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Tobacco Use and Associated Factors in Medical Students

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Abstract

Background: Many studies indicate that one of the leading preventable causes of premature death, disease and disability around the world is Tobacco use. Unfortunately, adolescents and young adults of colleges are often targeted of marketing by the tobacco industry. The aim of this study was to assess the relative frequency of tobacco use and associated factors in medical students.
Methods: This cross-sectional study has done among medical students in 2014 - 2015. Totally, 284 students from 4 levels (basic, extern, intern and residents) were selected by random sampling from each category. We used a checklist for collecting demographic information that was distributed among participants by a trained interviewer. SPSS-11.5 software was used for data analysis andsignificance level was considered < 0.05.
Results: Among 284 medical students, 17 (6%) smoked cigarette and 3 (1.05%) used illicit substance. All of the users were male, 15 (88%) of which were single. 1 (1.4 %) of the basic level students, 6 (6.9 %) of the externs, 9 (14.8 %) of the Interns and 1(1.6 %) of the residents used cigarette but the differences among these groups were not significant (P = 0.36). Generally, 13 (76.5%) of the users resided in dormitory and the others lived in parental home, which shows a significant difference among these groups (P = 0.01).The logistic regression indicated stage level was positively associated with cigarette use (P < 0.007).
Conclusions: In this study, we evaluated how several environmental factors may influence illicit substance and tobacco use. We found an association between living in a dormitory and smoking cigarette, so it is an important factor to be considered in program planning for new students who entered into this environment.

Keywords: Medical Students, Tobacco Use, Associated Factors

1. Introduction

According to world health organization (WHO) reports ,the total prevalence of smoking is 26% (males (54%), females (10%)) and mortality attributable to smoking in the world is estimated to be 8.7% (males (11.5%), females (5.5%)) (1). Some other studies indicate that one of the leading preventable causes of premature death, disease and disability around the world is Tobacco use (2). According to the report of global youth tobacco survey (GYTS), the annual mortality of tobacco use will be doubled from 5 million (2000 - 2007) to approximately 10 million deaths per year by 2020 (3). WHO states approximately similar rate in this relation and it is anticipated to increase to eight million by the year 2030 (4) and it was declared that 80% of these deaths will rise in low and middle income countries (5). Moreover, increasing evidence from clinical research indicates that abandonment of smoking decreases the probability of smoking-related diseases and therefor promotes life expectancy (6, 7). Some studies stated that smoking leads to deficit in educational performance, not attending school and finally withdrawal from school. All mentioned consequences threat the society with a serious health, cultural, social and economic crisis (8).

Substance abuse is also one of the main health problems in the world and has a negative effect on health in any period of life. This effect may lead to physical, psychological and social disorders (9, 10).

So that substance abuse in adolescence can increase risk of psychological disorders, injury due to motor vehicle accident and violence, suicidal thinking and behaviors and also it can be associated with low educational performance such as declining grades, absenteeism, truancy, and school dropout (11). Furthermore, some other studies show that there is a relation between substance abuse and getting involved in a crime in juvenile (12).

Unfortunately, adolescents and young adults of colleges are often targeted by the tobacco industry for marketing. Moreover, college age is a transition period and students are vulnerable to tobacco addiction, probably because of perceived accessibility due to students' de-

mographic characteristics, potential sources of cigarettes, perceived parental or peer approval of smoking, tobacco use in home and exposure to tobacco advertising (13). Social cognitive theory suggests that people learn behaviors from observing models (14). Some factors play an important role in being exposed to illicit substances when coming to university. These factors are: experiencing major biological, cognitive, social, and emotional changes, and separation from family (15, 16).

Physicians' role in health education is very important and is often expected to serve as role models for a healthy lifestyle (17, 18). When Physicians have an unhealthy lifestyle, it might provide their patients with less effective advice on this topic than their more health-conscious colleagues (19, 20).

Medical students have a solid knowledge about smoking hazards and are expected to abstainusing tobacco product, but a significant number of them still smoke. However, some previous studies showed that the proportion of smokers among medical students is lower than the general population (21-27).

The aim of this study was to assess the relative frequency of tobacco use and associated factors in medical students in a central university in north-eastern region of Iran, 2015.

2. Method

This is a cross-sectional study conducted in Medical school in the University of Medical Sciences in 2014 - 2015.This study was approved by the institutional review board (930914). Informed consent was obtained from each participant. Two hundred and eighty four students entered the study (this sample size was estimated according to the previous study of researcher by considering the frequency of smoking 0.17). This sample size was divided between four groups of students. We sampled random from each of 4 category (stage level) and for calculating best OR, we divided the sample size equally.

This study was done using a checklist for collecting demographic information: age, gender, place of living, marital status, stage level, parental education as well as substance abuse and cigarette use. The checklist wasdistributed among participants by a trained interviewer. Any use of cigarette was sufficient for an individual to be classified as being smoker in this study.

Drug abused was defined as using any form of illegal substance. Any use of illegal substance was asked in a question: "Have you ever used illegal drugs?"

SPSS-11.5 software was used for data analysis. The qualitative variables were presented as number and percent. In order to determine the impact of other variables on smoking, we used logistic regression. Chi-square test was used for other comparisons. The significance level was considered < 0.05.

3. Results

A total of 284 medical students were considered in this study, 72 (25.5%) of students were in basic stage, 87 (30.9%) were externs, 61 (21.6%) were intern and 62 (22%) were resident. Demographic characteristics of the participants are presented in Table 1.

Most of the participants were female (150 (53.8%)). The mean age of students was 24.44 ± 4.68 (mean $\pm$ SD) (minimum: 19, maximum: 48) years.

In this sample, the father of 236 (84.6%) students had academic education, 35 (12.5%) were under diploma and 8 (2.9 %) were illiterate. The educational level among their mothers was: 216 (77.4%) academic, 51 (18.3%) under diploma and 12 (4.3%) illiterate.

Among all the students, only 3 students used illicit drugs, out of which one had been defined to use marijuana .He was 21years old and was in basic stage, resided in dormitory and educational level of his parents was higher than diploma.

The frequency of cigarette smoking were 1 (1.4%) in basic level, 6 (6.9%) in externs, 9 (14.8%) in Interns and 1 (1.6%) in residents, but the differences between these groups was not significant (P = 0.36).

All of the smokers were male. We assessed the frequency of smoking in terms of marital status. According to the frequency of smokers in each level, 1 (100%) in basic level, 5 (83.3%) in extern and 9 (100%) in intern were single. As you can see in Tables 2 and 3, it seems that being male and single is in association with cigarette smoking (risk estimate value has been reported as OR with CI). Most of the cigarette users lived in dormitory so that 1 (100%) of students in Basic level, 6 (100%) in externs and 6 (66.7%) in Interns who smoked cigarette lived in dormitory and the others lived in parental home. Generally 13 (76.5%) of the users resided in dormitory and the others lived in parental home, the difference between these groups was significant (P = 0.01).

Our analyses for paternal education showed that the educational level in all of the 17 (100%) smokers was higher than diploma. The same analysis for maternal education indicated 14 (82.4%) were diploma and higher than diploma but this difference was not significant between the two groups (P = 0.84).

In order to determine the impact of other variables in smoking, we used logistic regression. The specificity of this model was 100% (Table 4).

Table 1. Demographic Characteristics of Study Population[a,b]

	Basic	Extern	Intern	Resident	P Value
Gender					0.062
Male	43 (60.6)	33 (38.4)	27 (45)	26 (41.9)	
Female	28 (39.4)	53 (61.6)	33 (55)	36 (58.1)	
Marital Status					< 0.001
Married	7 (9.7)	12 (13.8)	15 (25)	16 (26.2)	
Single	65 (90.3)	75 (86.2)	45 (75)	45 (73.8)	
Living Status					< 0.001
Dormitory	48 (66.65)	46 (52.9)	21 (34.4)	3 (4.85)	
Boarding house	2 (2.75)	5 (5.7)	9 (14.8)	3 (4.85)	
Parental home	22 (30.6)	36 (41.4)	31 (50.8)	56 (90.3)	
Paternal education					0.493
Under diploma (High school)	15 (21.4)	11 (12.8)	5 (8.2)	12 (19.4)	
Higher than diploma (academic)	55 (78.6)	75 (87.2)	56 (91.8)	50 (80.6)	
Maternal education					0.695
Under diploma (High school)	16 (22.9)	18 (20.7)	13 (21.7)	16 (25.8)	
Higher than diploma (academic)	54 (77.1)	69 (79.3)	47 (78.3)	46 (74.2)	

[a] P value is based on Chi-square test.
[b] Values are expressed as No. (%)

Table 2. Risk Estimate for Gender M/F

Educational Stage	OR	95% Confidence Interval	
		Lower	Upper
Basic	1.667	1.377	2.018
Stager	2.963	2.180	4.028
Intern	2.833	1.954	4.109
Resident	2.440	1.806	3.297

Table 3. Risk Estimate for Marital Status (Single/Married)

Educational Stage	OR	95% Confidence Interval	
		Lower	Upper
Basic	1.109	1.027	1.198
Stager	1.227	0.189	7.976
Intern	1.417	1.187	1.691
Resident	1.364	1.171	1.588

4. Discussion

The main purpose of this study was to assess the relative frequency of substance abuse and smoking among the medical students in a central university in north-eastern region of Iran. We selected samples from all stages of medical education from the basic to residency.

In this study, we examined how several environmental factors may influence tobacco use. Regarding the frequencies of substance abuse, the rate of substance abuse in the present study was 1.05% which was different from a previous survey performed in Germany by Karen Voigt et al. (2009), that showed higher rate (33%) of drug abuse in medical students and 5.1% in physicians (28). These differences may be because of cultural difference between Iran and other countries.

The findings of this study showed that most of the cigar users were intern 9 (14.8%) in contrast with basic level 1 (1.4%), stagers 6 (6.9%) and resident 1 (1.6%).

Logistic regression revealed that Stage level was positively associated with cigarette use and the negative predicted value of this model was 94% for students who did not use cigarette.

In our study population, the odds of being smoker were high if a student was male, single or lived at dormitory. Out of the students who smoked cigarettes, 15 (88.2%) were reported single. These relations were assessed in several studies. In the previous study of Karen Voigt, et al. 2009 (28), it was indicated that 14.3% of physicians and

Table 4. Logestic Regression for Predicting Cigarette Smoking (Enter Model)[a,b]

	Variables in the Equation							
	B	S.E.	Wald	df	P Value	Exp (B)	95.0% C.I. for EXP (B)	
							Lower	Upper
Level (Ref: Basic level)			11.995	3	0.007			
Stager	1.919	1.099	3.048	1	0.081	6.815	0.790	58.764
Intern	3.279	1.097	8.929	1	0.003	26.539	3.090	227.935
Resident	1.857	1.545	1.445	1	0.229	6.407	0.310	132.395
Marital Status (Ref: married)	0.891	0.843	1.118	1	0.290	2.438	0.467	12.722
Living statues (Ref: Boarding House)			6.380	2	0.041			
Parental house	-18.216	8874.280	0.000	1	0.998	0.000	0.000	.
Dormitory	1.634	0.647	6.380	1	0.012	5.122	1.442	18.195
Constant	-6.429	1.406	20.913	1	0.000	0.002		

[a] Hosmer and Lemeshow Test: 0.91, Cox and Snell R.
[b] Square: 0.09, Nagelkerke R Square: 0.24.

21.5% of medical students were smokers. Male students indicated a significantly higher level of illegal drug-use compared to female students ($P < 0.001$).

In research article of Mohamed Salih Mahfouz et al. (2014), the prevalence of ever smoking among students was 21.0% (95% CI: 19.7 - 22.3) which was significantly higher for males 31.4%, (95%CI: 29.4 - 33.4) than females 6.2% (95%CI: 5.1 - 7.6) (29).

Living in dormitory was observed significantly related to cigarette smoking (P value = 0.01), because of experiencing major biological, cognitive, social, and emotional changes and separation from the family as evaluated by Arria et al. (2008) and Saddichha et al. (2007) (15, 16) or because of peer smokers in the place of living. According to social cognitive theory, it was suggested that people learn behaviors from observing models (14).

Male gender, older age, high family smoking index, low self-rated school success, and high peer smoker proportion were common variables that have correlation with smoking status in the study of Alvur et al. Having smoker friends puts the student at 47.5 and 58.0 times higher risk for smoking for males and females, respectively (1).

Our reported rate of tobacco consumption among medical students was lower than that reported by other studies in a similar study population (30), which maybe due to their role model for community as healthy lifestyle. Unhealthy lifestyle in this group may provide their patients not to listen to their advice or reduce patients compliance.

There are some limitations in this study. First of all, this survey was limited to just one Medical Universities in north east of Iran; therefore, this result cannot be generalized to all the medical students. Second, the data were collected by a self-report checklist and we should consider self-report bias. Third, as we know, there is a reverse causality in cross-sectional studies, so we cannot conclude causal relation in this study. Finally, we could not evaluate all risk factors for smoking and substance abuse in the present study.

This study had strengths too; our sampling was random which increases the generalizability of results, gender distribution was relatively equal and all levels included in this study provide comparability.

This study has shown that although the frequency of substance abuse and cigarette smoking is low in the studied population, use of marijuana and high smoking rate in dormitory are the major problems. Therefore, it is important to develop effective anti-smoking campaigns targeted toward this group based on the new antismoking policy package.

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Footnote

Conflict of Interest: There is no conflict of interest to declare.

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