



The Effect of Personality Traits and Psychological Resilience of University Students on Psychological Dependence on Cigarettes

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Abstract

Introduction: Personality traits and psychological resilience are known to influence addictive behaviors, including smoking. This study aimed to examine the relationship between university students' personality traits, resilience, and their psychological dependence on smoking.

Methods: A descriptive and correlational design was employed. The study included 214 university students. Data were collected using a Personal Information Form, the Eysenck Personality Questionnaire Revised-Abbreviated Form (EPQR-A), the Brief Resilience Scale (BRS), and the Test to Assess Psychological Dependence on Smoking (TAPDS). Descriptive statistics and correlation analyses were performed to evaluate the relationships between variables.

Findings: The mean scores were 12.92 for the EPQR-A, 18.08 for the BRS, and 53.13 for the TAPDS. A significant positive correlation was observed between TAPDS total scores and the extraversion and psychoticism subdimensions of the EPQR-A. Conversely, a significant negative correlation was found with the lie subdimension ($P < 0.001$). These results indicate that personality traits are associated with variations in psychological dependence on smoking.

Conclusion: The findings suggest that interventions aimed at reducing smoking dependence among university students should consider individual personality traits. Approaches that strengthen psychological resilience may be particularly effective in mitigating addiction levels. Both psychological and behavioral strategies targeting resilience are recommended to support students in preventing and reducing cigarette dependence.

Keywords: Tobacco use disorder, Personality traits, Resilience, Psychological

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Introduction

Smoking is one of the most important public health problems today, as it is spreading rapidly and poses a major threat to public health. It is estimated that 1.3 billion individuals worldwide use tobacco and its products.¹ Tobacco use is also an important health and economic problem for Turkey. In Turkey, the percentage of individuals aged over 15 years who used tobacco products either daily or occasionally was 29.5% in 2010, fluctuating from 26.8% in 2012, 32.5% in 2014, 30.6% in 2016, 31.3% in 2019, and reaching 32% in 2022.² The consumption of tobacco and cigarette products continues worldwide, though its prevalence differs across regions and populations. While smoking rates are declining in certain developed nations, they are on the rise in many developing countries. Moreover, young adults,

socioeconomically disadvantaged groups, and women frequently encounter greater difficulties when attempting to quit smoking.³ Addiction can be classified into physical and psychological types. Psychological addiction is a type of addiction that occurs when individuals start smoking for reasons such as imitation, unhappiness, happiness, proving themselves, showing that they have grown up, etc. Smoking cigarettes after a meal, while drinking tea or coffee, or while socializing with friends, falls under psychological addiction. Cigarette addiction is commonly classified as psychological for individuals smoking fewer than 20 cigarettes per day and physiological for those smoking more than 20 per day.⁴

Many factors affect smoking behavior. It has been reported that one of these factors is the personality traits of the individual. Personality traits influence our reactions



to events and the solutions we devise for the challenges we face. Additionally, personality traits reveal our propensity for emotional and behavioral challenges.⁵

Personality is a stable, heritable psychological characteristic that has attracted considerable attention due to its influence on smoking behavior. Research has indicated that personality traits are related to both health-promoting and health-risk behaviors.⁶ Multiple studies have indicated a notable link between personality traits and smoking behavior, suggesting that personality may serve as a key predictor of smoking patterns. Specifically, daily smokers tend to exhibit elevated levels of neuroticism, marked by increased irritability and emotional instability, in comparison to former smokers and individuals who have never smoked.^{7,8}

Another factor that plays an important role in the development and maintenance of addiction is resilience. Resilience is defined as an individual's capacity or process of effectively adapting to challenging or threatening circumstances. Previous research suggests that individuals with lower levels of resilience tend to show higher vulnerability to addiction and poorer mental health outcomes.⁹ In a study conducted by Zarrin Kelk (2009), the impact of resilience-based training on reducing addiction levels and altering attitudes toward substance use among first-year high school students was explored. The findings demonstrated that the resilience training program significantly improved students' attitudes toward drug use and contributed to a reduction in addiction indicators within the sample.¹⁰

The rising prevalence of addiction, particularly among adolescents, indicates that young individuals who are expected to contribute actively and productively to society are increasingly affected by its harmful consequences. Consequently, it is essential to explore the underlying factors associated with addictive behaviors. This study aimed to examine the relationship between university students' personality characteristics, psychological resilience, and their psychological dependence on cigarettes.

Methods

Study objective

This study, employing a descriptive and correlational design, aimed to examine the relationship between university students' personality traits, psychological resilience, and their psychological dependence on smoking.

Where the research was conducted

This study was conducted in Hatay Mustafa Kemal University Health Services Vocational School, Faculty of Agriculture, and Faculty of Arts and Sciences.

Participants

The study population included students enrolled at

Hatay Mustafa Kemal University from September 2023 to January 2024. The sample size was calculated based on the expected relationship between personality traits and psychological resilience, with a previously reported correlation of $r = -0.04$.¹¹ To ensure a statistical power of 99% at a significance level of $\alpha = 0.01$ and a type II error rate of $\beta = 0.99$, at least 136 participants were needed. Ultimately, data were collected from 214 students.

Inclusion Criteria

- Participants who provided informed consent.
- Current smokers.
- Age groups of 18 years or older.

Exclusion Criteria

- Individuals who did not provide consent.
- Non-smokers.
- Participants younger than 18 years.
- Participants who submitted incomplete or inconsistent questionnaire responses.

Data Collection

Before participation, all students were informed in detail about the purpose, scope, and confidentiality of the research. Participation in the study was entirely voluntary. Written informed consent was obtained from each participant before data collection. Data were collected through face-to-face administration of the questionnaires by the researchers in classroom settings. Participants completed the questionnaires individually under the supervision of the researchers, and the process took approximately 15–20 minutes. The researchers ensured that the environment was quiet and that participants' privacy was maintained. No identifying information, such as name or student ID number, was recorded, and all responses were kept confidential and used only for research purposes.

Instruments

Personal Information Form

A form was developed in accordance with the literature to collect information on participants' characteristics, including age, gender, educational background, and smoking status.

Eysenck Personality Questionnaire Revised-Abbreviated Form (EPQR-A)

The EPQR-A, developed by Francis et al. and adapted into Turkish by Karancı et al. (2007), assesses Eysenck's core personality dimensions: neuroticism, extraversion, and psychoticism, along with a lie scale.^{12,13} The 24-item instrument uses dichotomous "yes/no" responses. In this study, the overall Cronbach's alpha was 0.759, with subscale reliabilities of 0.652 for extraversion, 0.655 for neuroticism, 0.704 for psychoticism, and 0.740 for the lie scale.

Brief Resilience Scale (BRS)

This scale was developed by Smith et al. (2008) to measure individuals' psychological resilience levels.¹⁴ The Turkish adaptation of the scale was made by Doğan (2015). The scale has a single-factor structure consisting of 6 items. In this study, the Cronbach's alpha coefficient value of the scale was determined as 0.702.¹⁵

Test to Assess Psychological Dependence on Smoking (TAPDS)

The scale developed by Ponciano-Rodríguez et al., adapted into Turkish by Bardakcı et al. (2021), assesses psychological dependence on smoking. It includes 25 items on a three-point Likert scale across four subdimensions.^{16,17} Higher scores indicate greater dependence, categorized as mild (25–41), moderate (42–58), or severe (59–75). In this study, the scale showed high reliability with a Cronbach's alpha coefficient of 0.953.

Statistical analysis

Data distribution was evaluated using the Shapiro–Wilk test. For comparisons between two independent groups, the Student's t-test was used for normally distributed variables, while the Mann-Whitney U test was applied for variables that did not meet the normality assumption. Relationships between variables were assessed using Pearson's correlation coefficient, with coefficients interpreted as very strong (0.80–1.00), strong (0.60–0.80), moderate (0.40–0.60), or weak (0.20–0.40). Descriptive statistics are presented as mean $\pm$ standard deviation for normally distributed variables and as median, minimum, and maximum for non-normally distributed variables. Categorical data are reported as frequencies and percentages. Analyses were conducted using IBM SPSS Statistics 25.0 (Armonk, NY, USA). P-values < 0.05 were considered statistically significant.

Ethical Aspect of Research

To conduct the research, Ethics Committee permission was obtained from Hatay Mustafa Kemal University Non-Interventional Clinical Research Ethics Committee on 12.01.2023 with Decision No. 3. Permission was obtained from the relevant institutions to conduct the research.

Results

The sociodemographic characteristics of the participants are summarized in Table 1. Among the 214 university students included in the study, 108 (50.5%) were female, and 106 (49.5%) were male. The participants' mean age was 21.28 ± 2.37 years, and the average duration of smoking was 3.89 ± 2.66 years. In terms of daily cigarette consumption, 106 participants (49.5%) smoked 0–10 cigarettes, 72 (33.6%) smoked 11–20, 32 (15.0%) smoked 21–30, and 4 (1.9%) smoked 31 or more cigarettes per day (Table 1).

Table 1. Descriptive statistics of the sociodemographic characteristics of the participants

		n	%
Gender	Female	108	50.5
	Male	106	49.5
Age (mean $\pm$ SD)		21.28 $\pm$ 2.37	
Years of use (mean $\pm$ SD)		3.89 $\pm$ 2.66	
How many cigarettes do you smoke per day?	0-10 cigarettes	106	49.5
	11-20 cigarettes	72	33.6
	21-30 cigarettes	32	15.0
	31 cigarettes or more	4	1.9
Who do you live with?	Family	141	65.9
	Dormitory	43	20.1
	Friends	13	6.1
	Alone	17	7.9
What was your family's marital status when you were a child?	Married	187	87.4
	Seperated	27	12.6
Did your mother work when you were a child?	Yes	63	29.4
	No	151	70.6
Have you tried to quit smoking before?	Yes	113	52.8
	No	101	47.2

Table 2 presents the descriptive statistics and reliability coefficients of the students' responses. All scales exhibited acceptable internal consistency, with Cronbach's alpha coefficient values exceeding 0.65. The mean scores were 12.92 ± 2.86 for the EPQR-A, 18.08 ± 2.32 for the BRS, and 53.13 ± 12.83 for TAPDS (Table 2).

No significant gender difference was found in overall EPQR-A ($P = 0.187$). However, women scored higher in extraversion (4.05 vs. 3.44, $P = 0.035$) and neuroticism (4.69 vs. 3.49, $P < 0.001$), while men scored higher in psychoticism (2.01 vs. 1.55, $P = 0.007$). Women also had higher psychological resilience scores (18.46 vs. 17.7, $P = 0.016$) and higher psychological dependence on cigarettes (total score: 55.85 vs. 50.37, $P = 0.002$) (Table 3).

Table 4 presents the relationships between participants' age, smoking duration, and scale scores. No significant correlation was found between age and any of the scales ($P > 0.05$). While the smoking duration showed no significant relationship with the EPQR-A or BRS scores ($P > 0.05$), there was a significant positive correlation with TAPDS total and subscale scores ($P < 0.001$). This indicates that psychological dependence on smoking increased as smoking duration increased (Table 4).

No significant correlation was found between the total scores of the EPQR-A, BRS, and TAPDS ($P > 0.05$). BRS was positively correlated with extraversion and negatively correlated with neuroticism. TAPDS sub-dimensions showed various relationships: emotional modulator, image/self-reward, and social acceptance were positively associated with extraversion and psychoticism; the lie sub-dimension showed negative correlations with several

Table 2. Validity values and descriptive statistics of the scales

Scales and Subscales	Mean	Standart Deviation	Min	Maks	Cronbach α
EPQR-A	12.92	2.86	5	20	0.759
Extraversion	3.74	1.93	0	6	0.652
Lie	3.31	1.69	0	6	0.740
Neuroticism	4.09	1.74	0	6	0.655
Psychoticism	1.78	1.25	0	6	0.704
BRS	18.09	4.01	6	30	0.702
TAPDS total score	53.13	12.83	25	74	0.953
Emotional modulator	14.97	5.22	8	24	0.850
Image/self-rewarding	19.06	3.92	8	24	0.884
Indifference	10.49	3.10	5	15	0.752
Socialacceptance	8.61	2.18	4	12	0.801

TAPDS total score: Test to Assess Psychological Dependence on Smoking, EPQR-A: Eysenck Personality Questionnaire Revised-Abbreviated Form, BRS: Brief Resilience Scale.

Table 3. Relationship between participants' gender and scale scores

Scales and Subscales	Female (n = 108) M $\pm$ SD	Male (n = 106) M $\pm$ SD	test	P-value
Eysenck Personality Questionnaire	13.18 $\pm$ 2.67	12.66 $\pm$ 3.03	t = 1.323	0.187
Extraversion	3.44 $\pm$ 2.04	4.05 $\pm$ 1.77	z = -2.111	0.035
Lie	3.5 $\pm$ 1.58	3.11 $\pm$ 1.79	t = 1.679	0.095
Neuroticism	4.69 $\pm$ 1.33	3.49 $\pm$ 1.9	z = -4.645	<0.001
Psychoticism	1.55 $\pm$ 1.13	2.01 $\pm$ 1.33	z = -2.675	0.007
BRS	18.46 $\pm$ 2.36	17.7 $\pm$ 2.23	t = 2.439	0.016
Emotional modulator	16.18 $\pm$ 5.95	13.75 $\pm$ 4.02	z = -2.741	0.006
Image/self-rewarding	19.61 $\pm$ 4.34	18.5 $\pm$ 3.36	t = 2.091	0.038
Indifference	11.03 $\pm$ 3.38	9.94 $\pm$ 2.69	t = 2.595	0.010
Social acceptance	9.03 $\pm$ 2.37	1.89 $\pm$ 0.18	t = 2.895	0.004
TAPDS total score	55,85 $\pm$ 14,75	50.37 $\pm$ 9.83	t = 3.188	0.002

t value was obtained from Student t test, z value was obtained from Mann Whitney U test. SD: Standard deviation.

TAPDS: Scale for Assessing the Psychological Dependence of Cigarettes, BRS: Brief Psychological Resilience Scale.

sub-dimensions. TAPDS total score was positively related to extraversion and psychoticism, and negatively to the lie sub-dimension ($P < 0.001$) (Table 5).

Discussion

This study explored the relationship between university students' personality traits, psychological resilience, and psychological dependence on cigarettes. The Eysenck Personality Questionnaire scores were found to be similar for both female and male students. However, examination of the subscales revealed that females scored higher on the extraversion and neuroticism subscales, whereas males had higher scores on the psychoticism subscale. Similar to our study, a study conducted by Geri and Tazegül (2019) on university students showed that female students had higher scores than male students in the neurotic and extraverted personality dimensions, while male students had higher scores in the psychotic personality dimension.¹⁸ In a study conducted by Ferah in 2018, it was revealed that female physical education

teachers had more neurotic personality traits than male physical education teachers, while male physical education teachers had more extraversion and psychotic personality dimensions.¹⁹ According to these results, it can be said that female students who participated in the study lied more and were more emotional and reactive. Male students, on the other hand, were more social and showed more aggressive and insensitive behaviors.¹³ A review of the literature reveals that it is seen that women use more emotional methods as a coping method, which explains these personality traits. Studies have reported that there is a positive correlation between the coping methods of rumination, catastrophizing, blaming others, and self-blame and the level of depression, and rumination and acceptance are used more frequently in women than in men.^{20,21} In addition, when we look at it from a social and cultural perspective, we can say that a more patriarchal society is dominant in the geography we live in. This situation may have prevented women from expressing themselves verbally and may have caused them to express

Table 4. Relationship between participants' age, smoking duration, and scale scores

Scales and Subscales		Age	Smoking duration (years)
Eysenck Personality Questionnaire	<i>r</i>	0.105	0.023
	<i>P</i>	0.127	0.735
Extraversion	<i>r</i>	0.035	0.097
	<i>P</i>	0.606	0.155
Lie	<i>r</i>	0.134	-0.069
	<i>P</i>	0.051	0.312
Neuroticism	<i>r</i>	0.030	-0.098
	<i>P</i>	0.662	0.152
Psychoticism	<i>r</i>	-0.038	0.133
	<i>P</i>	0.576	0.052
BRS	<i>r</i>	0.026	0.110
	<i>P</i>	0.700	0.108
Emotional modulator	<i>r</i>	-0.006	0.315**
	<i>P</i>	0.926	<0.001
Image/self-rewarding	<i>r</i>	0.083	0.295**
	<i>P</i>	0.227	<0.001
Indifference	<i>r</i>	0.093	0.381**
	<i>P</i>	0.175	<0.001
Social acceptance	<i>r</i>	-0.022	0.275**
	<i>P</i>	0.745	<0.001
TAPDS total score	<i>r</i>	0.041	0.357**
	<i>P</i>	0.547	<0.001

r: Pearson's correlation coefficient; * $P < 0.05$ ** $P < 0.001$.

their feelings more reactively and lie. The same society, on the other hand, expects men to be physically stronger, more protective, and to solve problems. For this reason, men may have shown a more aggressive and outgoing attitude in order to fulfill these roles.

The results of the study showed that female university students demonstrated greater psychological resilience than their male counterparts. Similarly, Werner (1993), in a longitudinal study conducted in Kauai, reported that women generally exhibit higher resilience and more effective coping strategies when facing challenges.²² Similarly, research among university students has shown that female students score higher in psychological resilience than their male counterparts.²³ Psychological resilience refers to an individual's capacity to adapt to adverse situations and achieve positive outcomes.²⁴ In the present study, participants with higher resilience tended to be more extroverted and less reactive. Extraversion, reflecting sociability and impulsivity, was characterized by a preference for engaging with others, being proactive, and enjoying social interaction rather than solitude.¹³ These findings suggest that while it is higher in individuals who have positive emotions such as self-control and motivation for success, which are the basic elements of general resilience, it is weaker in individuals who have a high

level of emotional stability. The result of our research is also supported by the literature.²⁵ Psychological resilience levels of individuals with neuroticism, whose mood often changes between happiness and unhappiness, who are shy, bored, anxious, and who often feel misunderstood and lonely, were found to be low.²⁶

The evaluation of the psychological dependence scale of cigarettes shows that the participants are moderately addicted. In our study, the level of addiction is higher in women than in men ($p = 0.001$). Also, the evaluation of the subscales of the scale shows that women score higher in all subdimensions. Similarly, the study conducted by Hezer and Karalezli (2019) on individuals who applied to the smoking cessation clinic shows that psychological dependence on cigarettes was higher in women.²⁷ In another study conducted on students, psychological dependence on cigarettes did not show a significant difference between women and men.²⁸ In a different study conducted on the elderly and evaluating the psychological dependence on cigarettes, no significant difference was found between addiction and gender.²⁹ It is generally reported that women start using drugs later than men. However, it has been stated that women tend to increase their alcohol, marijuana, cocaine, and opioid consumption rates faster than men after they start using drugs and experience drug use problems more quickly.³⁰ It has been proposed that women's smoking behavior is primarily influenced by factors that help alleviate negative emotions or provide sensory stimulation, whereas men's smoking is more strongly driven by nicotine-related rewards.³¹ Research further suggests that mood, stress, psychological distress, and anxiety are key predictors of relapse in women, while craving is the main predictor in men. As a result, men may achieve better outcomes with standard treatment, whereas women may benefit from an integrated approach that combines medical intervention with psychosocial support.³² The higher levels of neuroticism and psychological dependence observed in female students may be interpreted within Lazarus and Folkman's transactional model of stress, where emotional coping dominates in environments perceived as less controllable.³³ Although previous studies have shown similar trends in gender-based personality traits, our study uniquely highlights the co-occurrence of high psychological resilience and increased dependence in female students, pointing to a possible coping paradox. These findings contribute to the limited body of research exploring the simultaneous presence of high resilience and addiction tendencies, especially among young women.

Psychological dependence is when an individual uses smoking as a solution during stress or a need to focus, and integrates smoking with certain situations.³⁴ According to the results of our study, the level of psychological dependence on smoking was found to be higher as the smoking duration increased. Those who smoked

Table 5. Relationship between students' scale scores

	Extraversion	Lie	Neuroticism	Psychoticism	BRS	Emotional modulator	Image/self-rewarding	Indifference	Social acceptance	TAPDS total score
Extraversion	1	.334** (.000)	.408** (.000)	.336** (.000)	.017 (.799)	.082 (.232)	.112 (.102)	-.027 (.698)	.102 (.136)	.079 (.253)
Lie		1	-.151* (.028)	.222** (.001)	.214** (.002)	.144* (.035)	.121 (.078)	.055 (.424)	.271** (.000)	.155* (.023)
Neuroticism			1	.284** (.000)	.142* (.038)	.220** (.001)	-.123 (.074)	-.212** (.002)	-.318** (.000)	-.232** (.001)
Psychoticism				1	-.406** (<.001)	.033 (.634)	.023 (.740)	-.063 (.360)	.006 (.926)	.006 (.928)
BRS					1	.216** (.001)	.203** (.003)	.228** (.001)	.235** (.001)	.245** (.000)
Emotional modulator						1	.057 (.403)	.020 (.776)	-.034 (.623)	.016 (.815)
Image/self-rewarding							1	.700** (<.001)	.734** (<.001)	.938** (<.001)
Indifference								1	.657** (<.001)	.897** (<.001)
Social acceptance									1	.844** (<.001)
TAPDS total score										1

r: Pearson's correlation coefficient; * $P < 0.05$ ** $P < 0.001$.

for a shorter period of time also had lower levels of psychological dependence on smoking.^{16,35} Another study reported that individuals who smoked a higher number of cigarettes per day had higher psychological dependence.²⁹ This study also yielded similar results to our study. As individuals smoke for longer years and the individual's daily number of cigarettes increases, the level of addiction increases. In addition to biological events that occur in the body, cigarette addiction also includes many processes that are affected by the social environment, learned, and influenced by the personality structure. Individuals usually smoke in certain situations, such as after a meal, with a cup of coffee/alcoholic beverage, or with friends who smoke, and during work breaks. Smoking is now associated with these events in daily life, and the individual may remember to smoke every time they exhibit these routine behaviors. Although this situation changes for each smoker, the rates of both psychological and physical nicotine addiction may increase as the person ages.

It has been found that those who smoke for emotional reasons and social acceptance are associated with the personality traits of extraversion and psychoticism. The need for social approval can channel individuals' behavior in a positive direction, but it can also cause an increase in negative behaviors.³⁶ These findings underscore the need for gender-sensitive intervention programs that address not only the biological but also the psychological and social dimensions of tobacco dependence.

Conclusion

Cigarette addiction remains a major public health issue. To develop effective prevention strategies, it is essential to identify and understand the factors that influence addiction. Personality traits play an important role in shaping individuals' behaviors and may contribute to the development of psychological dependence on

cigarettes. Therefore, addiction prevention programs should consider personality-based approaches. One such approach is to strengthen psychological resilience, which can serve as a protective factor against addiction. In this context, both psychological and physical interventions aimed at enhancing resilience among university students may help reduce addiction levels. Future research should include larger and more diverse sample groups, and experimental studies targeting adolescents transitioning into adulthood are especially recommended.

Limitations of the Research

This research has several limitations. First, the study is limited to the faculties selected for data collection, and therefore, the findings cannot be generalized to all university students. Second, the data are based on the students' self-reported responses, which may be influenced by social desirability or recall bias. Finally, the sample of the study consisted only of students who are smokers; thus, the results may not be representative of non-smoking students or the general population.

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Authors' Contribution

Conceptualization: Hacer Kabakoğlu, Nurgül Özdemir, Arzu Çalışkan

Data curation: Hacer Kabakoğlu

Formal analysis: Arzu Çalışkan, Hacer Kabakoğlu

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Supervision: Füsün Fakılı, Nurgül Özdemir

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Visualization: Nurgül Özdemir, Arzu Çalışkan

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Competing Interests

The authors declare that they have no conflict of interest.

Data Availability Statement

The original form and data of this study are available from the corresponding author upon reasonable request.

Ethical Approval

This study received ethical approval from the Ethics Committee of Hatay Mustafa Kemal University (Ethical Approval Code: 2023/3).

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