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Personality types and nicotine dependency among medical sciences students

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ABSTRACT: Smoking has recently become a major public health threat among the youth of today in Iran. Many clinicians and researchers hypothesized that tobacco-related disorders are maintained by the ability of nicotine to regulate positive and negative mood states. Moreover, some research indicates that there is no correlation between personality type, cigarette smoking, and heart disease, while some others mention that people with personality type A are more inclined towards smoking and related diseases. Thus, to test this hypothesis, we have studied possible correlations between psychological personality and tobacco-dependency among university students in the central part of Iran. In the current study, the most prevalent personality type was B (56.8%), with A (43.2%). Regarding smoking status, 17.5% (70) of the students were smokers and 82.5% (330) non-smokers; moreover, our results showed 66.7% (47) of smokers had low dependency and 33.3% (23) were physically dependent on nicotine. Concerning the difference between smokers and non-smokers based on their personality type, the results showed that 51.4% smokers had type A personality and 59.9% non-smokers were type B. There were also statistical differences between personality type and tobacco usage in students ($p < 0.05$). We also found statistical differences between physical dependency and personality type; that is, 67.3% of smoking students who were physically dependent on nicotine had A type personality ($p < 0.05$). The results suggest that there are several psychological types having higher association with tobacco use than other types. It poses some additional challenges for students' support services to address mental health problems. The personality type in our study turned out to be an important factor influencing the nicotine dependency of the students.

KEY WORDS: *Dependency; Personality; Adult; Smoking; Educational achievement; Students; Iran*

INTRODUCTION

Health professionals assume important roles in the prevention of tobacco use; that is, as individuals, they can help educate the population, as community members can support anti-smoking policies, and at a societal level, they can influence national and global tobacco control efforts. Smoking is one of the leading preventable causes of some diseases and premature death around the world¹. Smoking-related diseases like some types of cancers, heart

attack, and stroke kill roughly 3.5 million people every year worldwide.² In terms of the diagnosis of nicotine dependency, about 20% of the population develops nicotine dependency at some point, making it the most prevalent psychiatric disorder. In Iran also, it has become a big health issue in recent years, In subjects of the age group between 15-24, smoking increased significantly from 10.7% to 17.1% Cigarette smoking rate reports vary from 11% to 30% in different parts of Iran³, according to studies, prevalence of self-reported cigarette smoking in the age group 11-18 years across the country was 18.5% in boys and 10.1% in girls (2006), a recent study in Kerman reported that 4.9% high school students were nicotine dependent with the initiation age of 12 in males and 13.43 in

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females⁴. Moreover, about 440,000 people in the US⁵, and about 2100 people in New Mexico die each year, due to tobacco use⁶. It has also been reported that over 650,000 Europeans die each year, due to smoking⁷. Furthermore, students in medical sciences are the future health authorities of society, putting them in a position to influence social norms regarding smoking. Surprisingly, among university students, 14% in Thailand, 47% of men in Portugal⁸, 35% in Kyrgyzstan, 27.1% of first- and up to 54.5% of fourth-year male students in China⁹ are smokers. Also, 26% of male and 7% of female medical students in Jordan, 46% of Indian students in Pune city¹⁰, and 13% to 34.3% of university students in Iran³ have reported their smoking. Unfortunately, it is expected that the smoking population will increase among university students, which can be due to some factors including alleviation of stress, life problems, peer pressure, social acceptance, family history of smoking, lower educational level of parents, and desire to attain high personality profile³. Furthermore, dependency and pleasure can also be major causes for students with higher levels of education to smoke¹¹. The prevalence of nicotine dependency among Asian and European students varies from 8.7% to 17%^{8,12}; Australian and Spanish students were respectively the least and most addicted students¹³⁻¹⁶. Because of containing the psychoactive alkaloids nicotine and harman, tobacco results in addictive stimulant and euphoriant properties^{11,12}; Smoking also creates destructive effects on the human nervous system (peripheral and central), and stimulant effects on the circulatory and respiratory systems¹⁷. It has also been reported that tobacco use and/or dependency are associated with several psychiatric conditions¹⁸. In subjects of the age between 15-24, smoking increased significantly from 10.7% to 17.1%^{3,19,20}. Social, demographics, emotional and psychosocial issues, and also people's perception mainly result in smoking and nicotine-dependency²¹, which also holds true for students. The prevalence of smoking among Iranian male students at Arak and Iran Medical Science University (IUMS), were 34.3% and 13%²¹. The subjects argued for their starting of smoking at the ages of 13-15 and even earlier that smoking could help them attract attention, stay mentally alert, improve their memory, experience a feeling of mild euphoria, and deal with stress, psychosocial, and environmental issues²¹. It was found that dependency and pleasure were the main causes for highly educated students¹¹. Other factors that might predispose teenagers to smoking include identity crises, tendency to do something dangerous, or to show their independence¹¹. It has been found that depression²², self-control²³, nutrition²⁴, and activity level²⁵ bear a close relationship to smoking; however, the effects of some other parameters such as academic

achievements and personality on nicotine dependency of college students have not yet been sufficiently investigated. Indeed, people's personality can influence their behavior¹, and the prevalence of nicotine dependency determines the magnitude of the related health problems, and provides us with a basis for making public health and educational policies in universities; therefore, in the present study, we have considered personality trait as a constant, measurable factor affecting student's emotional state of mind and their lifestyle and behavior; taking it into account. Friedman and Rosenman²⁶⁻²⁸ have described individuals of type A as ambitious, rigidly organized, highly status conscious, sensitive, truthful, impatient, helpful persons who take care of other people, undertake more than they can handle, and are proactive and obsessed with time management; they are often highly-achieving multi-task "workaholics" pushing themselves with deadlines, and hate both delays and ambivalence^{29,30}. Type B individuals generally live at a lower stress level, typically work steadily, and enjoy their achievements without being stressed if they do not achieve their goals³¹; they also do not mind losing in a competition, and enjoy the game; these people can be creative, and like to explore ideas and concepts. Often being reflective, they think about the outer and inner worlds; they may have a poor sense of time schedule, and can be predominately right-brained thinkers³¹⁻³².

We studied the relationship between nicotine dependency and personality type among students of Rafsanjan Medical Science University, Iran. The results of the present study can be utilized for implementing preventative programs against cigarette smoking, and for improving students' education through planning and specializing educational programs.

METHODOLOGY

This descriptive cross-sectional study was conducted during the years 2008-2009 on a stratified sample of 400 male students randomly chosen from a list provided by the Education Department of Rafsanjan Medical Science University, Iran. The data was collected through asking the students to fill in a questionnaire provided for them by trained staff, after obtaining their written consent. Further, the ethics committee of Rafsanjan University of Medical Sciences approved the methods of this research.

In the first part of the questionnaire, the participants were asked about their demographic background; in the second part, the students were provided with the Fagerstrom questionnaire, the validity and reliability of which has been tested in Iran³³, to give us some information on their level of dependence on nicotine; and in the last part, we

provided students with the Bortner questionnaire^{29,34} for the purpose of determining their personality traits. According to Bortner questionnaire test scores, we divided the participants into group A with scores higher than 70 and group B with scores lower than 70 out of the total score of 140.^{29,35} Moreover, on the basis of Fagerstrom questionnaire test scores, we categorized the participants into three groups including: i) those with the mild dependency to nicotine with the test scores lower than 3, ii) those having the moderate dependency with the scores within the range of 3-6, and iii) students having severe dependency on nicotine with the test scores higher than 6³⁶. The students answered the questionnaire anonymously without any external pressure. We defined their smoking status, on the basis of the WHO criteria, as: i) current smokers including the subjects who were currently smoking at the time of the survey, either daily (at least one cigarette per day) or occasionally (less than one cigarette per day), ii) non-smokers who had been smoking since one month before the start of the survey^{37,38}.

The data was analyzed by SPSS16 software (SPSS Inc. Chicago Illinois USA, 2008); to compare the ratios of the two groups, the statistical tests of Chi-square and Fisher Exact test were used; moreover, the T and Pearson statistical tests were respectively used to determine the difference between the mean nicotine dependencies among the groups, and the correlation between two sets of quantities.

RESULT

The mean, median and mode ages of the studied participants were 20, 21, and 22, respectively. 91% of our subjects were single; 17.5% of them were smokers and among the "smokers", according to their score in the Fagerström test³⁹, 100% were classified as "dependent".

About 33% (23 students) of smoker students were the first child, 1.17% were second child, 34.3% (24 students) were third child, 8.4% (6 students) were 4th and 5th child, and 7.2 % (8 students) were the 6th and more child in their family, respectively. There was a significant relationship between the children’s rank in the family and smoking or not smoking (P<0.05). 49.5 % (52 persons) of smokers were married. Our finding showed a significant association between marital status and smoking (p<0.05).

Our data showed that the first-born students started smoking at younger ages, 51% of which primarily smoked at the age of 10 (p<0.05). The relationship between smoking and families with higher population was significant (P<0.05). 32.4% of smokers’ parents were illiterate; 49.5% of smokers were averagely older than 17. We could not find any relationship between the age mean difference

and smoking, but the mean difference in smoking and personality trait was significant (P<0.05). 56.8% of our studied population had B type personality and the rest were type A. 51.4% smokers (54 persons) had type A and 48.6 % type B. Among non-smokers, 41.4 % and 58.6% had respectively type A and B personalities. Statistical tests showed significant difference between personality type and cigarette smoking (P<0.05) (**Table 1**). Our research showed a relationship between smoking and personality traits (P<0.05). 57.4 % (21 persons) of smokers with type A personality had low dependency and 42.6% (15 persons) had high rate of dependency to nicotine. 76.5 % (26 persons) of type B personalities had mild dependency to nicotine, while 23.5 % (8 persons) had high dependency to nicotine (P<0.05) (**Table 2**). The average score of FTND (Fagerstrom nicotine dependency) in individuals with type B personality was lower than type A personalities (p<0.05). The educational mean of the group with type B personality was higher than that of the group of type A. Overall, our data also showed that those students with type A had a higher dependency and lower grade average (p<0.05) (**Table 3**).

Table1: Association of smoking and personality type

Smoking condition	Personality type		Total
	A	B	
Smoker	33 (47%)	37 (53%)	70 (17.5%)
Non Smoker	195 (58.6%)	135 (41%)	330 (82.5%)
Total	228 (57%)	172 (43%)	400 (100%)

Table 2: Association of nicotine dependency and personality type

Nicotine Dependency	Personality type		Total
	A	B	
Mild	26 (76.5%)	21 (57.4%)	47 (67%)
Severe	8 (23.15%)	15 (42.6%)	23 (33.3%)
Total	34 (48.6%)	36 (51.4%)	70 (100%)

Table 3: Association of nicotine dependency, personality type and academic achievement

Personality type	Nicotine Dependency	Academic Achievement (Out of 20)
A	2.88 (0.99)	15.2 (2.48)
B	1.44 (0.83)	16.26 (2.55)
P Value	0.05	0.05

DISCUSSION

The survey showed correlations between nicotine dependency and the personality type of the students; that is, type A had heavier nicotine dependency than type B. These findings showed that the prevalence of smoking was 17.5%; it was respectively 34.3% and 20.7% in a study conducted on students of Zanjan University, Iran²¹, and on Mexican students⁴⁰. 2.29% of nursing and medical students in Spain⁴¹, and 30.3% of French medical students¹³ were smokers. Overall, also, among Turkish students 3.1%⁴¹, among French students 14%¹³, among Czech Republic students 6%⁴², and among Chilean students 17%²³, were smokers, and our results indicated higher percentages of smoker students.

One third of students who smoked had severe nicotine dependency, and the rest of students had mild nicotine dependency. In the Patkar study in Philadelphia, the nicotine dependency mean score in students was 3.56 as moderate³⁹. Among current smokers, 18.1% were substantially dependent on nicotine, 45.2% had moderate dependence, and 36.7% had no dependence⁴³.

There was a significant relation between cigarette consumption and the personality types of the students; that is, it was found that type A students smoke more than students of type B. Durmaz et al reported an inverse relationship between self-control and smoking²³, and also a meaningful relationship between depression severity and smoking was found²⁵. Adan et al reported on the relationship between mood and smoking⁴⁴; they pointed out that social smoking, stress, and peer pressure were the most important factors for smoking²¹. Rasmussen and co-worker mentioned emotional problems as the cause of smoking⁴⁰. In Otool's study, the smokers had been reported to have the ESFP (Motivator Presenter) and ESTP (Promoter Executor) personality types¹⁵ and Rondina stated that Students who are nicotine-dependent smokers are less extroverted than non-dependent smokers³⁷. Therefore, it seems that individuals' personalities have a direct and important connection with their behavior. Thus, it can be hypothesized that the

personality type can be viewed as the main emotional and psychological indicator for tendency towards using tobacco; however, it needs further investigations to be well established. Here it should be mentioned that people with the ESFP personality type like the company of other people, and most forms of entertainment, and enjoy even the simplest things; their impulsive nature, combined with other personality traits, usually attracts other people. The ESFP people are both rational and sensitive, enthusiastic and inspiring, able to make even the most boring jobs funny; they can resist criticism or conflict, have good money management skills, good management of crisis situations; moreover, some other traits of the ESFP type people is their smartness, cheerfulness, attractiveness to the opposite sex, willingness to spend time with their children, tendency towards giving big gifts to their beloved ones¹⁵. Studies show that type A personality has higher tendency to use tobacco⁴¹. Our findings emphasize the correlation between the personality type and nicotine dependency and educational achievements. Perhaps, type A students are more nervous and less likely to spend time in peer networks, which promotes smoking, and raises the risk of developing nicotine dependence¹¹. Brayant et al stated that school environment also provides an important context for smoking acquisition; students with a lower level of academic achievements are more likely to smoke; indeed, low academic achievement and the level of creating problems in school are reciprocally related⁴⁵. Reducing adolescents' smoking rates is essential, and implications for preventive interventions are necessary in each community specifically in schools⁴⁶. It has been demonstrated that the best preventive intervention is education. Anti-smoking education in school curricula should be provided for students in guidance schools, as the results showed that 71% of students had experienced smoking before the age of 15²¹. Therefore, widespread education for health care professionals, teachers, families, and the public will be required. Iranian students have less rate of cigarette smoking than students in industrial countries; however, anti-smoking and psychosocial programs for students need to be tailored for an individual adolescent. The present study can be helpful in adapting public policies; for instance, it helps justify the need for the government to make the provisions for the framework convention on tobacco control (FCTC) with respect to smoke-free places, public education, and treatment for tobacco cessation. The results suggest that the factors influencing Iranian students to smoke may not be significantly different from countries with a broader evidence base. Moreover, it should also be pointed out here that the present results are consistent with those of other surveys of adult smoking in Iran. In light of the fact that

smoking rates are typically higher among less educated populations, the high prevalence observed in this study among university students is particularly worrying. Finally, the study can serve as a foundation for further future researches. It helps to justify the need for larger and more sophisticated trials on tobacco use among young adults in Iran.

CONCLUSION

Finally, the study lays an important foundation for future research; more sophisticated studies on tobacco use among young adults in Iran are needed. Even if personality differences between smokers and non-smokers are generally small, these effects can have important clinical implications due to the large number of people involved. Research on the correlates of nicotine dependency provides insights for understanding etiology and informs prevention policies and cessation programs.

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