Association between age of first trying smoking and passive smoking & awakening and first cigarette

	< 15 years (n=28) No. (%)	15-18 years (n=23) No. (%)	>18 years (n=29) No. (%)	X^2 (P)
-Passive smoking exposure*				
0 days	7 (25.0)	9 (39.2)	13 (44.8)	4.73 (0.316)
1-6 days	8 (28.6)	7 (30.4)	10 (34.5)	
All days of the week	13 (46.4)	7 (30.4)	6 (20.7)	
-Passive smoking exposure**				
0 days	6 (21.4)	4 (17.4)	9 (31.0)	4.074 (0.393)
1- 6 days	13 (46.4)	11 (47.8)	16 (55.2)	
All days of the week	9 (32.1)	8 (34.8)	4 (13.8)	
-Awakening and first cigarette.				
Not current smoker	13 (46.4)	10 (43.5)	10 (34.5)	4.37 (0.627)
< 10 minutes	5 (17.9)	4 (17.4)	5 (17.2)	
10 minutes – one hour	8 (28.6)	5 (21.7)	6 (20.7)	
> one hour	2 (7.1)	4 (17.4)	8 (27.6)	

* Exposure to people smoked where the student live during the last week.

** Exposure to people smoked in places other than the student live during the last week.

III. Attitude of medical students towards smoking

Overall, 114 medical students (81.4%) agreed that health professionals should get a specific training on cessation techniques and 104 (74.3%) agreed that health professionals should routinely advise their patients who smoke to quit smoking. One hundred and one medical students (72.1%) agreed that health professionals should routinely advise their patients who use other tobacco products to quit using these products while 99 (70.7%) agreed that a patient's chances of quitting smoking are increased if a health professional advises him to quit. Exactly 59 students out of 80 (73.8%) who ever smoked agreed that tobacco sales to adolescents should be banned compared to only 22 students out of 60 who never smoked (36.7%). This difference was statistically significant. Similarly a significant higher percentage of students who ever smoked (73.8) compared to 56.7% among students who never smoked agreed that there should be a complete ban of the advertising of tobacco products. In addition, 75% of students who ever smoked and 55% of students who never smoked agreed that smoking should be banned in restaurants with statistically significant difference. The majority of ever smoked students (88.8%) agreed that health professionals should get specific training on cessation techniques as compared to 71.7% of those never smoked. This difference was statistically significant (Table 4).

Table (4): Attitude of participated male medical students towards smoking

Attitude questions	Never smokers (n=60) No. (%)	Ever smokers (n=80) No. (%)	Total students (n=140) No. (%)	χ^2 (P)
-Should tobacco sales to adolescents be banned?	22 (36.7)	59 (73.8)	81 (57.9)	19.34 (<0.001)
-Should there be a complete ban of the advertising of tobacco products?	34 (56.7)	59 (73.8)	93 (66.4)	4.49 (0.027)
- Should smoking be banned in restaurants?	33 (55.0)	60 (75.0)	93 (66.4)	6.15 (0.011)
- Should smoking be banned in coffee shops and casinos?	30 (50.0)	45 (56.3)	75 (53.6)	0.54 (0.287)
- Should smoking in all enclosed public places be banned?	40 (66.7)	56 (70.0)	96 (68.6)	0.18 (0.405)
- Should health professionals get specific training on cessation techniques?	43 (71.7)	71 (88.8)	114 (81.4)	6.62 (0.009)
- Do health professionals serve as “role models” for their patients and the public?	29 (48.3)	47 (58.8)	76 (54.3)	1.50 (0.146)
- Should health professionals routinely advise their patients who smoke to quit smoking?	42 (70.0)	62 (77.5)	104 (74.3)	1.01 (0.209)
- Should health professionals routinely advise their patients who use other tobacco products to quit using these products?	43 (71.7)	58 (72.5)	101 (72.1)	0.012 (0.531)
- Do health professionals have a role in giving advice or information about smoking cessation to patients?	36 (60.0)	59 (73.8)	95 (67.9)	2.97 (0.062)
- Are a patient’s chances of quitting smoking increased if a health professional advices him to quit?	43 (71.7)	56 (70.0)	99 (70.7)	0.05 (0.491)

IV. Behavior/Cessation

Figure (7) showed that 41.3% of ever-smoked participants were not currently smokers at the time of study conduction. Thus, the prevalence of current smoking among participants was 33.6%. As obvious from table (5), there was no statistically significant difference between students of different grades regarding duration between awakening and first cigarette.

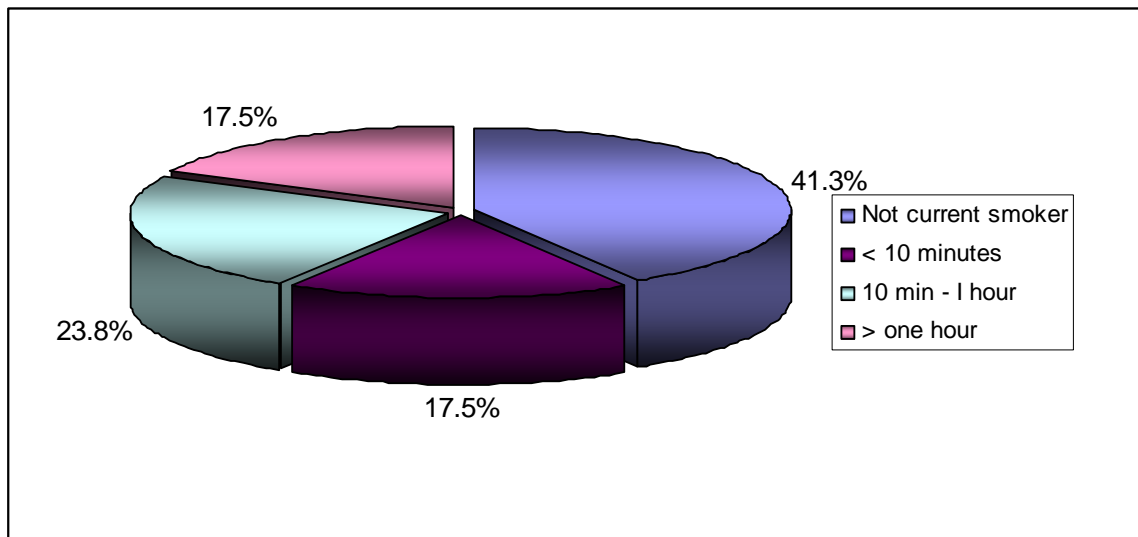


Figure (7): Duration between awakening and smoking of the first cigarette among ever smoked medical students.

Among ever-smokers, 15 students did not want to stop smoking (18.8%) while 40% wanted to stop it as illustrated in figure (8). Thus, among current smokers (47 students), 32 wanted to stop it (68.1%). As shown table (5), there was no statistically significant difference between students of different grades regarding their desire to quit cigarette smoking.

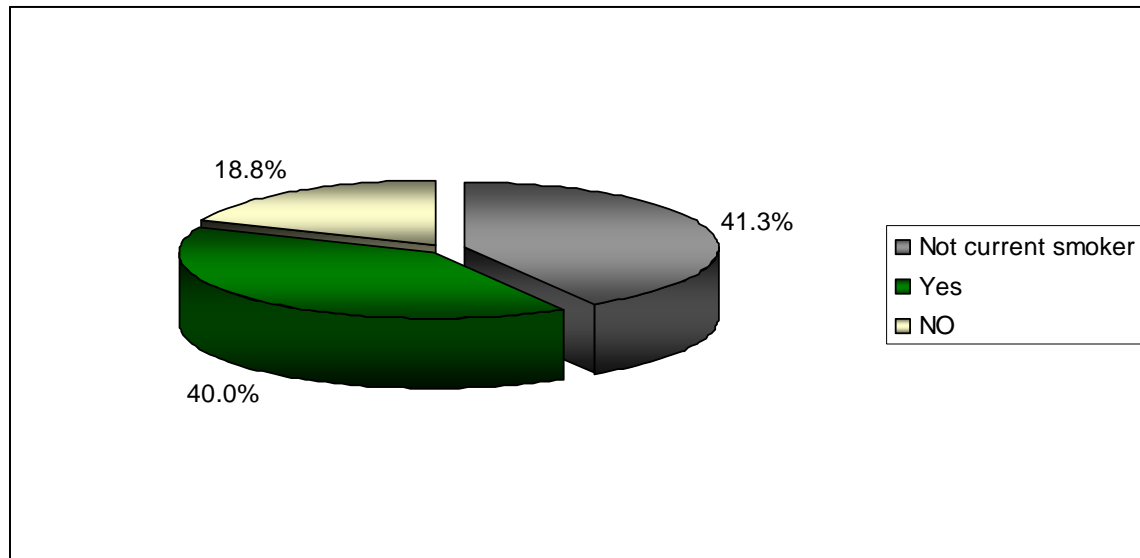


Figure (8): Distribution of ever-smoker medical students according to their desire to quit smoking.

As obvious from table (5), Trials to quit smoking were significantly higher among junior compared to senior students (44.4%, 68.4% and 22.2% for students of grades 1, 2 and 6 respectively) while there was no statistically significant difference between students of different grades regarding duration of quitting cigarette smoking.

The majority of ever-smoked medical students (76.3%) claimed that they received help to quit smoking as illustrated in figure (9) and as obvious from table (5), there was no statistically significant difference between students of different grades regarding receiving help to quit smoking.

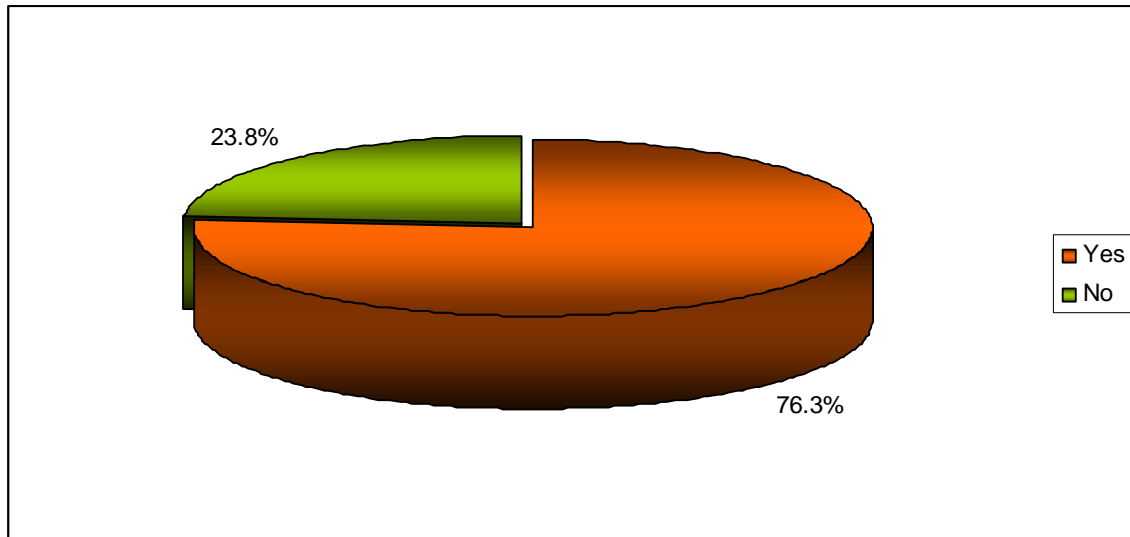


Figure (9): Distribution of ever-smoked medical students according their receiving of help to stop smoking.

Approximately one third (33.9%) of ever-smoked students, smoked other than tobacco products, claimed that they have no desire to quit smoking of other tobacco products with no statistically significant difference between students of different grades as shown in table (5).

Table (5): Behavior/Cessation among ever-smoking male medical students

Statement	Medical students` grades						X ² (P)
	1 (n=18)	2 (n=19)	3 (n=14)	4 (n=10)	5 (n=10)	6 (n=9)	
-awakening and first cigarette.							
Not current smoker	7 (38.9)	5 (26.3)	8 (57.1)	3 (30.0)	6 (60.0)	4 (44.4)	13.07 (0.597)
< 10 minutes	5(27.8)	5 (26.3)	1 (7.1)	2 (20.0)	0 (0.0)	1 (11.1)	
10 minutes – one hour	5 (27.8)	5 (26.3)	1 (7.1)	3 (30.0)	3 (30.0)	2 (22.2)	
> one hour	1 (5.6)	4 (21.1)	4 (28.6)	2 (20.0)	1 (10.0)	2 (22.2)	
- Want to stop smoking now							
I do not smoke now	7 (38.9)	5 (26.3)	8 (57.1)	3 (30.0)	6 (60.0)	4 (44.4)	8.91 (0.541)
Yes	8 (44.4)	11 (57.9)	5 (35.8)	4 (40.0)	2 (20.0)	2 (22.3)	
No	3 (16.7)	3 (15.8)	1 (7.1)	3 (30.0)	2 (20.0)	3 (33.3)	
- Trial to stop smoking last year							
I do not smoke during last year	7 (38.9)	4 (21.1)	8 (57.1)	3 (30.0)	4 (40.0)	2 (22.2)	18.16 (0.049)
Yes	8 (44.4)	13 (68.4)	4 (28.6)	5 (50.0)	4 (40.0)	2 (22.2)	
No	3 (16.7)	2 (10.5)	2 (14.3)	2 (20.0)	2 (20.0)	5 (55.6)	
- How long did you stop smoking							
I have no stopped smoking	5 (27.8)	4 (21.1)	3 (21.4)	2 (20.0)	3 (30.0)	2 (22.2)	15.37 (0.425)
< one month	3 (16.7)	7 (36.8)	0 (0.0)	2 (20.0)	3 (30.0)	1 (11.1)	
1 month – 3 years	9 (50.0)	6 (31.6)	9 (64.3)	4 (40.0)	1 (10.0)	5 (55.6)	
> 3 years	1 (5.6)	2 (10.5)	2 (14.3)	2 (20.0)	3 (30.0)	1 (11.1)	
-Receiving help to stop smoking							
Yes	15 (83.3)	18 (94.7)	8 (57.1)	8 (80.0)	6 (60.0)	6 (66.7)	8.90 (0.113)
No	3 (16.7)	1 (5.3)	6 (42.9)	2 (20.0)	4 (40.0)	3 (33.3)	
- Want to stop other smoking*†							
Yes	8 (44.4)	13 (68.4)	5 (35.7)	4 (40.0)	5 (50.0)	2 (22.2)	17.27 (0.303)
No	3 (16.7)	4 (21.1)	2 (14.3)	4 (40.0)	2 (20.0)	4 (44.4)	

* Smoking of other tobacco products (chewing, snuff, bidis, cigars, pipes, shesha or moassil) † for only smokers of other tobacco products.

V- Curriculum/Training

Table (6), showed that 70.7% of the participated medical students respond that they have heard of using nicotine replacement therapies in tobacco cessation programs and 65.7% documented that they learned that it is important to record tobacco use history as part of a patient's general medical history. More than half of the participants reported that they taught in their classes about the dangers of smoking (61.4%), they learned that it is important to provide educational materials to support smoking cessation to patients who want to quit smoking (54.3%) and they discussed in their classes the reasons why people smoke (53.6%). Approximately one third of the participants documented that they have heard of using antidepressants in tobacco cessation programs (39.3%) and they received formal training in smoking cessation approaches to use with patients (34.3%). There is no statistically significant difference between never and ever smoked participants regarding different aspects of smoking training.

Table (6): Association between smoking status of participants and history of smoking curriculum and training

	Never smokers (n=60) No. (%)	Ever smokers (n=80) No. (%)	Total students (n=140) No. (%)	X^2 (P)
-Yes, I taught in my classes about the dangers of smoking.	32 (53.3)	54 (67.5)	86 (61.4)	2.90 (0.063)
-Yes, I discussed in my classes the reasons why people smoke.	36 (60.0)	39 (48.8)	75 (53.6)	1.75 (0.125)
-Yes, I learned that it is important to record tobacco use history as part of a patient's general medical history.	42 (70.0)	50 (62.5)	92 (65.7)	0.86 (0.229)
-Yes, I received formal training in smoking cessation approaches to use with patients.	19 (31.7)	29 (36.3)	48 (34.3)	0.320 (0.351)
- Yes, I learned that it is important to provide educational materials to support smoking cessation to patients who want to quit smoking.	35 (58.3)	41 (51.3)	76 (54.3)	0.693 (0.254)
- Yes, I have heard of using nicotine replacement therapies in tobacco cessation programs.	38 (63.3)	61 (76.3)	99 (70.7)	2.76 (0.071)
- Yes, I have heard of using antidepressants in tobacco cessation programs.	19 (31.7)	36 (45.0)	55 (39.3)	2.56 (0.077)

Discussion

The health care workers behavior is an example for patients as well as other members of the community and out to be focus for dissemination of information and

smoking habits of parents may be very important in influencing whether a medical student smokes.

The prevalence of current smoking among studied male medical students was 33.6% that was lower than that reported among staff members of Alkharj military hospital (39%).⁽³⁾ A similar study was carried out in Riyadh in the College of Applied Medical Sciences for Health Sciences, university students showed a smoking prevalence of 29%.⁽⁵⁾ In Syria, the overall prevalence of cigarette smoking among male medical students was 15.8%.⁽⁶⁾ A study conducted at College of Medicine, King Saud University, Riyadh, KSA (2006) showed that 13% of male medical students were currently active smokers.⁽³⁾ In Casablanca, the prevalence of occasional or regular smoking was 13.0%.⁽⁷⁾ In Ziauddin Medical University, 2000, the prevalence rate among male students was 26%.⁽⁸⁾ A survey among medical students of a South German University showed that the prevalence of current smoking was 29.2% among male participants.⁽⁹⁾ Most studies that reported low rates of smoking among medical students had concurrently low rates of tobacco usage in their general population. The importance of population-based influences on a medical student's decision to smoke, therefore, is clear.⁽¹⁰⁾ Among Vietnamese Health Professionals, the prevalence of smoking was 35.6%.⁽¹¹⁾ We believe that the actual prevalence of smoking is higher than reported, and many smokers did not volunteer the true information due to social and cultural inhibitions, particularly in this group of participants.

The present study showed that 68.1% of current smokers were motivated to stop smoking. This figure is higher than that reported in Riyadh (57.1%).⁽³⁾ In our study,

45% of ever-smokers were trying to stop smoking compared to 53.8% in Casablanca study. ⁽⁷⁾

While many cross-sectional investigations suggested that the prevalence of smoking seems to increase during the more senior grades, it is difficult to assess whether this trend directly reflects university seniority, increasing age or both. In the current study, there was no significant change in the prevalence of smoking among students of different grades.

In the current study, 61.4% of students were aware of the dangers of smoking and 53.6% were aware of the reasons why people smoke, through their classes. A higher percentage has been reported in Casablanca where 90.9% of the students claimed that smoking is dangerous to health and the percentage increased with advancing student's grade. ⁽⁷⁾ In a study carried out in Tunisia, the medical students recognized the harmful effects of smoking on coronary arteries and bronchi but two-thirds of them were unaware of its role in bladder cancer. ⁽¹²⁾

This study showed that 61.3% of smoking male medical students smoke shesha and 50.0% smoked moassil. In comparison with the study, which has been carried out among male medical students in Riyadh, it showed that 44.1% of male smoker students smoked shesha, and 23.7% smoked both cigarettes and shisha. ⁽³⁾ Hubble-bubble smoking prevalence is increasing, but public awareness of its risk factors is virtually nonexistent or still premature. In general, there is a misconception that Hubble-bubble smoking is a safe alternative to cigarette smoking.

In this study, approximately one-third (34.3%) of male medical students claimed that they received formal training in smoking cessation approaches to use with

patients and more than half of them (54.3%) reported that they learned that it is important to provide educational materials to support smoking cessation to patients who want to quit smoking. Another study showed that male medical student's opinion regarding the availability of health educational activities were as follows: always available (3.4%), not available (54.7%), and sometimes available (29.8%).⁽³⁾

As for the knowledge and attitude questions, the differences in agreement with the statements related to the responsibilities of health care professionals and smoking policy could be expected between the "ever" and "never" smokers, as differences in attitudes between "ever" and "never" smokers were seen in two study done in the Netherlands and Bosnia and Herzegovina.^(13, 14) However, in the current study, the difference between ever and never smokers in agreement with the statements related to the responsibilities of health care professionals and smoking policy was not significant.

Cognitive dissonance may play a role for student smokers. In one of the earliest studies of smoking among medical students, Mausner⁽¹⁵⁾ reported that significantly more nonsmokers than smokers accepted that evidence linking tobacco usage and disease was 'strongly convincing'. In this regard, medical students in some countries may still believe that smoking is not particularly hazardous or at least, not hazardous enough to warrant quitting. In a comprehensive survey of smoking among European medical students for example,⁽¹⁶⁾ it was noted that there was limited overall knowledge regarding public health measures for tobacco control. Future population-based reduction strategies will, therefore, need to consider not only smoking among youth, but also smoking among specific young adult populations such as university students. Their motivations for taking up smoking

and not quitting may or may not reflect those of the general adult communities in which they live.

Kawakami ⁽¹⁷⁾ demonstrated that the intention of medical students to perform future smoking interventions was still unsatisfactory in the late 1990s, with only one-third even being actively interested in the topic. While medical schools should clearly be encouraged to address this important issue, not all of them appear to be doing so. A previous worldwide survey on the topic, for example, suggested that some medical schools still need continued encouragement for undertaking adequate tobacco control education.⁽¹⁸⁾ Postgraduate training in tobacco control represents a key step forward in this regard, as it has previously been suggested that this represents a time when basic medical education is actually completed.⁽¹⁹⁾

Conclusively, the level of tobacco use among Saudi medical students is alarming and quite high even though they know the harmful effects of active and passive smoking. In addition, the study highlights the rapidly changing patterns of other tobacco products particularly shesha, cigar and moassil. The awareness of the harmful effects of smoking and intention to perform smoking intervention in the future as doctors seemed unsatisfactory among Saudi medical students. In addition, the findings highlight the importance of improving and promoting beliefs of health professionals about being role models for their patients by not smoking.

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