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Original Research Article

Smoking Prevalence, Its Motives and Association with Academic Performance among the Students of Medicine and Science Colleges at Albaha University, Al-Baha, Saudi Arabia

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Abstract

Smoking is considered as a major health problem causing a public health threat, which is gradually increasing all over the world leading to high mortality and morbidity. The present study was conducted to estimate the prevalence of smoking, its motivating factors and its relation with the academic performance of the students of Medicine and Science colleges of Al-Baha University in Al-Baha, Saudi Arabia. A cross-sectional survey was conducted during the period from the beginning of December 2015 to the end of February 2016 in Al-Baha University, Al-Baha, Saudi Arabia. Simple random sampling technique of male undergraduate students from the medicine and science colleges was used. Presenting a pretested online questionnaire for 552 under graduated male students for data collection. The students' age ranged between 18 and 26 years and their mean age was 21.5 years ±1.6 SD. The overall prevalence of smoking was estimated to be 46.4%. More than one third of the smokers (38%) were smoking because of boredom and imitating their friends, followed by 23% of them because of study overload, imitating their friends, because of boredom and imitating their families. Smoking was more prevalent among science college students rather than faculty of medicine students (P-value < 0.001) and significant associations were found between type of college and number of cigarettes smoked per day (P-value < 0.001), when the student initiated smoking (P-value = 0.001), and motives of smoking (P-value < 0.001). Moreover, smoking was more prevalent among students in the fifth and sixth level of the study (P-value < 0.001) and significant associations were found between level of the study and number of cigarettes smoked per day (P-value = 0.001), when the student initiated smoking (P-value < 0.001), and motives of smoking (P-value < 0.001). Inconsistent with previous studies, we found that smoking was more prevalent among the students with the average and very good academic grade (P-value < 0.001). Moreover, significant association between academic achievements and when the student initiated smoking was found (P-value < 0.001). The prevalence of smoking was very high among the study population and the initiation of the smoking earlier with high number of cigarettes smoked per day was alarming. Imitating their friends, boredom, study overload and imitating other family's members were found as the main motives of the students to smoke. Unlike previous studies' findings, smoking found to be more prevalent among students with good academic performance and the prevalence increase steadily with the presence of smoking relatives. Health and higher education authorities need to design an appropriate and effective antismoking promoting program addressing its motivating factors and rapidly increasing prevalence. Health laws should be the cornerstones for any organized tobacco control activities, which are urgently needed to prevent the coming smoking-related health catastrophes. It is of high concern to change the students understanding about the future adverse effects of smoking even if it is associated with good academic achievements.

Keywords: Academic Achievements, Academic Grade, Academic Performance, Medicine and Science Colleges, Motivating Factors, Prevalence of Smoking

INTRODUCTION

The tobacco epidemic is one of the biggest public health threats the world has ever faced (World Health Organization Media Centre, 2016). The World Health Organization stated that about 10 people die of a tobacco-linked disease every minute (WHO: Smoking Costs More Than You Think, 2016). That rate adds up to almost six million people dying from such tobacco-linked diseases every year, and current trends show that tobacco use will cause more than 8 million deaths annually by 2030 (Centre for Disease Control and Prevention, Smoking and Tobacco use, 2016). The majority of these preventable deaths happen in low-income and middle-income countries. The World Bank stated that each of these countries has low gross national income (WHO: Smoking Costs More Than You Think, 2016). Tobacco use is one of the main risk factors for a number of non-communicable and chronic diseases, including cancer, lung diseases, and cardiovascular diseases (World Health Organization Health Topics, 2016). Smoking also increases risk for infectious diseases like tuberculosis, certain eye diseases, and problems of the immune system, including rheumatoid arthritis. In addition to smoking is a known cause of erectile dysfunction in males (Centre for Disease Control and Prevention, Smoking and Tobacco use, 2016). Despite this, smoking is common throughout the world and each day, more than 3,200 people younger than 18 years of age smoke their first cigarette (Centre for Disease Control and Prevention, Smoking and Tobacco use, 2016). In Saudi Arabia; smoking was among the major public health problems and it is prevalent in the Saudi population at different age groups. The prevalence of current smoking in Saudi Arabia ranges from 2.4-52.3% (median = 17.5%). Among school students, the prevalence of current smoking ranges from 12-29.8% (median = 16.5%), among university students from 2.4-37% (median = 13.5%), and among adults from 11.6-52.3% (median = 22.6%). In elderly people, the prevalence of current smoking is 25%. The prevalence of smoking in males ranges from 13-38% (median = 26.5%), while in females it ranges from 1-16% (median = 9%) (Bassiony, 2009). There are a variety of factors that play a role in smoking. This makes it a complex health issue to address. The review of risk and protective factors in Saudi Arabia showed that; higher smoking prevalence and daily cigarette consumption were associated with age, being male, single, and highly educated. Desire (32%), idleness (28%), imitation (22%), and enjoyment (20%) are among the motives to smoke. Relief from psychological tension, boredom, and imitating others (especially friends, siblings, and parents) were the most important reasons for smoking. Among females, 30% reported no specific reasons for smoking (Bassiony, 2009). The previous studies conducted in Saudi Arabia, investigated the prevalence of smoking among Saudi population, however little or no data are available about the prevalence of smoking and its relations with academic achievements among university colleges students. Epidemiological surveys to determine the prevalence of smoking and its relations with academic achievements are of high importance especially those targeting university students. Being smoker greatly raises the risk for other health problems, which can affect the students' academic performance; thus, more studies are needed among university students to provide evidence-based data to health and education authorities to assist in the design of appropriate strategies in controlling smoking among the study population. The aims of the present study were to determine the prevalence of smoking among the study population, to identify its possible motivating factors and to test the association of smoking with academic performance of the students of Medicine and Science colleges of Al-Baha University in Al-Baha, Saudi Arabia.

METHODS

Ethical statement

The importance and aims of the study were explained to the participants and permission to participate in the study was obtained from all respondents. Informed consent was taken from the respondents in which we ensured that all information of the participants will be safeguarded and will be used only for the research purposes. Also we ensured that the privacy of the respondents would not be violated by any of the researchers.

Study design

A community based cross-sectional study was conducted during the period from December 2015 to the end of February 2016 among undergraduate students of Medicine and Science colleges at Al-Baha University, Al-Baha, Saudi Arabia. A pre-structured online (Google forms based send through the WhatsApp) questionnaire was used for data collection. The questionnaire was developed based on possible motives and reasons of smoking and was pretested in a few subjects similar to the study participants for validity. The questionnaire included information such as personnel characteristics and academic grade, history of smoking, presence of smoking relatives and motivating factors for smoking.

Sample size

The sample size was estimated using Raosoft sample

size calculator (Raosoft sample size calculator, 2015) with 3% accepted margin of error, 95% confidence level, 50% response distribution and 1133 as a population size. The sample size was calculated to be 550.

Study area

Al-Baha is a city in the south west of Saudi Arabia. It is the capital of Al-Baha Region nestled between the resorts of Mecca and Abha, Al-Baha is one of the Kingdom's prime tourist attractions. It enjoys a pleasant climate and is surrounded by more than forty forests. Al-Baha is the headquarters of the Governor, local councils and branches of governmental departments. Receiving the state's special attention, the city of Al-Baha abounds in educational, tourist and health institutions (Al-Baha, 2015). Al-Baha University is a university in Al-Baha city, the capital of Al-Baha province, Saudi Arabia. It is a public university that was founded in 2006. The main campus is at Alaqiq province about 25 km away from Al-Baha city. The other campuses are in Almikhwah, Almandaq, and Baljurashi provinces. The university emphasizes public services in all of its disciplines (Albaha University, 2015).

Study population

The study was carried out in two major colleges in Albaha University (Medicine and Science). The overall number was 1133 male students distributed in the two collages. The study questionnaire was collected from each sampled student who accepted to participate in the study.

Statistical analysis

Data of the smoking were entered and analyzed using SPSS 16 (Statistical Package for Social Science, version 16). Descriptive and inferential statistics were performed and the association between each exposure and presence of smoking was tested using Chi-squared test. 95% confidence interval (95% CI) was performed to measure association strength between smoking and possible determinants. A univariate analysis was run to study the independent association of variables (Age, type of college, study level, presence of smoker relatives and friends, reasons of smoking and academic grade of the students) with smoking. A p-value of less than 0.05 was considered statistically significant.

RESULTS

Personal characteristics

A sample of 550 students was taken from the Medicine and Science colleges and with response rate of 96.7%. Table 1 shows the age group distribution, type of college, level of the study and academic grade of the students. The students' age ranged between 18 and 26 years. The mean age of the students that was 21.5 years with a standard deviation of 1.6.

Prevalence of smoking and its motivating factors

The overall prevalence of smoking was estimated to be 46.4%. More than half of the smoker students (52.2%) began to smoke one to two years ago. More than two third of the smoker students (67.2%) used to smoke more than 20 cigarettes per day as shown in table 2. Most of the smoker students (82.7%) had smoking relatives and almost 50% of them their smoking relatives were father, brother and uncle. Considering reasons of smoking, More than one third of the smokers (38%) stated that they were smoking because of boredom and imitating their friends, followed by 23% because of study overload or imitating their friends or because of boredom and imitating their families and friends, other reasons were shown in table 3.

There were significant associations between smoking and type of college of the students and level of the study. Smoking was more prevalent among science college students rather than faculty of medicine students (P-value < 0.001) and also there were significant associations between type of college with the number of cigarettes smoked per day (P-value < 0.001), when the student initiated the smoking (P-value = 0.001), and the reasons for smoking (P-value < 0.001). Moreover, smoking was more prevalent among students in the level of the study (5-6) (P-value < 0.001) and also there were significant associations between the level of the study with the number of cigarettes smoked per day (P-value = 0.001), when the student initiated the smoking (P-value < 0.001), and the reasons for smoking (P-value < 0.001). On the other hand, there were no significant associations between smoking and age of the students (P-value = 0.264) and having smoking relatives (P-value = 0.694), but these two factors had significant associations with the number of cigarettes smoked per day ((P-value < 0.001) and (P-value = 0.022) respectively), when the student initiated the smoking (P-value < 0.001 for both factors) and the reasons for smoking ((P-value < 0.001) and (P-value = 0.001) for both factors respectively)..

Smoking and Academic Performance

Results revealed that there was significant association between academic performance and smoking. Where smoking was more prevalent among the students with the average and very good academic grade (P-value < 0.001). Moreover, significant association between academic achievements and when the student initiated

Table 1. Showed the personal characteristics distribution among male students of Medicine and Sciences colleges of Al-Baha University during the period from December 2015 to February 2016 (n = 532)

Age Group in years	Frequency	Percent
18 - <20	126	23،7
20 - 24	391	73،5
More than 24	15	2،8
Total	532	100
Type of college	**Frequency**	**Percent**
Medicine	257	48،3
Sciences	275	51،7
Total	532	100
Level of the study	**Frequency**	**Percent**
1-2	113	21،2
3-4	78	14،7
5-6	114	21،4
7-8	84	15،8
9-10	101	19
11-12	42	7،9
Total	532	100،0
Academic Grade	**Frequency**	**Percent**
Excellent	178	33،5
Very good	197	37
Average	143	26،9
Below average	14	2،6
Total	532	100

Table 2. Showed the prevalence of smoking among male students of Medicine and Sciences colleges at Al-Baha University during the period from December 2015 to February 2016 (n = 532)

Smoking status	Frequency	Percent
Smoker	247	46،4
Non-smoker	285	53،6
Total	532	100
Start of smoking	**Frequency**	**Percent**
Less than 1 year	39	7،3
Between 1 - 2 years	131	24،6
More than 2 years	77	14،5
Non applicable	285	46،4
Total	532	100
Number of cigarettes smoked per day	**Frequency**	**Percent**
Less than 20	168	31،6
More than 20	79	14،8
Non applicable	285	53،6
Total	532	100

Table 3. Showed the smoking motiving factors among male ever smoke students of Al-Baha Medicine and Sciences colleges at Al-Baha University during the period from December 2015 to February 2016 (n = 532)

Has Smoking Relatives and Friends	Frequency	Percent
Yes	230	43،2
No	48	9
Non applicable	254	47،7
Total	532	100
What is His Relation?	**Frequency**	**Percent**
Father	14	2،6
Brother	16	2،9
Uncle	29	5،5
Cousin	3	0،6

Table 3. Continue

Friend	49	9،2
Father, brother and uncle	112	21،1
Father and brother	3	15،0
Father and uncle	41	7،7
Brother and uncle	8	34،8
Uncle and cousin	1	0،2
Father, uncle and cousin	1	0،2
Brother, uncle and cousin	1	0.2
Non applicable	254	47،7
Total	532	100
Reasons/Motives of smoking	**Frequency**	**Percent**
College overload	22	4،1
Family	22	4،1
Friends	20	3،8
Boredom	7	1،3
Imitation	23	4،3
College overload, family, friends, boredom and imitation	6	1،1
College overload, family, friends and boredom	22	4،1
College overload and family	2	0،4
College overload, friends and boredom	9	1،7
Family, friends and boredom	21	3،9
College overload and friends	6	1،1
Boredom and imitation	1	0،2
Friends and imitation	4	0،8
Friends and boredom	38	7،1
College overload and boredom	5	0،9
College overload, family and boredom	1	0،2
College overload, family, boredom and imitation	3	0،6
Family, friends, boredom and imitation	22	4،1
Friends, boredom and imitation	9	1،7
College overload and imitation	1	0،2
College overload, boredom and imitation	11	2،1
Family and boredom	3	0،6
College overload, friends, boredom and imitation	10	1،9
College overload, friends and imitation	1	0،2
Non applicable	285	53,6
Total	532	100

smoking was found (P-value <0.001). Also there was significant association between academic achievements and academic overload, boredom, having smoker in the family and having smoker friends (P-value < 0.001). No significant association was found between academic achievements and number of cigarettes smoked per day (P-value = 0.116)

DISCUSSION

In the present study, the prevalence of smoking, its determinants and its relation with the academic performance was estimated among the students studying at medicine and science colleges of Al-Baha University, Saudi Arabia. The prevalence of smoking was higher among these colleges' students (46.4%). Although, most of the smoker students began to smoke one to two years ago, we found that more than two-third of them used to smoke higher number of cigarettes per day. Accordingly this might predict future prevalence of smoking and its complications among the study population. In this study, the smoking was significantly associated with type of college, level of the study and academic grade. In contrast, one study done in 2005 among medical students of the College of Medicine, King Saud University in Riyadh showed lower prevalence (13%) than that of our study (Al-Turki, 2006). Another articles review investigated the prevalence of smoking in eleven studies among young adults (university students) in Saudi Arabia during the past two decades (eight out of 11 studies were carried out on medical science students). It showed lower prevalence of current smoking among young adults, which ranges from 2.4 - 37% (median = 13.5%)

(Bassiony, 2009). On the other hand, our data was in agreement with the previous reported study done in Riyadh, KSA by Hashim (2000). In this study, we found that most of the smokers had close relatives who used to smoke, which might be the main reason of staring the smoking among the students. This was obvious in studies done by Leonardi-Bee J and his colleagues and Johnston V and his colleagues, which showed that children who live with parents or siblings who smoke are up to 3 times more likely to become smokers themselves than children of non-smoking households (Leonardi-Bee et al., 2011; Johnston et al., 2013). Another study estimated that, each year, at least 23,000 young people in England and Wales start smoking by the age of 15 as a result of exposure to smoking in the home (Passive smoking and children, 2010). Moreover, the higher smoking prevalence among the students also raises a concern about the health effects of passive smoking among those in the same household. This was shown in articles review done by Jarvie J and Malone R, which showed that the secondhand smoke (SHS) exposure is a known cause of disease among nonsmokers, contributing to lung cancer, heart disease, and sudden infant death syndrome, as well as other diseases (Jarvie and Malone, 2008). On the other hand, high percentage of the smoker students in this study (67.2%) used to smoke a large number of cigarettes per day. This large amount of cigarettes smoking might lead to future adverse effects on the health of those students and their relatives. The main reasons given for the smoking in this study were boredom, imitation of families and friends and study overload. This reflected the strong influence of the households and peers among the smokers, which was still prevailing. Our finding was comparable to studies done among secondary schools in Jeddah and Madinah during 2013 in Saudi Arabia (Fida and Abdelmoneim, 2013; Al-Zalabani and Kasim, 2015). Our result was also comparable to the finding of Riyadh study, which was among male medical students at the College of Medicine, King Saud University (Al-Turki, 2006).

The effects of tobacco use go well beyond health problems. College student tobacco use is also associated with lower academic performance, mental health issues, high-risk drinking, illicit drug use, and high-risk sexual behavior (College Tobacco Prevention Resources, 2015). This study showed that smoking was more prevalent among the students with the average and very good academic grade (P-value < 0.001), which was inconsistent with other studies' findings. The results showed that smoking has a specific effect on students' academic achievements. Students who were smokers and began to smoke two to three years ago reported average and very good academic achievement. Again this result was inconsistent with the finding of Kawafha study conducted in 2014, who conducted her study among school children and found that, there was a significant and negative correlation between smoking status ($p < 0.001$), age of smoking initiation ($p < 0.001$), daily cigarettes ($p < 0.01$), and smoked 100 cigarettes in lifetime ($p < 0.01$) with academic achievement (Kawafha, 2014). Smokers have lower Grade Point Averages (GPA) than nonsmokers and they are 27.0% less likely than nonsmokers to have an above B grade average (College Tobacco Prevention Resources, 2015). Daily smokers were found to have even lower grades than high-risk alcohol drinkers (College Tobacco Prevention Resources, 2015). In the current study, the results showed that having a friend who smoked and a smoker at family was associated significantly with average and very good academic achievement. In contrast, another study found that students who had poorer scores than the average school achievement smoked 5.4 times greater than students with much better than average school achievement (Doku et al., 2010). Moreover, another study found a negative significant association between academic achievement and smoker in home and close friends who smoke (Khuder et al., 2008). The different results shown by our study might be because of that our study was among mature students, whose their academic performance might be less affected by smoking in comparison to those younger students in the other studies. Students may try smoking to cope with academic overload and boredom as shown in this study and also coping with the other growing up stresses, which might be helpful in this manner. In addition to, most of the smoker students in our study start smoking recently making them less vulnerable to the adverse health effects of smoking, which most likely need longer time to be manifested negatively in smokers' health and academic performance.

Limitations of the study

Self-reported questionnaire may not be entirely accurate and should be viewed with caution as it may reflect the subjective responses of the participants. This may limit the reliability of the results because of the possible tendency of the participants to give a more positive picture than would be reflected by other data collection tools, some respondents might give answers, in a manner, which would please the researcher and they might have answered the questions in a manner that they perceived as correct and thus was not reflect their real response (social desirability bias). We believe that the study addresses a major public health problem that challenges healthcare providers and university students in Saudi Arabia. We think that the anonymity of the questionnaires hopefully encouraged students to be honest in their responses. Despite of this limitation, we believe this study might be a reasonable source of information for researchers and decision makers.

CONCLUSION

This study reflected not only the prevalence of smoking among the students of medicine and science colleges, but also showed the growing health problem among universities' students. Some of the conclusions emerging from the study findings include the followings: The prevalence of smoking was very high and the initiation of the smoking earlier with high number of cigarettes smoked per day was alarming. Imitating their friends, boredom, study overload and imitating their families were the common reasons given by the students for the smoking. Different results were found in this study concerning the smoking and its effect on the academic achievements, that the smoking was more prevalent among students who achieved more than average academic grades and the prevalence increase steadily with the presence of smoking relatives. Build on the belief in the harmful health effects of smoking among the university students, health and higher education authorities need to design an appropriate and effective antismoking promotion program addressing these predictors and targeting not only medicine and science colleges' students but also their friends, families and other university members. Health laws should be the cornerstones for any organized tobacco control activities, which are urgently needed to address the recently coming smoking-related health catastrophe. We emphasize that the provision of health care services and Tobacco cessation clinics in the medicine and science colleges and university settings can reduce this high prevalence of smoking and promote the students to quit smoking successfully. It is of high concern to change the students understanding about the future adverse effects of smoking even if it is associated with good academic achievements.

Conflict of Interest

All authors have declared that they have no conflict of interest.

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