

Tobacco smoking and depressive symptoms among male medical students in Al-Baha University

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ABSTRACT

Background: Smoking is a psychosocial problem regarding its causes mainly. In primary health care units, depression is the most common problem that affects the whole body and arises with physical, emotional, and cognitive symptoms. This study aimed to determine the prevalence rate of tobacco smoking and depressive symptoms among male medical students of Albaha university. Also, to investigate the association between tobacco smoking and depressive symptoms among male medical students of Albaha university. **Method:** A cross-sectional study was conducted on All the male medical students in the all-academic year levels of Al-Baha medical college using a self-administrated questionnaire. **Results:** Two hundred and eight medical students completed the study. About half of the participants (49.5%) weren't smokers. More than two-thirds (69.5%) started smoking in the first academic year. Our statistical analysis results reported; a significant correlation regarding the marital status (P-value = 0.000). The abnormality was significantly higher among current smokers (P-value = 0.013) and markedly lower among nonsmokers (P-value = 0.004). Regarding types of smoking, cigarette smokers were seriously depressed (P-value = 0.000). **Conclusion:** There is a relationship between smoking and depressive state among medical students. Researches must be conducted to explain this relation of depression symptoms with tobacco and not to increase the prevalence of smoking by helping students quit smoking.

Keywords: Al-Baha University, depressive symptoms, male medical students, tobacco smoking

Introduction

Tobacco smoking is the biggest health threats worlds widely; it kills more than 7 million people per year.^[1]

Smoking and depression are both leading causes of disability, morbidity, and mortality around the world.^[2]

A systematic review of tobacco smoking habits among medical students suggests that smoking among medical students varies widely amongst different countries and between male and female

students within the same areas. Consistently low smoking rates were found in Australia and the United States, while generally high rates were reported in Spain and Turkey.^[3]

The overall prevalence of smoking in Saudi Arabia was 12.1% in 2013, and the starting age for smoking in Saudi Arabia is below 18 years of age in 60.9% of smokers.^[4]

A study conducted to evaluate the relationship between smoking status and depression among medical students concluded that depression symptoms were found higher in medical students who are current smokers than nonsmokers.^[5,6]

Persons with depression are more likely to smoke cigarettes and have more incredible difficulty quitting smoking.^[2]

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A few studies from Saudi Arabia reported smoking status, depression prevalence, and their interaction among medical students. In the Albaha region, there were no previous studies so this study is going to be conducted.

Methodology

Study design conducted in Saudi Arabia, Al-Baha region medical college at Al-Baha university on all the male medical students in the all-academic year levels of Al-Baha medical college will be recruited to complete a self-administered questionnaire.

A self-administered questionnaire including smoking status and 21-item Beck Depression Inventory (BDI) will be used to assess their depressive symptoms.

Ethical consideration

Before Interviewing, Informed Consent will be asked from all participants. All participants have the right not to participate in the study or withdraw from the study before completion.

The researcher will explain the purpose to all respondents. Confidentiality and privacy will be guaranteed for all participants.

The approval of the ethical research committee was obtained from Albaha university. Approval from the ethics committee is obtained 26/June/2018.

Statistical analysis

Statistical analysis was done using SPSS 16.0 statistical software package. Results were presented frequencies and percent for qualitative data. Chi-square test was used for comparing qualitative variables between groups; Fisher exact test was used instead of Chi-square with two by two tables when expected cell count less than five. A probability value of less than or equal to 0.05 was considered statistically significant.

Results

Two hundred and eight medical students completed the study; most were singles (87.5%), while the remaining (12.5%) were married. More than half of them (58.7%) were 21 years old and less; the remaining 41.3% were more than 21 years old. Regarding the class level, 37.5%, 22.6%, and 17.8% belonged to class I, III, and IV, respectively [Table 1].

About half of participants (49.5%) weren't smokers, 38.9% were current smokers, and 11.5% were ex-smokers. Regarding smoking types, more than two-thirds (69.5%) were cigarette smokers, 12.4%, 9.5%, and 8.6% were hubbly bubbly E-cigarette and pipe smokers, respectively. 43.8% starting smoking at the age of 16 years old and less, 39% starting at the age of 19, and 17.2% beginning between 17 and 18 years old. Most of them (89.5%) were smokers for more than one year. 54.3% consumed up to 10 cigarettes per day, 19% consumed up to 20 cigarettes, 9.5%

Table 1: Demographic characteristics of smoker and nonsmoker students

	Description (n=208)
Marital	
Single	182 (87.5)
Married	26 (12.5)
Age	
18	0 (0)
19	40 (19.2)
20	30 (14.4)
21	52 (25)
22	27 (13)
23	31 (14.9)
24	9 (4.3)
25 and more	19 (9.1)
Age	
≤21	122 (58.7)
>21	86 (41.3)
Class level	
I	78 (37.5)
II	17 (8.2)
III	47 (22.6)
IV	37 (17.8)
V	10 (4.8)
VI	19 (9.1)
Smoking status	
Current smoker	81 (38.9)
Ex-smoker	24 (11.5)
Non-smoker	103 (49.5)
Type of smoking	
Cigarette	73 (69.5)
E-cigarette	10 (9.5)
Pipe	9 (8.6)
Hubbly bubbly	13 (12.4)
Chewing	0 (0)
Duration of smoking	
<1 year	11 (10.5)
>1 year	94 (89.5)
Daily cigar. consumption	
Up to 10	57 (54.3)
Up to 20	20 (19)
Up to 30	10 (9.5)
>30	18 (17.1)
Reason for smoking	
Social	43 (41)
Distress and anxiety	27 (25.7)
Emulation and enthusiasm	0 (0)
Pleasure and fun	35 (33.3)
The academic year when start smoking	
I	73 (69.5)
II	21 (20)
III	11 (10.5)
IV	0 (0)
V	0 (0)
VI	0 (0)
Frequency of Smoking by time	
Increased	60 (57.1)
Decreased	14 (13.3)

Contd...

Table 1: Contd...

	Description (n=208)
The same	31 (29.5)
Beck's Depression Inventory	
Normal	102 (49)
Mild mood disturbance	32 (15.4)
Borderline clinical depression	42 (20.2)
Moderate depression	23 (11.1)
Severe depression	0 (0)
Extreme depression	9 (4.3)
Beck's Depression Inventory	
Abnormal	106 (51)
Normal	102 (49)
Beck's Depression Inventory	
Depressed	32 (15.4)
Not depressed	176 (84.6)

consumed up to 30 cigarettes, and 17.1% were heavy smokers who consumed more than 30 cigarettes per day. 41% smoked for social reasons, 33.3% smoked for pleasure and fun, and 25.7% for distress and anxiety [Table 1].

More than two-thirds (69.5%) started smoking in the first academic year, 20% and 9.5% started at the second and third academic years. More than half of them reported that the frequency of smoking increased by time; 13.3% stated the frequency decreased, and the remaining 29.5% said that the frequency wasn't affected by time [Table 1].

Regarding Beck's Depression Inventory, 51% were abnormal, where 20.2% had borderline clinical depression, 15.4% had mild mood disturbance, 11.1% had moderate depression, and 4.3% had extreme depression. Finally, 15.4% were depressed, while the remaining 84.6% weren't [Table 1].

Table 2 illustrated comparisons regarding Beck's Depression Inventory (Normal VS Abnormal), our statistical analysis results reported; a significant correlation regarding the marital status (P-value = 0.000) where the abnormality among married participants was high, regarding age 19, 23, and 24 years old participants were significantly correlated with BDI where P values were 0.020, 0.008, and 0.001 respectively and the abnormality was higher among 19 years old participants while was lower among 23 and 24 years old participants, in concern with class level, class II, IV, and V significantly correlated with BDI (P-value = 0.028, 0.000 and 0.002 respectively) where the abnormality was higher among type II and V participants while was lower among class IV participants, regarding the smoking status, the exception was significantly higher among current smokers (P-value = 0.013) and markedly lower among nonsmokers (P-value = 0.004), BDI was significantly correlated with all types of smoking where both cigarette and E-cigarette had higher abnormality (P-value = 0.000 and 0.006 respectively) while pipe and hubbly bubbly had lower monster (P-value = 0.000 for both of them), consuming up to 30 cigarettes per day participants had significantly higher abnormality (P-value = 0.006), regarding the reason for smoking, the exception was substantially higher among

social reasons participants (P-value = 0.006) while significantly lower among distress and anxiety (P-value = 0.001), regarding academic year when start smoking, year I academic students had lower significant abnormality (P-value = 0.001) while those of both year II and III were significantly high (P-value = 0.036 and 0.047) and frequency of smoking significantly decreased by time among normal BDI (P-value = 0.001).

Table 3 illustrated a comparisons regarding Beck's Depression Inventory (Depressed VS Not depressed), our statistical analysis results reported; a significant correlation regarding the marital status (P-value = 0.000) where the most single participants weren't depressed, regarding age 20, 21, 22, 23 and more than 25 years old participants were significantly correlated with BDI where P values were 0.006, 0.026, 0.010, 0.006, and 0.050 respectively and where 20 and more than 25 years old weren't extremely depressed while 21, 22, and 23 years old participants were significantly depressed, in concern with class level, class IV, V, VI significantly correlated with BDI (P-value = 0.004, 0.000 and 0.050 respectively) where the depression was higher among class V participants while those of class IV and VI weren't depressed, regarding the smoking status, all depressed participant were current smokers (P-value = 0.000) while ex-smokers and nonsmokers were significantly not depressed (P-value = 0.030 and 0.000), regarding types of smoking, cigarette smokers were extremely depressed (P-value = 0.000) while E-cigarette and hubbly bubbly smokers were especially not depressed (P-value = 0.030 and 0.009 respectively), consuming up to 30 cigarettes per day participants were significantly depressed (P-value = 0.000) while more than 30 cigarettes per day participants were incredibly not depressed (P-value = 0.002), regarding reason for smoking, those who smoked for pleasure and fun were significantly depressed (P-value = 0.000) while those who smoked as a result of distress and anxiety were especially not depressed (P-value = 0.000), regarding academic year when start smoking, year I academic students were significantly depressed (P-value = 0.029) and frequency of smoking, all depressed ones were those who increased smoking by time (P-value = 0.000) while those who with decreased or with the same smoking rate were significantly not depressed (P-value = 0.005 and 0.000 respectively).

Discussion

To the best of our knowledge, this is the first study that investigated the relationship between self-reported smoking status and increased risk of depressive symptoms among medical students in our region.

In our study, the prevalence of smoking among medical students was 38.9%. The majority (69.5%) were cigarette smokers; more than half of them consumed up to 10 cigarettes per day. This percent was higher than this reported by Marakoglu *et al.*,^[6] who said that the prevalence of smoking among medical students in Turkey was 20%. In comparison, we matched with a Saudi study investigating the prevalence of smokers among male students was 30.4%.^[7]

Table 2: Comparisons regarding Beck's Depression Inventory (Normal VS Abnormal)

	Beck's Depression Inventory		P*
	Abnormal (n=106)	Normal (n=102)	
Marital			
Single	80 (75.5)	102 (100)	0.000
Married	26 (24.5)	0 (0)	
Age			
18	0 (0)	0 (0)	
19	27 (25.5)	13 (12.7)	0.020
20	16 (15.1)	14 (13.7)	0.779
21	26 (24.5)	26 (25.5)	0.873
22	18 (17)	9 (8.8)	0.080
23	9 (8.5)	22 (21.6)	0.008
24	0 (0)	9 (8.8)	0.001
25 and more	10 (9.4)	9 (8.8)	0.879
Age			
≤21	69 (65.1)	53 (52)	0.055
>21	37 (34.9)	49 (48)	
Class level			
I	43 (40.6)	35 (34.3)	0.352
II	13 (12.3)	4 (3.9)	0.028
III	21 (19.8)	26 (25.5)	0.328
IV	9 (8.5)	28 (27.5)	0.000
V	10 (9.4)	0 (0)	0.002
VI	10 (9.4)	9 (8.8)	0.879
Smoking status			
Current smoker	50 (47.2)	31 (30.4)	0.013
Ex-smoker	14 (13.2)	10 (9.8)	0.442
Non-smoker	42 (39.6)	61 (59.8)	0.004
Type of smoking			
Cigarette	54 (84.4)	19 (46.3)	0.000
E-cigarette	10 (15.6)	0 (0)	0.006
Pipe	0 (0)	9 (22)	0.000
Hubbly bubbly	0 (0)	13 (31.7)	0.000
Duration of smoking			
<1 year	10 (15.6)	1 (2.4)	0.047
>1 year	54 (84.4)	40 (97.6)	
Daily cigar. Consumption			
Up to 10	32 (50)	25 (61)	0.271
Up to 20	13 (20.3)	7 (17.1)	0.680
Up to 30	10 (15.6)	0 (0)	0.006
>30	9 (14.1)	9 (22)	0.295
Reason for smoking			
Social	33 (51.6)	10 (24.4)	0.006
Distress and anxiety	9 (14.1)	18 (43.9)	0.001
Pleasure and fun	22 (34.4)	13 (31.7)	0.777
The academic year when start smoking			
I	37 (57.8)	36 (87.8)	0.001
II	17 (26.6)	4 (9.8)	0.036
III	10 (15.6)	1 (2.4)	0.047
Frequency of smoking by the time			
Increased	41 (64.1)	19 (46.3)	0.073
Decreased	1 (1.6)	13 (31.7)	0.000
The same	22 (34.4)	9 (22)	0.173

*Chi-square test

Our study found current smoking is associated with a significantly increased risk of depressive symptoms and BDI abnormality. The recent findings are consistent with a survey conducted by

the British Heart Foundation (BHF) that found tobacco smokers were 70% more likely to suffer from anxiety and depression overall compared to nonsmokers.^[8,9] Moreover, our findings are similar

Table 3: Comparisons regarding Beck's Depression Inventory (Depressed VS Not depressed)

	Beck's Depression Inventory		P*
	Depressed (n=32)	Not depressed (n=176)	
Marital			
Single	19 (59.4)	163 (92.6)	0.000
Married	13 (40.6)	13 (7.4)	
Age			
18	0 (0)	0 (0)	
19	10 (31.3)	30 (17)	0.061
20	0 (0)	30 (17)	0.006
21	13 (40.6)	39 (22.2)	0.026
22	9 (28.1)	18 (10.2)	0.010
23	0 (0)	31 (17.6)	0.006
24	0 (0)	9 (5.1)	0.360
25 and more	0 (0)	19 (10.8)	0.050
Age			
≤21	23 (71.9)	99 (56.3)	0.099
>21	9 (28.1)	77 (43.8)	
Class level			
I	13 (40.6)	65 (36.9)	0.691
II	0 (0)	17 (9.7)	0.081
III	9 (28.1)	38 (21.6)	0.416
IV	0 (0)	37 (21)	0.004
V	10 (31.3)	0 (0)	0.000
VI	0 (0)	19 (10.8)	0.050
Smoking status			
Current smoker	32 (100)	49 (27.8)	0.000
Ex-smoker	0 (0)	24 (13.6)	0.030
Non-smoker	0 (0)	103 (58.5)	0.000
Type of smoking			
Cigarette	32 (100)	41 (56.2)	0.000
E-cigarette	0 (0)	10 (13.7)	0.030
Pipe	0 (0)	9 (12.3)	0.054
Hubbly bubbly	0 (0)	13 (17.8)	0.009
Duration of smoking			
<1 year	0 (0)	11 (15.1)	0.017
>1 year	32 (100)	62 (84.9)	
Daily cigar. Consumption			
Up to 10	13 (40.6)	44 (60.3)	0.063
Up to 20	9 (28.1)	11 (15.1)	0.117
Up to 30	10 (31.3)	0 (0)	0.000
>30	0 (0)	18 (24.7)	0.002
Reason for smoking			
Social	10 (31.3)	33 (45.2)	0.181
Distress and anxiety	0 (0)	27 (37)	0.000
Pleasure and fun	22 (68.8)	13 (17.8)	0.000
The academic year when start smoking			
I	27 (84.4)	46 (63)	0.029
II	4 (12.5)	17 (23.3)	0.203
III	1 (3.1)	10 (13.7)	0.166
Frequency of smoking by the time			
Increased	32 (100)	28 (38.4)	0.000
Decreased	0 (0)	14 (19.2)	0.005
The same	0 (0)	31 (42.5)	0.000

*Chi-square test

to previous research among the general population samples that found tobacco smoking is significantly associated with increased risk of clinical depression and depressive symptoms.^[10,11]

Also, we agreed with results obtained from the Saudi study, which reported that smoking is associated with a significantly increased risk of depressive symptoms that persisted after adjusting for

age, income, and self-reported health and high prevalence rate of depressive symptoms among current smokers.^[12] This peak of depression in Saudi Arabia could be attributed to many factors such as competency for limited seats of residency programs among graduated students, yearly updating requirements for residency application, and family and social pressure.

The age at which students began smoking shows that most of them had begun to smoke in senior high school and medical school as Marakoglu *et al.*^[6] reported that.

Also, our study reported that the frequency of reporting depressive symptoms was higher in the first academic year; these results matched with the studies that were performed among the students of medical faculties in different cities, it was seen that most students began to smoke in their first and second years at the medical faculties.^[13]

Conclusion

Among the students of the medical faculty, the prevalence of smoking increases at the first, second, and third year, respectively, and the frequency among students in the first class reaches nearly the frequency of a general population. There is a relation between smoking and depressive state among medical students. Researches must be conducted to explain this relation of depression symptoms with smoking, and not to increase the prevalence of smoking by helping students quit smoking; lecturers should aim to inform the students about the harms of smoking in medical lessons.

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Conflicts of interest

There are no conflicts of interest.

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