



## **Investigating the Behavior, Quit Attempts and Attitudes of Smoking Pharmacy Students in the Pharmacy Faculty at Isra University in Jordan**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author HTAH designed the study, assembled the questionnaire questions and participated in manuscript writing. Author VS contributed to the revision of questions, data entry and distribution of questionnaire. Author AK conducted the analysis with the assistance of author AD and managed literature search. Author RAE assisted with manuscript writing, review and editing, language revision and some analysis. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Background:** The proportion of smokers in Jordan is one of the largest in the world and ranks number one the Middle East and second worldwide.

**Aim:** The aim of this study was to describe the behavior, quit attempts and attitudes among pharmacy students in the pharmacy college at Isra University – Jordan.

**Methods:** Participants answered a structured questionnaire and were randomly selected from students who smoke who were enrolled at the faculty of pharmacy at Isra University during the academic year of 2017-2018. Students were eligible to participate if they smoked regular cigarettes, or hookah or other types of smoke devices.

**Results:** Most participants smoke cigarettes (n=82, 71.9%) over hookah. Thirty-seven students (32.5%) of the age group 20-25 have started smoking less than 5 years ago. A total of 72 students (63%) are highly addicted consuming at least one pack of 20 cigarettes or more per day. Most students (87.7%) spend between 50-100 JOD (~\$70-141USD) monthly on smoking. Furthermore, 80 students (70.2%) have tried to quit before.

**Conclusions:** The current study showed a positive attitude toward establishing designated smoking zones. Smokers also stated their eagerness to quit smoking. There is an urgent need to have more awareness campaigns and smoking cessation clinics or counselors on college campuses.

*Keywords: Smoking; Jordan; college; attitudes.*

## 1. INTRODUCTION

The general harmful effects of tobacco smoking on health are significant. It is increasingly becoming the leading cause of preventable mortality and morbidity in the majority of high-income and progressively more, in low-income countries [1,2]. The real impact of tobacco smoking could be underestimated because of high level of exposure of "secondhand" smoke and increased smoking among youths and adults [3,4].

Jordan is one of the countries where smoking rates are extremely high. A previous reported rate of smoking in Jordan among adult males in 2015 was 70.2%. and in a very recent report Jordan was ranked number one in smoking among world countries [5,6].

Studies of adolescent students, of both sexes in Jordan, showed that among adolescents who initiate cigarettes, 38% may progress in their habit within 3 years i.e. increase in their usage of cigarettes [7]. College students are another group where smoking is common. A study of Saudi medical students revealed that in spite of high knowledge about the dangers of tobacco use, approximately a quarter of medical students continue to smoke [3]. This report suggested that exceptional efforts should be considered to educate those medical students on the relevant approaches in dealing with stress throughout their studies, because students used tobacco smoking as a handling strategy to avoid their stress [3]. Studies in several countries have focused on the youth because most smokers are believed to start smoking during adolescence [8, 9].

The aim of the present study was to describe the behavior, quit attempts and attitudes of pharmacy students enrolled in the Faculty of Pharmacy at Isra University in Jordan to inform decisions regarding awareness campaigns and tobacco dependence treatment.

## 2. METHODS

### 2.1 Study Design

A survey type questionnaire was constructed based on available literature on smoking. It consisted of several questions that covered demographics, smoking behavior and quit attempts, and attitudes and perceptions towards smoking. The questionnaire was administered in Arabic, and students were asked to answer sincerely. Students were asked questions about their daily smoking habits and quit attempts including type of smoke, reasons they started and continued to smoke, the peer effects of friends or family. They were also asked questions concerning attitudes related to smoking habits, and beliefs regarding smoking consequences. The survey was anonymous, and no monetary compensation was given.

### 2.2 Study Subjects

Participants were randomly selected from students who smoke who were enrolled at the faculty of Pharmacy at Isra University during the academic year of 2017-2018 (October – June). Students were eligible to participate if they smoked regular cigarettes, or hookah or any other types of smoke devices such as e-cigarettes, cigars etc. Subjects who were not willing to join or were unable to comprehend the questions were excluded from the study.

### 3. RESULTS

114 subjects participated, we had 89 male students (78.1%) vs. only 6 (5.3%) female students, 19 students (16.7%) have not reported their sex. Age ranged from 20 to 45 years old. 82 of the students' age ranged between 20-25 (71.9%), 30 students' age ranged between 25-35 (26.3%) and two of them ranged between 35-45 (1.8%) (Table 1).

#### 3.1 Smoking-related Practice

Most participants smoked cigarettes (n=82, 71.9%) over hookah and electronic cigarette. Almost half of them started smoking less than 5 years ago (n=53, 46.5%) and 45 students (39.5%) have smoked from 5 to 10 years. Thirty seven students (32.5%) of the age group 20-25 have started smoking less than 5 years ago and 31 students (27.2%) of the age group 20-25 have smoked from 5-10 years. 72 students (63%) are highly addicted consuming at least one pack of

20 cigarettes or more per day. Most students (87.7%) spent between 50-100 JOD (~\$70-141 USD) monthly on smoking (Table 2).

When we investigated quit attempts, we found that 80 students (70.2%) have tried to quit before. And 70.2% were willing to quit if full assistance to quit smoking was provided for them. When we asked what the best way to quit is as an open-ended question, none of the students mentioned pharmacotherapy as an option to quit, around half 53 (46.5%) described self-control alone is needed to quit, and around 7% described exercise as a way to quit. Around third (32 students, 28.1%) believed there is no possible way to quit. We also asked about who can influence the students to quit as an open ended questions, 71 students (around 62.3%) mentioned family as an influencer, 16 (14%) mentioned friends, 4 (3.5%) mentioned university professors, 18 (15.8 %) mentioned doctors/physicians as an influencer. Table 3 describes quit attempts and behavior.

**Table 1. Demographics (n=114)**

Characteristic	N (%)
<b>Sex</b>	
Male	89 (78.1%)
Female	6 (5.3%)
No answer	19 (16.7%)
<b>Age</b>	
20 -less than 25 years (range)	82(71.9%)
25 -less than 35	30 (26.3%)
35-45	2(1.8%)

**Table 2. Smoking general behavior (n=114)**

Questions	N (114)
<b>What kind of tobacco product do you smoke?</b>	
Cigarette	82 (71.9)
Hookah	30 (26.3)
Other	2(1.8)
<b>For how long you have been smoking?</b>	
Less than 5 years	53 (46.5)
5-10 years	45 (39.5)
More than 10 years	14 (13)
Missing answer	2 (1.75)
<b>Average number of cigarettes smoked daily</b>	
1-3	17 (14.9)
4-10	18 (15.8)
More than 20	72 (63.2)
Missing answer	7(6.14)
<b>How much do you spend on smoking per month (JOD) / (USD)</b>	
Less than 50 (~\$70)	40 (35.1)
50-70 (\$70 -\$100)	35 (30.7)
71-100 (\$100-141)	25 (21.9)
More than 100 (Over \$141)	13 (11.4)
Missing answer	1 (0.9)

**Table 3. Quit attempts and behavior (n=114)**

<b>Have you tried to quit smoking before?</b>	
Yes	80 (70.2)
No	30 (26.3)
Missing answer	4(3.5)
<b>Are you willing to quit if full assistance to quit smoking was provided for you?</b>	
Yes	80(70.2)
No	27(23.7)
Missing answer	7 (6.1)
<b>In your opinion what is a good way to quit smoking? (open ended question, no options given)</b>	
Self-control	53 (46.5)
No possible way to quit	32(28.1)
Doing sport	8(7)
Missing answer	21(18.4)
<b>Who is the person who has the most influence on you who can persuade you to quit smoking? (open ended question, no options given)</b>	
Family	71(62.3)
Friends	16(14)
My professors	4 (3.5)
A physician/Doctor	18(15.8)
No one	1 (0.9)
Missing answer	4 (3.5)

When asked why they started to smoke 22 students (19.3%) answered because they want to fit in with their friends, 38 students (33.3%) answered because they were just imitating other people in the society and 10 (8.8%) answered because they feel like an adult when they smoke. We also asked several questions that might cover why students smoke, 93 (81.6%) didn't believe that smoking is the trend of modern day, and most didn't think that they will become more attractive to the opposite sex (77 students, 67.5%).

Around half, 52.6% (60 students) felt pleasure when smoking, 73 (64%) felt relieve from worry. 75 students (65.8 %) smoked when they feel lonely, tensed or angry. The last three questions we asked in the "reasons for smoke part" indicated that students were addicted if they answer yes to the question. 67 students (58.8%) felt the urge to smoke if they did not smoke for a while, 68 students (59.6%) felt upset if they ran out of cigarettes or if they had to stay without being able to smoke for several hours in smoke-free areas and half (57 students) smoked spontaneously without being aware of it. Table 4 describes why students started smoking and continue to smoke.

### 3.2 Smoking-related Attitudes

In Table 4 we summarize some attitudes towards smoking. Only 33 students (28.9%) believed that

a member of their family or the people who surround them was badly affected as a result of their smoking. But at the same time, 105 (92.1%) were not willing to let members of their family such as a spouse or children to smoke. Around 38.6% (44 students) avoided reading about the risks of smoking in newspapers, magazines or even email. Only 32.5% (37 students) believed that smokers are ostracized in the society and around 64% (73 students) supported the idea of making isolated public areas for smokers (Table 5).

## 4. DISCUSSION

This study was a cross sectional study which attempted to describe the smoking practices among college students in order to understand them and to be able to provide better relevant recommendation towards quitting smoking. The first point that we noticed was that males tend to be more open to show their smoking behavior, only 3.5% of our sample were females, and around 19 students (16.7%) did not report their sex. These could be females who refused to disclose their sex, even though the study was anonymous, because of the societal and cultural views of women who smoke cigarettes. An alarming statistic that we discovered in our study that thirty-seven students (32.5%) of the age group 20-25 have started smoking less than 5 years ago and 31 students (27.2%) have smoked from 5-10 years. This means that many students

started smoking in late high school or even before. These numbers show that we need to focus our smoking cessation efforts on schools, and on preventing smoking in colleges because many students start to smoke when they enroll in college due to peer pressure and to fit in the culture. A local report showed that among 1781 Jordanian schools nearly one-fifth of adolescents were already smoking cigarettes at baseline (mean age 12.7 years) [10].

The monthly expenditure on smoking is relatively high (50-100 JOD) compared to the income in Jordan. It is worthwhile to note here that students

in our sample may not all be of Jordanian nationality. Smoking expenditures considerably constitutes a high burden on students of low-income families in Jordan and saving from quitting smoking could be used as an incentive to help these students quit. Previous studies have assessed this point [11].

When we investigated quit attempts, we found that 80 students (70.2%) have tried to quit before. This is a high and encouraging number, in addition 70.2% were willing to quit if full assistance to quit smoking was provided for them.

**Table 4. Reasons for smoking**

<b>Why do you think you got addicted to Nicotine?</b>	
My friends smoke and I don't want to be an outlier	22 (19.3)
My family smokes, and the insinuation of being an adult when I smoke	10 (8.8)
Imitation of cultural norms	38(33.3)
All the three above	16 (18.4)
Other reasons	21 (18.4)
Missing answer	7(6.1)
<b>Do you feel pleasure when you light a cigarette?</b>	
Yes	60(52.6)
No	30 (26.3)
Missing answer	24(21.1)
<b>Do you smoke because smoking is the trend in modern day?</b>	
Yes	19 (16.7)
No	93 (81.6)
Missing answer	2 (1.8)
<b>By smoking, I become more attractive to the opposite sex?</b>	
Yes	13 (11.4)
No	77 (67.5)
Missing answer	24 (21.1)
<b>When you smoke a cigarette you feel relieved from worry?</b>	
Yes	73 (64)
No	35 (30.7)
Missing answer	6 (5.3)
<b>Do you smoke when you feel lonely, tensed or angry?</b>	
Yes	75 (65.8)
No	16 (14)
Missing answer	23 (20.2)
<b>How much they are addicted</b>	
<b>Do you feel the urge to smoke if you did not smoke for a while?</b>	
Yes	67 (58.8)
No	33 (28.9)
Missing answer	14 (12.3)
<b>Do you feel upset if you ran out of cigarettes or if you have to stay without being able to smoke for several hours in smoke-free areas?</b>	
Yes	68 (59.6)
No	38 (33.3)
Missing answer	8 (7.0)
<b>Do you smoke spontaneously without being aware of it?</b>	
Yes	57 (50)
No	34 (29.8)
Missing answer	23 (20.2)

**Table 5. Attitudes and beliefs towards smoking (n=114)**

<b>Do you believe that a member of your family or the people who surround you was badly affected as a result of your smoking?</b>	
Yes	44 (38.6)
No	50 (43.9)
Missing answer	20 (17.5)
<b>In the future will you be willing to let members of your family smoke like your spouse or your children?</b>	
Yes	8 (7)
No	105 (92.1)
Missing answer	1 (0.9)
<b>I feel nowadays that smokers are ostracized in the society?</b>	
Yes	37 (32.5)
No	52 (45.6)
Missing answer	25 (21.9)
<b>I support the idea of making isolated public areas for smokers.</b>	
Yes	73 (64)
No	24 (21.1)
Missing answer	17 (14.9)

When we asked what is the best way to quit as an open ended question, we noticed that none of the students mentioned pharmacotherapy as an option to quit which indicates that there is a big knowledge gap on the presence of nicotine replacement therapy options as well as prescription drugs that are available to help smokers quit. Around third of students (28.1%) believed there is no possible way to quit. This point indicates that there is a need to have more awareness campaigns and smoking cessation clinics or counselors on college campuses. Previous report by Wu, et al showed that understanding the mentality of adolescent smoking is essential in order to design an effective anti-smoking program to escape its harmful consequence [12].

We also inquired about who can persuade students to quit. A very high percent mentioned family (around 62.3%). This is a really important point as quit assistance should include or make use of the student's families. Another category who can be included in smoking cessation aid is university professors. University professors was a suggestion from students themselves, and it could be that they have an influence on students for reasons that need to be further investigated. Although a small number of students said that they can persuade them to quit, future programs that include willing or volunteering professors to help, or mentor students quit may be worthwhile exploring. Peers and friends, and physicians are well known influencers, physicians as being part of the health care system, and peers or friends are the reasons why students start to smoke in

the first place and peer pressure is a well-known factor in student behavior in general [11].

Reasons why these young students in our study started to smoke were peer imitation of other people in the society (33.3%), the need to fit in (19.3%) and the perception of feeling like an adult when they do smoke (8.8%). Other reasons were pleasure, to relieve worry, and indeed addiction to nicotine as indicated by feeling withdrawal symptoms when they don't smoke for a while. In a comparison study for epidemiology, attitudes and perceptions for cigarettes and hookah smoking amongst adults in Jordan, The most commonly reported reason for cigarette smoking was leisure (55.1%), followed by imitation (33%) [13], which is very similar to our results. And when compared to reasons why people smoke historically [14], our sample didn't feel that they smoke because it is the trend or to feel more attractive. These indicators encourage us to think that if we enforce the law that prevents smoking in public areas we would have a high success in reducing the rates of smoking among college students, partly because we would be preventing new people from starting to smoke more so than to help current smokers quit. For the latter, more measures would be required, such as smoking cessation clinics, and counseling as discussed above.

And finally, when we looked at attitudes of smokers, a surprisingly low number of students (33 students, 28.9%) believed that a member of their family or the people who surround them was badly affected as a result of their smoking. The

hazards of passive smoking are well known and documented [15]. But our sample students didn't believe they did harm, at the same time they didn't want any future family member (spouse or children) to smoke.

If we focus on increasing the awareness of the hazards of smoking as well as the short- and long-term consequences of smoking perhaps we can increase the number of people who want to quit. And that is another strategy, to consider adding smoking cessation related content specifically in the curriculum of pharmacy. In addition to incorporate it in other general health related education on campuses. We have a fair number of students who avoid reading about the risks of smoking in newspapers, magazines or even email. Which indicates that other active methods of spreading awareness should be used such as social media platforms including Facebook and Instagram and Twitter. There have been other studies regarding the use of social media to help quit smoking [16].

Only 32.5% (37 students) believed that smokers are ostracized in the society. And that is not a good indication, we need to focus on spreading the idea that smoking is a bad habit and shouldn't be considered a normal thing. Contrast to this, A study from south Africa displayed that previous smokers showed positive attitude toward non-smoking people, this was supported by a social environment that was extra supportive of non-smoking ambiance [17]. On the other hand, 64% (73 students) supported the idea of making isolated public areas for smokers. Which also give us the indication that in general students don't mind smoking in designated areas.

## 5. LIMITATIONS

One major limitation was the non-availability of control group (non-smokers to compare with). And unavailability of comparison of other nearby colleges. There are many missing answers in Table 4. Study recruitment practices could have led to fewer number of females to answer the smoking behavior because questionnaires were distributed among students in public areas where students saw each other filling the forms. Lastly, we have a limited number of students who participated in the study and unfortunately, we lack response rate.

## 6. CONCLUSION

Smoking rates in Jordan and in the Jordanian universities are alarming, there is an urgent need

to have more awareness campaigns and smoking cessation clinics or counselors on college campuses. the current study showed a positive attitude among university students toward quitting if assistance was provided. A fair portion of students avoided reading about the risks of smoking in newspapers, magazines or even email. So other forms of communication might be necessary, smokers do not feel ostracized and hence cultural norms need to be changed through awareness campaigns. Establishing public smoking designated areas was viewed favorably.

## DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

## CONSENT AND ETHICAL APPROVAL

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. Approval to conduct the study was obtained from the Ethical Committee of Isra University (No. (Ph/01/17).

The study was conducted according to the criteria set by the declaration of Helsinki and each subject signed an informed consent before participating.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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