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Psychological Symptoms and Smoking Among Turkish University Students

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Abstract

Smoking which may lead to serious health problems, is commonly observed among young people. The recent increased use of cigarettes by young people and its relation to psychological symptoms are reasons for increasing research into smoking. The main objective of this cross-sectional study was to analyze the association between psychological symptoms with smoking status. A sample of 779 students (smokers=206, nonsmokers=573) answered a questionnaire including demographic variables and items regarding smoking. Psychological symptoms were measured by Brief Symptom Inventory (BSI). Current smokers reported significantly higher levels of depressive symptoms (t=-3.16), anxiety (t=-3.58), self-negativity (t=-3.08), somatization (t=-3.29) and hostility (t=-6.27) than non-smokers. The results also indicate that self-negativity (OR=0.95, 95% CI=0.91-1.99) and hostility (OR=1.12, 95% CI=1.07-1.17) were variables significantly associated with current smoking status. These findings suggest that certain psychological symptoms are strongly related to risk for smoking.

Keywords: Depression, Anxiety, Self-negativity, Somatization, Hostility, Smoking, Turkish College Students.

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İNCELEME / ARAŞTIRMA

Türk Üniversite Öğrencilerinde Psikolojik Belirtiler ve Sigara İçme

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Öz

Ciddi sağlık sorunlarına yol açan sigara içme, gençler arasında yaygın olarak gözlenmektedir. Psikolojik belirtilerle ilişkili sigara tüketiminin gençler arasında yayınlaşması bu alandaki araştırmaları da arttırmaktadır. Kesitsel nitelikteki bu çalışmanın temel amacı, sigara içme alışkanlığı ile psikolojik belirtiler arasındaki ilişkileri incelemektir. Örneklemi 779 öğrenciden (Sigara içenler=206, İçmeyenler=573) oluşan çalışmada katılımcılar kişisel bilgi formu ve sigara içme alışkanlıklarını belirten sorulara cevap vermişlerdir. Psikolojik belirtiler Kısa Semptom Envanteri (KSE) ile toplanmıştır. Analizler sonucunda sigara içenlerin depresyon (t=-3.16), kaygı (t=-3.58), olumsuz benlik (t=-3.08), somatizasyon (t=-3.29) ve karşı gelme (t=-6.27) puanları sigara içmeyenlerinkinden anlamlı düzeyde yüksek çıkmıştır. Sonuçlar ayrıca olumsuz benlik kavramının (OR=0.95, 95% CI=0.91-1.99) ve karşı gelmenin (OR=1.12, 95% CI=1.07-1.17) sigara içme alışkanlığı ile anlamlı düzeye ilişkili olduğunu ortaya koymaktadır. Bu sonuçlar psikolojik belirtilerin sigara içme davranışı için risk teşkil ettiğini göstermektedir.

Anahtar Kelimeler: Depresyon, Kaygı, Olumsuz Benlik, Bedenleştirme, Karşı Gelme, Sigara İçme, Türk Üniversite Öğrencileri.

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The relationship between smoking and several psychopathologies is long established (Talati, Keyes, & Hasin, 2016). Epidemiological researches have revealed that smoking prevalence has been observed in developed western countries and in subgroups of these countries at varying rates. In most European countries smoking prevalence of individuals having mental disorder record has been found to be two times higher than general population (Lasser et al., 2000). However, there have been no comprehensive researches regarding the determination of smoking prevalence among the individuals having mental disorders in developing countries (Chandra et al., 2005).

Turkey is a developing country. Within the scope of the project conducted with World Health Organization and Center for Diseases Control and Prevention, CDC, it has been determined that 31.3% of the individuals at the age of 15 and higher use tobacco and tobacco products either every day or some of the time (TSI, 2008). There is a very limited number of studies about smoking in individuals who have various forms of mental disorders in Turkey. But, many studies have been conducted to examine the relation between smoking and mental disorders in developed countries. For example, in a study in the USA, it is determined that smoking of the individuals having different mental disorders vary between 40% and 85% (Leonard et al., 2001); this rate is four times higher than normal population (Centers for Disease Control and Prevention, 2008). According to the results of another research, smoking prevalence observed in the individuals having psychiatric disorder is approximately two times higher than the ones having no psychiatric disorder (Gwynn et al., 2008).

Among psychiatric patients whose smoking prevalence is observed at a high rate of 58.9%, 55% of those who have anxiety disorders and 51% of those who have mood disorders have smoking habits (Poirier et al., 2002). It is determined that smokers have history of major depression, alcohol and drug addiction, unstable and anxious personality. These findings show that smokers have commonly mood, anxiety, substance-use disorders and personality disorders (Black, Zimmerman, & Coryell, 1999).

Symptoms of behavior disorder are related with smoking (Black, Zimmerman, & Coryell, 1999). In this respect, there has been found a strong relation between heavy smoking and general mental disorders and their severity. However there has not been any significant difference in general mental disorders between non-smokers, ex-smokers and occasional smokers (Araya, Gaete, Rojas, Fritsch & Lewis, 2007). The effect of nicotine in cigarettes is an important reason for the prevalence of smoking among people who have mental disorders. Compared to placebo effect, the effect of nicotine dose reduces depression-dejection, anger-hostility, fatigue-inertia and general negative mood levels (Juliano, Fucito, & Harrell, 2011). In a longitudinal study which is made with the use of MMPI and covers 20 years, it is determined that people who start smoking have rebellious, impulsive, sensation seeking and hostile features, among these individuals, the ones who have smoked for 20 years demonstrate sensation-seeking and hostile features (Lipkus, Barefoot, Williams, & Siegler, 1994).

Smoking prevalence decreases in adult population (CDC, 1999), while it tends to increase among young adults (Stanton, Oei, & Silva, 1994). This situation highlights the importance of examining the reasons why young people smoke. Turkey has a young population whose average age is 29,3 (http://www.invest.gov.tr). In Turkey, 40.4% of individuals between the ages of 25-34 use tobacco and tobacco products (TSI, 2008). In this study, the relation between smoking among young people and psychological symptoms is investigated.

Methods

Participants

The sample of this study comprised students of the Karadeniz Technical University in Trabzon. The total number of students is 779, randomly selected from various faculties, departments and programs, including 446 female (57.30%) and 333 male (42.70%) students. The average age of the sample was 20.92 (SD=1.73) years, ranging from the age of 16 to 30. Of the 779 students, 206 (26.4%) were categorized as smokers and 573 (73.6%) as non-smokers.

Instruments

Demographic Characteristics and Smoking Status: The assessment included demographic characteristics, as well as a smoking status questionnaire developed by the author of this study that inquired about gender, parental smoking and socioeconomic status (SES).

Brief Symptom Inventory (BSI): The BSI, developed by Derogatis (1992), is a mental-health–screening instrument composed of 53 items represented by nine symptom scales: (1) Somatization (SOM), (2) Obsessive-Compulsive (O-C), (3) Interpersonal Sensitivity (INT), (4) Depression (DEP), (5) Anxiety (ANX), (6) Hostility (HOS), (7) Phobic Anxiety (PHOB), (8) Paranoid Ideation (PAR) and (9) Psychoticism (PSY) and three global mental health indexes. The inventory has been translated and adapted to Turkish by Şahin and Durak (1994). The Turkish version of the scale appeared to have five dimensions: *anxiety*, *depression*, *self-negativity*, *somatization*, and *hostility*. In the current study, Global Severity Index (GSI), which provides a composite measure of the severity of overall symptoms (scores ranging from 0 to 4), was used as an index of global mental health. The alpha coefficients of the factor subscale ranged between .70 (for depression) and .88 (for somatization). The correlation coefficients of the factor subscale with the other instruments ranged between -.45 and .71.

Procedure

The survey instruments were distributed in a classroom setting by the course instructor. The questionnaires took approximately 25 minutes to complete. No identifying information was collected during the study. Involvement in the study was completely voluntary.

Data Analysis

The Statistical Package for the Social Sciences (SPSS. 15.0) program was used for statistical analysis. Student's *t* and Chi-Square tests was used in calculating differences between groups, and logistic regression was used to model the association between gender, parental smoking status, SES, anxiety, depression, self-negativity, somatization, and hostility with smoking status (smokers and non-smokers). Prediction models were developed and tested using the formal model-building step outlined by Hosmer and Lemeshow (2000).

Results

Sample Characteristics

The statistical analysis demonstrated that 28 % of the total number of participants (44% males; 13% females) smoked one or more cigarettes per day. Among current smokers, the mean age of initiation was 16.53 (SD=2.69). Gender was correlated with smoking (c^2=96.88, df=1, p<.001). There were no significant differences in SES variable between smokers and non-smokers. Current smokers demonstrated significantly higher levels of depressive symptoms *(t*=-3.16, p<.01*),* anxiety (*t*=-3.58, p<.001), self-negativity (*t*=-3.08, p<.001), somatization (*t*=-3.29, p<.01) and hostility (*t*=-6.27, p<.001) than non-smokers (Table 1)

	Current smokers				Non-smokers			
Characteristic	**M**	**SD**	**n**	**%**	**M**	**SD**	**n**	**%**
Gender								
Male			148	44.4			185	55.6
Female			58	13.0			388	87.0
SES								
Low			7	3.4			19	3.3
Medium			185	89.8			523	91.3
High			14	6.8			31	5.4
Age	21.04	1.69			20.89	1.74		
Depression	17.02	9.95			14.61	9.19		
Anxiety	13.53	8.97			11.16	7.87		
Self-negativity	12.87	8.77			10.83	7.90		
Somatization	8.91	6.68			7.32	5.69		
Hostility	10.83	5.81			8.14	5.08		

Psychological Symptoms and Smoking Status

A logistic regression analysis was performed with smoking status as a dependent variable and gender, age, SES, maternal smoking, paternal smoking, depression, anxiety, hostility, self-negativity and somatization as predictor variables. A total of 779 cases were analyzed and the full model was significantly reliable (chi-square =146.40, *df* = 16, *p*<.001). This model accounted for 17.1% to 25.0% of the variance in smoking status, with 67% of the current smokers successfully predicted. The model correctly predicted the outcome, with 76% (Table 2).

Bivariate analyses identified demographic and psychopathological variables correlated with smoking. As can be seen in Table 2, smoking was more likely among male (OR=6.39, 95% CI = 4.34-9.39, *p*<.001). Smoking was also correlated with maternal smoking (OR=1.64, 95% CI = 1.09-2.45, <.05), self-negativity (OR=0.95, 95% CI = 0.91-0.99, *p*<.05) and hostility (OR=1.12, 95% CI = 1.07-1.17, *p*<.01). There was no correlation between smoking and other psychological symptoms, paternal smoking, and SES.

Table 2 Logistic Regression Analyses for Correlates of Smoking.

Predictor Variables	OR	CI
Gender		
Female*	1.00	
Male	6.39	4.34-9.39
SES		
1 (Very Low)*	1.00	
2	1.09	0.29-4.11
3	1.17	0.43-3.19
4	1.33	0.37-4.81
5 (Very High)	3.44	0.54-22.11
Maternal smoking		
No*	1.00	
Yes	1.64	1.09-2.45
Paternal Smoking		
No*	1.00	
Yes	1.13	0.72-1.77
Depression	1.02	0.98-1.06
Anxiety	0.99	0.95-1.04
Self-negativity	0.95	0.91-0.99
Somatization	1.03	0.98-1.07
Hostility	1.12	1.07-1.17

** reference group; OR = odds ratio; CI = 95% confidence interval.*

Discussion

In this study, the correlation between psychological symptoms, age, gender, SES, parental smoking and smoking status in youth sample was examined. With *t* test analysis, it is specified that psychological symptoms of smokers are dramatically higher than those of non-smokers'. In a similar study (Yaşan, Gürgen, Özkan, & Oto, 2008), anxiety and depression of smokers were found to be much higher than that of non-smokers, there has not been found any significant difference between other symptoms. In a study conducted by Talay, Kurt and Tuğ (2008) similar results in depressive symptom levels were found.

The main purpose of this research is the examination of relations between psychological symptoms and smoking habit. As a result of logistic regression analysis, self-negativity ad hostility explains smoking habit in a significant level while depression, anxiety and somatization do not. The result regarding depression is dramatically different from previous research results (e.g.; Berg, Choi, Kaur, Nollen & Ahluwalia, 2009). In the research conducted by Vinci, McWay and Carrigan, (2012), significant relations have been determined between incentive variables of smoking and different depression levels among university students. In the study of Cargill *et al.* (2001), it is found that both having a history of depression and a current depressed mood is related with the increase of nicotine addiction risk.

The relations between smoking and depression are discussed in different ways in different studies. Like this study, some researches recognize the depression as an independent variable which explains smoking status (Ren et al., 2016), others recognize cigarette as an independent variable which causes depression. For example, in a study conducted among women, compared to non-smokers, smokers have two times higher risk of showing depressive symptoms, and the depression risk of the men who smoke one or more packs is high (Benet, Wagner, Borges, & Medina-Mora, 2004). In a study where other psychological symptoms are also taken into consideration, there has not been found any difference between smokers and non-smokers about the risk of having obsessive-compulsive disorder and anxiety, but major depression risk of smokers is found significantly higher than that of non-smokers (Black, Zimmerman, & Coryell, 1999). These findings demonstrate that there is a reciprocal relationship between smoking and psychological symptoms (Glassman et al., 1990; Yazici, 2008).

In our study, anxiety levels of smokers are found higher than non-smokers', but it is determined that anxiety does not explain smoking risk in a significant level. The result obtained from the comparison of anxiety points of the groups is similar to the one of Collins and Lopore (2009). Smoking is examined by being associated with different anxiety situations (Fluharty, Taylor, Grabski, & Munafò, 2016). For example, compare to the individuals having low level of social anxiety, individuals having high level of social anxiety have more smoking frequency and their smoking tendency is stronger (Henry, Jamner, & Whalen,

2012). Smoking has been found related with agoraphobia in puberty when smoking habit generally emerges (Johnson et al., 2000). These findings differ from the results obtained from a logistic regression analysis.

In this study hostility levels of smokers have been found dramatically higher than that of non-smokers and it is determined that hostility explains smoking significantly. Kahler et al. (2009) have determined that high-trait hostility symptoms are related with persistent cigarette smoking. These researchers have specified that delay of smoking increase negative mood of the ones having hostility and when reinstatement was immediate, these moods decrease. In a study where nicotine and placebo effects are examined, it is determined that compared to placebo, nicotine effect decreases anger levels of high-hostile participants from 24% to 13% (Jamner, Shapiro, & Jarvik, 1999).

This study has shown that self negativity levels predict smoking significantly. But this result is different from previous studies. While many studies (e.g., Croghan et al., 2006; Gajdosova, Orosova, Madarasova Geckova, Tavel, & van Dijk, 2009) emphasize that low self-esteem levels increase smoking risk, according to the result of this study, it decreases smoking risk. Different variables may have an effect on observation of the result in this way. In the study of Carjaval et al. (2000), it is determined that low self levels have no relation with smoking habit when other variables regarding childhood and family are taken under control.

Somatization levels of smokers are higher than that of non-smokers in this study, but these points don't predict smoking status significantly. In the study of John et al. (2004), it is observed that substance use, mood, anxiety and somatization disorders of current smokers are more common. Comorbidity of somatoform and substance use disorders in literature is also discussed. Generally, somatoform and withdrawal symptoms overlap considerably (Hasin & Katz, 2007). However, studies predicting this relationship are quite limited.

The results of this study are generally similar to the findings of previous researches made with the use of brief symptom inventory, with some differences. In the study of Nakash et al. (2012), it is determined that there is a significant relationship between somatization, anxiety and hostility scales of brief symptom inventory-BSI and risk behavior scale including smoking. According to a study conducted in Turkey, there is a positive significant relationship between smoking and somatization, hostility, depression, but there is no relationship with anxiety (Ayvaşık & Sümer, 2010).

This study has some important limitations. That the sample was chosen from only one university (Karadeniz Technical University in Trabzon province) is the first limitation. That the findings are based on self-reports is another limitation. Thus, it is recommended that researches should be conducted on wide groups having different properties.

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