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The Effect of Type-D Personality Traits on Smoking in Students of Medicine Faculty

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Abstract: Objective: The purpose of this study is to examine the relationship between the smoking status, smoking, and Type-D personality traits of medical students. Method: This cross-sectional study was conducted with 627 Medical Faculty students in the 2019-2020 academic year. In the study, personal information form, Type-D Personality Scale, Fagerstrom Nicotine Dependency Test and Beck Depression Scale Inventory were used. In the analysis of the data, Chi-square test, Mann-Whitney U test and Kruskal-Wallis H test were used. $p<0.05$ was considered significant. Results: The average age of the students was 21.87±2.23 (min-max; 18-32), 341 (54.4%) of the students were females and 286 (45.6%) of them were males. Smoking prevalence among the students was 31.6% (n=198). It was determined that 353 (56.3%) of the students had Type-D personalities and 118 (18.8%) of the Type-D personalities were smokers. There was no significant difference between the students with and without Type-D personality traits in terms of smoking ($p>0.05$). The average score of negative affect, which is a sub-dimension of Type-D personality, was higher in smokers ($p=0.001$). It was found that 267 (42.6%) of the students with type D personality traits had depressive symptoms ($p=0.01$). Conclusion: It was concluded that Type-D personality was not related to smoking, however, was associated with the presence of depressive symptoms. Furthermore, the fact that negative affect was higher in the students who smoke was associated with demonstrating more depressive symptoms.

Keywords: Type-D Personality, Medical Students, Smoking, Depression

1. Introduction

University years are a critical period when transition to young adulthood, physical, cognitive, emotional and social development are experienced [1, 2]. During this period, students are frequently exposed to unhealthy behaviors such as smoking, alcohol, and sedentary life, and do not set health as a priority in their lives [2]. At the same time, they may encounter several discomforts such as anxiety, stress, adjustment disorder and depression caused by many reasons such as separation from the family, adapting to dorm life, making new friends, socio-economic difficulties, loneliness, taking their own responsibilities, future occupations and working life [3, 4]. The methods of tackling these troubling or stressful situations vary from person to person. Sometimes, young people turn to unhealthy behaviors such as smoking, alcohol and substance abuse to deal with these problems [1].

There are many risk factors that prepare the ground for university students to smoke such as gender, circle of friends, school life, family characteristics, smoking habit in the family, genetic predisposition, socio-economic level of the family, social and environmental factors [1, 5, 6]. Personality traits are another major risk factor for smoking [5]. Personality plays an important role in developing behaviors and habits affecting health and sickness process [7]. In a study with university students, it was stated that type D personality was associated with quality of life, health-promoting behaviors and subjective health status [2].

In individuals with type D personality, also known as distressed personality, negative affect and social inhibition are observed together. Socially introverted individuals feel more restless, insecure and suppressed, while people with negative affect show more tension, depressive-anxiety symptoms, and physical symptoms [7]. In other words, it is thought that individuals with type D personality experience

negative emotions, but prevent these emotional and behavioral expressions in order not to have any problems in social interaction. In addition, individuals with type D personality face more chronic stress, emotional and social difficulties. Type D personality has been associated with many conditions such as depression, anxiety, chronic tension, anger, pessimism, perceived lack of social support, low subjective well-being, low self-esteem, and dissatisfaction with life [8]. Studies have linked Type D personality to unhealthy behaviors (i.e., alcohol consumption, smoking and lack of physical activity) and chronic health problems (i.e., Cardiovascular diseases) [2, 8].

There are studies demonstrating that smoking habit in the physician group starts in university years, and the rate of smoking increases from early years to last year. Reasons such as long-term and difficult medical school education, long-term economic support requirements, heavy working conditions, high ideals, high risk of the profession and taking responsibility for human life cause stress and anxiety on students [6]. Then, this situation triggers smoking. Therefore, it is obvious that attempts to examine and prevent the smoking behaviors of the candidate physicians, who have important duties in the fight against smoking, are much needed.

In the literature, there are studies regarding the relation between students' smoking and anxiety/depression, stress, concern and general health conditions [2, 6-8]. On the other hand, the number of the studies examining the relationship between the smoking status of the students and Type-D personality are limited. This study aims to examine the relationship between the smoking status, smoking, and Type-D personality pattern of the medical students.

2. Subjects and Methods

2.1. Study Design and Participants

In this cross-sectional descriptive study, it was aimed to reach all of Afyonkarahisar Health Sciences University, Faculty of Medicine students (n=1041) in the 2019-2020 academic year. Students were informed by the researcher about the study and a questionnaire was applied to 627 volunteer students who consented to participate. Students who were not in the class during the study and did not consent to participate were not included in the study.

2.2. Study Instruments

Personal data form, Type-D Personality Scale (DS 14), Fagerstrom Nicotine Dependency Test (FTND) and Beck Depression Scale Inventory (BDI) were used to collect the research data. In the personal information form, there were 8 questions (age, gender, school grade, income level, place of life, scholarship, education level of the mother and father) that inquired the sociodemographic characteristics of the students. The Turkish validity and reliability study of the Type D Personality Scale (DS14) developed by Denollet was conducted by Oncu and Vayisoglu [9, 10]. The scale is composed of two five-point likert type subscales with 14 items that evaluate the negative affect and social inhibition on the basis of individuals' subjective assessment. Each statement was evaluated by 0-4 points as "false, partially false, undecided, partially true, true". Individuals who received ≥10 from both subscales were interpreted as Type D personalities [9]. Cronbach's alpha was 87 for negative affect and 79 for social inhibition in this study. The Turkish validity and reliability study of the Fagerstrom Nicotine Addiction Test (FTND) revised by Heatherton et al. was conducted by Uysal et al. [11, 12]. The test is composed of 6 questions. It is thought that as the score goes up, smoking addiction increases. Cronbach's alpha was 74 for FTND in this study. The validity and reliability study of Beck Depression Inventory (BDI) developed by Beck et al. was conducted by Hisli [13, 14]. Beck Depression Inventory is a self-assessment tool consisting of a total of 21 questions evaluated by summing the scores between 0-3. According to scale score, 0-9 is considered minimal, 10-16 is considered as mild mood disorder, 17-29 is medium depression, and 30-63 is evaluated as severe depression. Cronbach's alpha was 91 for BDI in this study.

2.3. Statistical Analyses

SPSS 20.0 (Statistical Package for Social Science) program was used to evaluate the data. Descriptive statistics were given as numbers (percent), means and standard deviation. Whether the quantitative data provided the normality assumption was checked with the shapiro-wilk test. In the analysis of the data, Chi-square test, Mann-Whitney U test and Kruskal-Wallis H test were used. $p<0.05$ was considered statistically significant.

2.4. Ethical Issues

In the study, the Helsinki Declaration principles were followed. Ethical permission of the study was obtained from Afyonkarahisar Health Sciences University, Faculty of Medicine, Scientific Ethics Committee under the number and date of 2011-KAEK-2, 2019/8. Verbal consent was obtained from students that they agreed to participate in the research.

3. Results

3.1. Smoking and Socio-demographic Characteristics

The average age of the students was 21.87±2.23 (min-max; 18-32), 341 (54.4%) of the students were females and 286 (45.6%) of them were males. Smoking prevalence among students was 31.6% (n=198). The mean Fagerstrom nicotine addiction score of smokers was 3.80±2.59; 3.25±2.60 for female students and 4.17±2.53 for male students. Fagerstrom addiction score of male students was found significantly higher than females (p=0.01). The smoking status of the students and the sociodemographic variables were compared. Smoking rate was significantly higher in males (p=0.001), in the 2nd and 6th grades

(p=0.006), in those whose families have sufficient economic status (p=0.001), in cases where family members smoke (p=0.001) and in the living environment available to smoke (p=0.001). There was no difference between the educational status of the mother and father and the smoking of the student (p>0.05) (Table 1).

Table 1. *The Relationship Between the Sociodemographic Characteristics of the Medical Students and Smoking (n=627).*

Variables	Total (%)	Smokers (%)	Non-smokers (%)	P Value
Gender				
Male	286 (45.6)	117 (59.1)	169 (39.4)	0.001*
Female	341 (54.4)	81 (40.9)	260 (60.6)	
Grade				
1. Grade	111 (17.7)	33 (16.7)	78 (18.2)	
2. Grade	107 (17.1)	39 (19.7)	68 (15.9)	
3. Grade	104 (16.6)	28 (14.1)	76 (17.7)	0.006*
4. Grade	110 (17.5)	27 (13.6)	83 (19.3)	
5. Grade	104 (16.6)	28 (14.1)	76 (17.7)	
6. Grade	91 (14.5)	43 (21.7)	48 (11.2)	
Monthly Family Income				
Sufficient	332 (53.0)	78 (39.4)	254 (59.2)	0.001*
Insufficient	113 (18.0)	57 (28.8)	56 (13.1)	
Partly Sufficient	182 (29.0)	63 (31.8)	119 (27.7)	
Scholarship				
Yes	237 (37.8)	68 (34.3)	169 (39.4)	0.225
No	390 (62.2)	130 (65.7)	260 (60.6)	
Mother's Education				
Elementary Graduate	277 (44.2)	88 (44.4)	189 (44.1)	
High School Graduate	136 (21.7)	39 (19.7)	97 (22.6)	0.637
University Graduate	183 (29.2)	63 (31.8)	120 (28.0)	
Postgraduate	31 (4.9)	8 (4.0)	23 (5.4)	
Father's Education				
Elementary Graduate	161 (25.7)	61 (30.8)	100 (23.3)	
High School Graduate	142 (22.6)	41 (20.7)	101 (23.5)	0.201
University Graduate	265 (42.3)	76 (38.4)	189 (44.1)	
Postgraduate	59 (9.4)	20 (10.1)	39 (9.1)	
Smokers in the Family				
Mother	79 (12.6)	36 (18.2)	43 (10.0)	
Father	177 (28.2)	71 (35.9)	106 (24.7)	0.001*
Sibling	49 (7.8)	19 (9.6)	30 (7.0)	
None	322 (51.4)	72 (36.4)	250 (58.3)	
Smokers in the living space				
Yes	297 (47.4)	141 (71.2)	156 (36.4)	0.001*
No	330 (52.6)	57 (28.8)	273 (63.6)	

**P<0.05*

3.2. Smoking and Depression

Depression prevalence of the students was 58.4% (n=366). BDI score mean was 13.46±10.07. The mean BDI score of the smokers was 15.39±6.6. The mean depression scores of the students who were in the 2nd and 6th grades (p=0.001), whose families' economic conditions were inadequate (p=0.003) and who smoked (p=0.001) were determined higher.

3.3. Type D Personality, Smoking and Depression

Type D personality was found in 56.3% (n=353) of medical students. 198 (56.1%) students of type D personality were females and 155 (43.9%) were males. Demographic characteristics, smoking and depression were compared between the groups with and without Type D personalities. There was no statistically significant difference in terms of gender, class they studied, economic status of the family, education level of the parents, smoking in the environment where they lived, and type D personality trait (p>0.05). It was determined that 18.8% (n=118/353) of students with type D personality traits smoke. When compared in terms of being a smoker, students with and without Type D personality traits showed no significant difference (p>0.05). The mean score of negative affect, which is a subdimension only to Type D personality, was found higher in smoking students (p=0.001).

It was seen that 42.6% (n=267/353) of students with Type D personality demonstrated depressive signs (p=0.01), and Type D female students (n=160/353) were significantly more depressive than males (n=107/353) (p=0.011). Type D personality, smoking and depression scores were shown in Table 2.

Table 2. *Distribution of Type D Personality Traits, Smoking and Depression Scores in the Research Group.*

Smoking			**Type D Personality**			
Absent/present with grade	**Number of student (%)**	**Score (mean±SD)**	**Present in number of students (%)**	**Absent in number of students (%)**	**NA Score (mean±SD)**	**SI Score (mean±SD)**
Absent	429 (68.4)	-	235 (37.5)	194 (31.1)	12.84±6.35	12.30±5.50
Present	198 (31.6)	3.80±2.59	118 (18.8)	80 (12.7)	14.84±6.30*	12.83±6.05
Total	627		353 (56.3)	274 (43.7)		
Depression						
Absent	261 (41.6)	4.89±2.80	86 (13.7)	175 (27.9)	9.24±5.0	10.34±5.11
Present	366 (58.4)		267 (42.6)	99 (15.8)		
Mild	164 (26.2)	13.63±2.02	100	64	14.30±5.67[a]	12.84±5.66[a]
Moderate	153 (24.4)	21.22±3.33	127	26	17.93±4.11[b]	15.16±5.42[b]
Severe	49 (7.8)	37.73±6.16	40	9	19.32±6.08[b]	14.10±5.13[b]
Total	627		353 (56.3)	274 (43.7)		

*p=0.001.
[a, b]: Letters indicate the difference in each column.

4. Discussion

Medical students with healthy personal practices are more aware of their role in consulting and the fact that this is an important part of their professional responsibilities. However, studies on smoking habits of healthcare professionals and medical students show that smoking is still an important and prevalent problem [15].

According to conducted studies, the frequency of smoking among medical school students varies between 12.0% and 29.1% [16-20]. In our study, the frequency of smoking was higher than the studies in the literature with 31.6% (n=198). Various policies have been implemented for tobacco control in our country, including increasing the taxation of tobacco products, the implementation of smoke-free public areas, packaging arrangements and public awareness campaigns for a long time. The detected high smoking prevalence, despite those, was associated with depressive symptoms in 58.4% of the students (n=366), high levels of negative affect in smokers, and the majority of users being male.

Compatible with the literature, in our study the smoking status of medical students increased in males [16-18, 20], in senior students [17, 18, 20], in families with smoking members [16, 18, 21], in living spaces available for smoking [18, 20] and in families with insufficient economic conditions [21]. These results can be associated with the fact that in our country, traditionally, smoking is less acceptable for women, that senior class students have concerns about being appointed after graduation, and with gradually increasing work load due to the examination for specialty in medicine and extended work hours.

In the current study it was determined that 56.3% (n=353/627) of the medical students had Type D personalities, 18.8% (n=118/353) of Type D individuals smoked and 42.6% (n=267/353) had depressive symptoms. It was concluded that Type D personality is not related to smoking but is related to the presence of depressive symptoms. In addition, the fact that negative affect was higher in smoking students was associated with more depressive symptoms. Type D personality prevalence was found as 26.5% (n=134/279) in the study with South Korean high school students by Kim et al., and it was stated that the ones with Type D personality were socially addicted to nicotine and experienced smoking cession failure [22]. Type D personality prevalence was 37.7% (n=57/151) in the study with university students by Dores et al., and 38.5% (n=390/1012) in the study with young adults by Williams et al. [23, 24]. In both studies, similar to our study results, it was shown that there was no significant relationship between Type D personality trait and smoking. In the study of Gupta and Basak with medical students, the prevalence of Type D personality was 70.0% (n=105/150) and it was stated that 36.0% (n=54/105) of those with Type D personality had depressive symptoms [25]. In the study of Yagcı et al. with smoking addicts, Type D personality prevalence was 70.0% (n=105/150) and it was reported that Type D personality scores and depressive symptoms were higher in smoking addicts [7]. Our study result is similar to the study results of Gupta and Basak and Yagcı et al. in terms of higher depressive symptoms among students with Type D personality traits.

5. Conclusion

In our study, the prevalence of smoking among medical students was found to be high (31.6%). It was determined that 56.3% of the students had type D personalities, 18.8% of them (n=118/353) smoked and 42.6% (n=267/353) showed depressive symptoms. It was determined that smoking frequency was higher in males while type D personality traits and depressive symptoms were higher in female students. It was concluded that type D personality had no impact on smoking. Our study is the first study to show that Type D personality is not related to smoking, but negative affect is high in smokers. It is necessary to increase the education of medical students about the harms of smoking and to reconstruct the medical education in a way that physicians would gain smoking cessation counseling skills.

6. Limitations of the Research

In this study, the fact that the participants are university students limits the generalizability of the

obtained results. However, it is thought that it will be a useful source in scientific studies to be conducted due to the fact that it examines the Type D personality and smoking and some factors that may be related. The students' reluctance to participate in the survey study and the inability to reach the entire population because of scattered internship groups are important limitations of the study. However, the number of subjects is sufficient to represent the sample.

Conflicts of Interest

There are no conflicts of interest of any of the authors.

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