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TANAFFOS

Psychological Problems and Cigarette Smoking in Tehran University Students in 2010

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Background: The present study aimed at comparing psychological problems between smoker and non-smoker students and also males and females.

Materials and Methods: A total of 22 faculty members of public and private universities in Tehran were selected through random sampling and 913 students from the same universities were selected through convenient sampling and enrolled in this study with a 2-step sampling method. Hopkins Symptom Checklist was used for data collection.

Results: Significant differences were detected between smoker and non-smoker students in Hopkins score, depression, anxiety and somatization. In addition, smoker women gained higher Hopkins scores, somatization, anxiety and interpersonal sensitivity scores compared to smoker males.

Conclusion: Incidence of signs and symptoms of depression, anxiety and other psychological disorders was higher among smoker individuals. Therefore, smoking control strategies should further focus on this subject.

Key words: Smoking, Cigarette, Psychological problems, University students, Iran

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INTRODUCTION

Tobacco consumption is the most important preventable cause of mortality worldwide. Therefore, any measure taken to decrease the consumption of tobacco products is a step forward towards promotion of health indices and ensures better community healthy (1). During the recent years, prevalence of smoking has increased among the adolescents and adults of many countries (2). According to a report by the World Health Organization, every day 80,000 to 100,000 young adults start consuming tobacco products the majority of which live in developing countries. The quit rate has not have a decrease or increase among the adult population (3). Based on the statistics reported by the Iranian Ministry of Health in 2000, rate of consumption of tobacco products was 12.5%. The growing trend of cigarette consumption among the Iranian youth is worrisome. According to the statistics in 1990, about 10% of Iranian youth aged 15 to 25 years were smokers. This rate reached more than 17% in the year 2000 (4). A study conducted in 2003 reported the rate of occasional smoking among male and female Tehran high schools to be 30.7% and 25.4%, respectively (5). Another study performed in 2001 among Tehran University students demonstrated the rate of cigarette consumption among male and female students as 25.4% and 5.1%, respectively (6). Based on the most recent statistics reported by the Ministry of Health regarding the smoking status in Iran, in 2007 about 12.3 % of people had cigarette consumption. Of the teenagers

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between the age of 13 to 15 years, about 3% were smokers. Also, based on the data from the Health Project of the Ministry of Health for evaluation of the prevalence of tobacco consumption among 2,997 Tehran university students selected randomly during 2005-2006 among 6 Tehran universities , prevalence of hookah and cigarette smoking was 34% and 24%, respectively (7).

Increased tendency towards smoking and its related health hazards and financial harms have forced the scientific society to perform numerous researches in this respect. Studies have demonstrated that psychological health related factors such as depression, anxiety, alcoholism and eating disorders are correlated with smoking (8). The results of different studies on the relationship of smoking and depression show that prevalence of cigarette smoking is higher among psychiatric patients compared to other groups (9). Depressed smokers have more quit attempts compared to general population (10). Smokers, compared to the general population, are more likely to have a history of depressing events and signs of depression (11- 13). Subjects with a history of major depression are more likely to develop nicotine dependence (14). Regarding the factors confounding the correlation of smoking and depression, results of a study showed that among young adults, education weakens the relationship between nicotine dependence and signs of depression (15). Since the correlation of nicotine dependence and depression is mutual (16), there is a possibility that a third factor like a common genetic susceptibility to nicotine dependence and depression is involved (17).

Johnson and colleagues (18) in a study on the longitudinal association between cigarette smoking and anxiety disorders among adolescents and young adults demonstrated that heavy smoking (more than 20 cigarettes a day) during the adolescence is associated with a high risk of agoraphobia (10.3% versus 1.8%, odds ratio: 6.79), generalized anxiety disorder (20.5% versus 3.71%, odds ratio: 5.53), and panic disorder (7.7% versus 0.6%, odds ratio: 15.58) during early adulthood. Their results demonstrated that cigarette smoking may increase the risk of certain anxiety disorders during adolescence and early adulthood.

Collins and Lepore showed that male current smokers had greater anxiety than nonsmoker and ex-smokers (19).

Lasser et al. evaluated the correlation of smoking and mental illness and found that subjects with mental illness were twice as likely to smoke compared to others (20). The quit rate was also greater among them.

Gau et al. demonstrated that smokers were more extraverted and neurotic and had higher incidence of hostile, somatic, depressive, paranoid and psychotic symptoms compared to nonsmoker students (21). Lawrence et al. studied the relationship of smoking and mental illness and revealed that female smokers and younger smokers had higher rates of mental illnesses compared to male smokers and older ones. Smokers with high levels of psychological distress averagely smoked more cigarettes per day (22).

According to Martinez-Ortega et al's study, (23), high nicotine dependence can be indicative of psychopathologic vulnerability. Also, tobacco consumption may play a significant role in increasing the use of caffeine, alcohol and illegal drugs.

Giannakopoulos et al, (24) in their study showed that cigarette smoking was strongly associated with high levels of emotional and behavioral problems. Emotional/anxiety symptoms, conduct problems and hyperactivity/inattention had a significant association with smoking by the adolescents.

Breslau and coworkers (25) assessed the role of psychiatric disorders in predicting the initiation of smoking and showed that preexisting psychiatric disorders can be predictive of the risk of initiation of smoking and nicotine dependence among smokers. These disorders

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included major depression, anxiety disorders and substance use disorders.

These findings show a correlation between cigarette consumption and psychiatric signs and symptoms. Similar results were obtained when evaluating psychotic patients. For instance, one study showed that prevalence of smoking was higher among psychiatric patients compared to other groups (9).

Based on the abovementioned facts and since such study has not been performed on university students, the present study was conducted to evaluate the psychological problems in smokers and compare them among males and females.

MATERIALS AND METHODS

Understudy population were Tehran university students in 2010. Sampling was done in 2 phases. First, 22 universities were selected among Tehran private and public universities. Then, 45 questionnaires were filled out for each university by convenience sampling. After obtaining a recommendation letter from the National Research Institute of Tuberculosis and Lung Disease, a trained expert was sent to the selected universities. She provided the subjects with the necessary information regarding filling out the questionnaires and then administered them among subjects. Students willingly participated in the study and the questionnaires did not ask about the first or last name of subjects.

Smokers in the present study were those who smoked regularly.

Among the standard deviations for the main variables in the previous studies, the greatest standard deviation belonged to the depression test and was equal to 0.74 (sample size 250 students). Since the hypotheses were two-tailed, the amount of Z at 0.05 level of significance was 1.96. By considering d=0.05, sample size was calculated as 841.46. Thus, a total of 850 students were considered sufficient for the present study.

For data collection, Hopkins Symptom Check List (HSCL)(1974) was used. Hopkins Symptom Checklist has 58 scales and 5 subscales of depression, anxiety, somatization, interpersonal sensitivity and obsessive compulsive and the respondent estimates his/her severity of symptoms on a 5 degree scale (from never to very much). This checklist maintained its reliability when it was translated to other languages (26). For the abovementioned subscales the test-retest reliability was 0.86, 0.84, 0.87, 0.85, and 0.87, respectively while for interexaminer reliability the rates were 0.64, 0.67, 0.73, 0.80 and 0.77 respectively (27).

After exclusion of the unreliable questionnaires, data from 913 questionnaires were analyzed using SPSS version 16 software, descriptive statistics, Pearson's correlation coefficient and multivariate analysis of variance.

RESULTS

Demographic characteristics of smoker and nonsmoker students are presented in Table 1.

Table 1. Frequency and percentage of demographic characteristics in smokers and nonsmokers.

Demographic Variables		Nonsmokers		Smokers	
		Frequency	Percentage	Frequency	Percentage
Marital Status	Single	417	85.6	364	85.4
	Married	51	10.5	43	10.1
	Divorced	2	0.4	4	0.9
	Unspecified	17	3.5	15	3.5
Sex	Female	232	47.6	74	17.4
	Male	251	51.5	347	81.5
	Unspecified	4	0.8	5	1.2
Age	Mean	23.09		23.52	
	Standard Deviation	3.42		3.24	
	Range	17-39		18-37	

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Table 2 represents the descriptive characteristics of scales and subscales among smokers and nonsmokers.

Table 2. Mean, standard deviation and Cronbach's alpha for scales and subscales.

Scale/ Subscale	Cronbach's Alpha	Nonsmoker	Smoker
		Mean ± SD	Mean ± SD
Somatization	0.873 (12)	2.19 ± 0.72	2.35 ± 0.77
Anxiety	0.819 (7)	2.23 ± 0.72	2.37 ±0.83
Depression	0.825 (11)	2.58 ± 0.72	2.37 ± 0.79
Interpersonal sensitivity	0.760 (7)	2.62 ± 0.77	2.62 ± 0.74
Obsessive compulsive	0.775 (8)	2.64 ± 0.72	2.67 ± 0.74
Hopkins total score	0.958 (58)	2.44 ± 0.63	2.55 ± 0.66

Correlation between the subscales of Hopkins questionnaire is summarized in Table 3. All correlations are significant at P=0.01

Table 3. Correlation between the Hopkins subscales.

	Somatization	Anxiety	Depression	Interpersonal sensitivity	Obsessive compulsive
Somatization	1				
Anxiety	0.798*	1			
Depression	0.590*	0.665*	1		
Interpersonal sensitivity	0.580*	0.670*	0.727*	1	
Obsessive compulsive	0.630*	0.654*	0.672*	0.648*	1

*P≤0.01

Multivariate analysis of variance (MANOVA) results for total Hopkins score and its subscales are presented in Table 4. Phillai's trace and Wilk's lambda were significant (P≤0.0001). The difference in total Hopkins score, somatization, anxiety and depression between the 2 groups was statistically significant.

Table 4. Multivariate analysis of variance for evaluation of the difference between the 2 groups in Hopkins scale.

Dependent variable	Sum of squares	df	F	P
Hopkins total score	3.176	1	7.627	0.006
Somatization	6.728	1	12.044	0.001
Anxiety	5.968	1	9.125	0.003
Depression	5.062	1	8.999	0.003
Interpersonal sensitivity	0.015	1	0.027	0.870
Obsessive compulsive	0.761	1	1.455	0.228

Table 5 summarizes the difference between smoker males and females in psychological symptoms. The difference between smoker males and females in total Hopkins score, somatization, anxiety and interpersonal sensitivity was statistically significant. The mean of all variables was greater in females than in males.

Table 5. Multivariate analyses of variance for evaluation of the difference between smoker males and females.

Dependent variable	Mean (SD)		Sum of squares	df	F	P
	Female	Male				
Hopkins total score	2.709 (0.641)	2.526 (0.661)	1671.135	1	4.899	0.031
Somatization	2.555 (0.725)	2.335 (0.788)	1458.570	1	5.187	0.027
Anxiety	2.591 (0.746)	2.349 (0.848)	1488.639	1	3.649	0.023
Depression	2.889 (0.715)	2.699 (0.789)	1904.269	1	4.797	0.057
Interpersonal sensitivity	2.790 (0.734)	2.584 (0.733)	1761.375	1	0.129	0.029
Obsessive compulsive	2.723 (0.717)	2.689 (0.739)	1785.910	1	4.661	0.719

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DISCUSSION

According to ANOVA the 2 groups of smokers and nonsmokers were different in total Hopkins score, depression, anxiety and somatization scores. Since these means were higher in the smoker group, we can say that smokers suffer from greater rates of anxiety, depression and somatization. Studies conducted in Iran demonstrated differences between smokers and nonsmokers in anxiety and somatization (28). Results of other studies were also in accord with those of ours and showed that obsessive consumption of cigarettes and alcohol plays a significant role in development of major depression. The effect of smoking is much greater than that of alcohol consumption (29). Another study showed that depression, alcohol consumption and mismanagement of stress have a major direct effect on smoking (30). In general, the literature reveals the higher rate of depression (21, 31-35), anxiety (18, 19) and other psychological disorders (22, 36) among smokers compared to nonsmokers. For instance, Collins and Lepore (19) demonstrated that among current smokers level of anxiety had a direct correlation with tobacco consumption and increased accordingly.

Bush et al, demonstrated that depressive disorders and anxiety had the greatest correlation with tobacco consumption (37).

Another finding of the present study showed that psychological disorders were greater among female smokers than males. Some other studies found similar results and showed a greater correlation between smoking and psychological disorders in females and younger subjects (22).

Orlando and colleagues (38) demonstrated that the relationship between smoking and emotional distress (depression, anxiety and lack of positive attitude) is a dynamic relationship where distress leads to increased cigarette consumption at first but then becomes exacerbated by it over time. In agreement with the present findings, researches that evaluated the correlation of mental health and smoking indicated higher rates of psychological problems among smokers. For example, it was demonstrated that patients with mental disorders were twice as likely to smoke as others (20). Smokers with high levels of psychological distress averagely smoked more cigarettes per day. Based on the results of this study, high rate of smoking had a direct correlation with development of psychological disorders among smokers. Additionally, a considerable percentage of smokers were suffering from psychiatric diseases (22). Smoker students are usually more neurotic and hostile (21). Psychiatric disorders have a direct and strong correlation with nicotine dependence (23). Also, a significant positive relationship was found between anxiety disorder in students and their nicotine dependence (39).

Considering the findings about the correlation of cigarette smoking and psychological disorders, tobacco control strategies should include programs that focus on tobacco consumption among psychiatric patients and occurrence of these diseases among smokers. In other words, decreasing the incidence of psychological diseases can result in decreased tobacco consumption and vice versa. Also, helping the patients suffering from depression and anxiety disorders to improve their condition and recognizing the consequences of nicotine dependence can be effective in reducing tobacco consumption. Educating adolescents about the psychological diseases, skills to overcome emotional, anxiety and stress disorders and informing them about the correlation between smoking and psychological problems can prevent them from smoking and protect them from subsequent psychological diseases (22). According to Gau et al's study, (21) the relationship between cigarette smoking and individual, family and peer correlates shows that intervention for decreasing tobacco consumption should be multifaceted and include individual, family and peer factors related to smoking, psychopathology of the subjects and substance abuse among them. On the other hand, considering the strong correlation between signs of nicotine dependence and level of depressive symptoms physicians should pay special attention to depressive symptoms in subjects when treating their nicotine dependence and helping them to

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quit smoking because depression may interfere with a successful quit (32). Giannakopoulos et al. (24) supported the association of smoking and emotional as well as behavioral problems in adolescents and stated that it is important to address the emotional and behavioral problems of adolescents to develop effective anti-smoking strategies in school environment. They believed that smoking by the adolescents is a probable indicator for their emotional/behavioral problems.

Convenience sampling, better cooperation of nonsmoker students and thus, prolonged process of sampling and lack of similar studies in Iran were among the limitations of this study.

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