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ORIGINAL ARTICLE

Investigation of the Relationship between the Starting Age of Substance, Alcohol, Cigarette Use, Attachment Styles, and Temperament Features of Substance Users

Ahmet Fatih Tuncay[1], Binnaz Kıran[2], Soner Çakmak[3]

[1]Adana Chief Public Prosecutor's Office Directorate of Probation, Adana, Turkey
[2]Department of Guidance and Psychological Counselling, Mersin University, Mersin, Turkey
[3]Department of Psychiatry, Çukurova University School of Medicine, Adana, Turkey

ORCID iDs of the authors: A.F.T. 0000-0002-6981-9394; B.K. 0000-0002-8085-7914; S.Ç. 0000-0003-4212-7096.

Main Points

- The ages of the participants to start smoking, alcohol, drug, or stimulant substance use are related with each other.
- Persistence and neophilia (novelty seeking) which are the sub-dimensions of temperament are related to the age of starting smoking and substance use.
- Anxious attachment styles are high according to the alcohol consumption of the participants, and the secure attachment levels of those who receive inpatient treatment in Alcohol and Drug Addicts Treatment and Research Centre are low.

Abstract

In this study, temperament characteristics, age at onset of substance use, alcohol and smoking, and attachment styles of individuals using drugs or stimulants subject to the obligation of probation were examined. The study was conducted with 328 volunteers in the probation directorate in 2019. Personal information form, attachment styles in interpersonal relations scale, and temperament and character inventory revised form have been applied to the participants. The Pearson product-moment correlation coefficient was used to determine whether the age at which the participants started using substances (drugs, cigarettes, and alcohol) was related to each other and to the sub-dimensions of the temperament inventory, and a *t*-test was used to examine the differences. In conclusion, it has been found that there is a significant relationship between the ages of onset of alcohol and cigarette use and the ages of substance use onset in this study. In addition, while it has been found that the attachment styles have not shown a significant difference according to the smoking variable, the anxious attachment of alcohol users have been found to be high, and the secure attachment of those treated in the Alcohol and Drug Addicts Treatment and Research Centre have been found to be significantly low.

Keywords: Age, alcohol, attachment styles, cigarette, probation, substance users, temperament features

Corresponding Author:
Ahmet Fatih Tuncay
E-mail: fatihtuncay5@hotmail.com

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Introduction

Drug or stimulant use is a significant social problem with regard to health, safety, social, economic, and cultural aspects that concerns the public. There are studies indicating that drug or stimulant, smoking, and alcohol use are risks for each other (Pumariega et al., 2014; Reed et al., 2007; Tanrıkulu et al., 2009). The results of the research also indicate that the rate of the trial and substance use is higher for those who use cigarette and alcohol (Görgün et al., 2010; Tanrıkulu et al., 2009; Yalçın

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et al., 2009). A wide age range has been described in the literature regarding the age of onset of alcohol, smoking, and substance use. Between the years 1983 and 1995, when all items were taken into consideration in a study examining data of the Alcohol and Drug Addicts Treatment and Research Centre (ADATRC) in Turkey, it has been stated that the age range of 15 – 25 is the most common age range for starting substance use (Türkcan, 1998). Studies conducted around the world, in recent years, show that substance use is becoming widespread among adolescents and the age of first use is gradually decreasing (Yule et al., 2012). Studies conducted in our country also show results in the same direction. Yüncü et al. (2014) reported the average age of the first trial for any substance other than a cigarette to be 13.7 ± 1 in their study. Bilaç et al. (2019), in their study, stated that the average age of starting substance use was 13.1 for young people who were hospitalized for substance use.

While the age range of starting alcohol use in the general population is stated to be between 15 and 19 (Burcu & Sibel, 2017), there is no data regarding the age of starting smoking in those who use substances; nevertheless, it is reported that the age of starting smoking in the normal population decreases until the age of 10 (Gümüş et al., 2011). All these data suggest that there is a relationship between the age of onset of smoking, alcohol and substance use, and early experience of smoking and alcohol use may be a risk factor for substance use. Although there are many studies investigating the relationship between individual characteristics, such as personality and alcohol and substance use, there are no studies investigating the relationship between substance onset age and substance use in the literature. Although it is possible to say that there is no full consensus on personality in the field of psychology today, the general view is that dimensional models offer much more satisfactory information compared to categorical models (Burger, 2019). Psychobiological Personality Theory, which is the most widely accepted dimensional model in the world and has been widely researched in the literature, is the personality theory on which this research is based. The above-mentioned theory divides personality into temperament and character sub-dimensions (Cloninger et al., 1993).

Temperament is defined as the emotional or behavioral characteristics that differ between individuals, which begin to be noticed in the first years of life, rarely change in the next period and in which biological effects play a role in the emergence (Burger, 2019). Cloninger examined temperament in four subdimensions: novelty seeking, reward addiction, harm avoidance, and persistence. There are studies that support the relationship between temperament features and alcohol and substance use, and describe some personality features that can be described as negative and incompatible in alcohol and substance users (Açar, 2016; Başay et al., 2016; Dick et al., 2010; Örsel, 2015; Soysal, 2018; Whiteside & Lynam, 2001; Wills et al., 2001). The findings on the relationship between alcohol and substance use and temperament features raise the question of whether temperament features have an effect on substance use, alcohol, and smoking onset ages. A better comprehension of the links between temperament features and age at onset of substance use can shed light on methods to be improved for prevention and intervention. Knowing how to identify and help children and adolescents who may be at a high risk of starting addictive substances early will help to decrease the number of negative long-term consequences.

Considering the information given above, it is aimed to examine the relationship between the temperament features and the starting age for drug, alcohol, and smoking of people who use drugs or stimulants subject to probation obligations in this study.

The following questions were sought for the mentioned purpose:

1. Is there a relationship between the onset age of substance use and the age of first alcohol and cigarette use?
2. Is there a relationship between temperament features and onset age of substance and alcohol use?
3. Do the attachment styles of participants differ according to the variables of smoking, alcohol use, and inpatient treatment in the ADATRC?

Methods

The model of the research is the descriptive relational survey model. The sample of the research consists of 647 people who use drugs or stimulants and who have been subject to a probation measure within the scope of the TCK-191 article and who have participated in an individual interview and group work training and improvement programs between 1 July 2019 and 30 September 2019 in the Probation Directorate. The study has been conducted with 328 people who voluntarily wanted to participate in the study and whose written consents have been obtained. Forty-two participants have been excluded from the study due to leaving the study incomplete. In addition, 6 data, which were extreme values, were excluded from the scope of the analysis and the remaining 280 data constituted the sample group of the study.

All the participants are male who are subject to probation provisions due to substance use. The Ethics Committee's permission for the research and legal permissions for the application has been obtained.

Data Collection Tools

Personal information form, temperament, and character inventory revised form and attachment styles in interpersonal relations scale have been applied to the participants.

Personal Information Form

It is a form that contains information on variables such as age, educational status, income level, age of first experiencing alcohol, smoking, and substance use of the participants. Participants who drink alcohol at least once a week are defined as active alcohol users. Participants who smoke one or more cigarettes every day are defined as active cigarette users.

Attachment Styles in Interpersonal Relations Scale

The scale which has been developed in order to determine attachment styles in interpersonal relationships has been created with 37 items. Kaise – Meyer – Olkin (KMO) = .81 and Barlett test result was found as $\chi^2 = 2215.181$ ($p < .00$) in order to determine the construct validity and reliability of the constructs of the scale. As a result of the exploratory factor analysis, it was seen that the eigenvalue of the scale was above 1. The scale has a three-factor structure: "secure attachment," "anxious/obsessive attachment,"

Table 1.
Demographic Features of Participants Using Drugs or Stimulants

	N	100%
Family income level of the participants		
Lower	243	86.78
Middle	37	13.22
Education level of participants		
Primary education	176	62.86
Secondary education	80	28.57
Higher education	24	8.57
Smoking one cigarette at least per day		
Yes	254	90.7
No	26	9.3
Use of alcohol at least once a week		
Yes	92	32.86
No	188	67.14

Note: *N*, number of participants.

and "avoidant attachment." Cronbach's alpha internal consistency coefficients have been found to be .80 for the first factor, .74 for the second, and .72 for the third factor (Kandemir & İlhan, 2017).

Temperament and Character Inventory (TCI) Revised Form

The TCI revised form is a self-assessment scale consisting of 240 items. It consists of two sub-dimensions, temperament and character. While the temperament dimension consists of novelty seeking, harm avoidance, reward dependence and persistence, the character dimension, on the other hand, consists of self-management, collaboration, and self-transcendence subscales. The Turkish validity and reliability study of the scale was conducted by Köse et al. (2004). Principal components analysis with Promax rotation for the validity of the scale produced four factors with eigenvalues higher than 1, which accounted for 62.67% of the total variance for the temperament dimension. For the character dimension, it produced three factors with eigenvalues higher than 1, which accounted for 56.14% of the total variance. Cronbach's alpha values of Turkish TCI in the temperament dimension have been determined to be between .60 and .85, while in the character dimension it has been determined to be between .82 and .83. The lowest Cronbach's alpha coefficients have been found as reward dependence (.60) and persistence (.62) (Kose et al., 2004). The temperament sub-dimension of the scale has been used in the study.

Data Analysis

Before analyzing the data, extreme value analysis has been carried out first and six data that were determined as extreme values were excluded from the scope of the analysis. The distribution has been accepted as normal since the coefficient of skewness has been observed between −1 and +1 in the analysis. Pearson's product-moment correlation coefficient technique has been used to determine whether the onset age of substance use of the participants (drug, cigarette, and alcohol) was related to each other and to the sub-dimensions of the temperament inventory. Whether the attachment styles of the participants differed according to the variables of smoking, alcohol use, and inpatient treatment in the ADATRC has been analyzed by independent samples *t*-test.

Results

Demographic Data

It is observed that the study group is predominantly at the lower socio-economic level and the lower education level and the average age is 30.430 ± 8.624 (Table 1). While the number of participants who continue to use alcohol in addition to drug or stimulant (who drinks alcohol at least once a week) has been determined as 92 (32.7%), the number of participants who actively smoke (at least once a day) has been determined as 254 (90.7%). The average age of starting to use drugs or stimulants has been found as 19.52 ± 5.06. The average age of first experiencing cigarette and alcohol use has been determined as 16.07 ± 3.32 and 18.10 ± 3.93 among active users.

The Relationship Between the Age of Participants Who Start Using Cigarette, Alcohol, and Drug or Stimulant

It is observed in Table 2 that there is a positive and moderate relationship between the age at which the participants who are active users start using cigarette, alcohol, and drugs or stimulants. Therefore, it is possible to say that as the age of starting any of the smoking, alcohol substance use decreases, the age of starting to other substances also decreases.

Relationship Between the Scores of Participants' Temperament Features and Age of Substance, Alcohol, and Smoking

Table 2.
Correlation Values Showing the Relationship Between the Age at Which Participants Start Using Cigarettes, Alcohol, Drugs, or Stimulants

Variables	Avg	Ss	Min	Max	*r*	*p*
The age of first experiencing cigarette	16.07	3.315	9	34	.53	<.001
The age of first experiencing drug	19.523	5.055	10	43		
The age of first experiencing cigarette	16.07	3.315	9	34	.49	<.001
The age of first experiencing use of alcohol	18.096	3.926	10	40		
The age of first experiencing use of alcohol	18.096	3.926	10	40	.51	<.001
The age of first experiencing drug	19.523	5.055	10	43		

A positive correlation has been found between the age of onset of smoking and the "disorder" score, one of the novelty-seeking sub-dimensions (r = .130; p = .038). A positive correlation has been found between the persistence temperament features score and the age at which to start smoking (r = .141; p = .024) and substance use (r = .128; p = .032). No relationship has been found between the scores of other temperament sub-dimensions and the ages of onset of smoking, alcohol, and substance use ($p > .05$) (Table 3).

Differentiation of Participants' Attachment Styles According to the Variables of Smoking, Alcohol Use, and Inpatient Treatment in the ADATRC

Smoking and alcohol use by the participants means smoking at least one cigarette a day and using alcohol at least once a week, as indicated in Table 1. It has been found that the attachment style scores of the participants according to the smoking did not show a significant difference. According to the t-test results of the attachment styles of the participants according to the use of alcohol status, secure and avoidant attachment scores have not differed, while the anxious attachment scores have differed significantly. The anxious attachment scores of the participants who use alcohol are significantly higher. In addition, while the anxious attachment and avoidant attachment scores of the participants did not differ according to the variable of receiving inpatient treatment in the ADATRC, the secure attachment score averages of the participants differed significantly. The secure attachment scores of participants who are in inpatient treatment in the ADATRC are significantly lower (Table 4).

Discussion

It has been investigated in the study whether the age of starting smoking, use of alcohol and drugs or stimulants are related to each other and with the temperament sub-dimensions of the participants subject to probation obligations and whether the attachment styles of those who used drugs or stimulants, cigarettes, and alcohol and those who were inpatient in the ADATRC differ. One of the findings of the study is that there is a positive and moderate relationship between the age at which the participants start smoking and use alcohol and substance. In other words, the lower the age to start smoking, alcohol, and drugs or stimulants, the lower the age to start the others. There are many studies that support the mentioned findings of the study, stating that smoking and use of alcohol and drug are risk factors for each other (Barnow et al., 2004; Brook et al., 2005; Pumariega et al., 2014; Reed et al., 2007; Tanrıkulu et al., 2009).

In a study conducted by Ulukoca et al. (2013), among university pupils, smoking and use of alcohol have been found to be significant predictive variables for substance experimentation. In addition, it has been stated that experiencing substance has been 11 times higher in smokers and 6.7 times higher in alcohol users. The strong relationship between variables brings with it the expectation that the use of alcohol and cigarette will decrease the onset age of substance use. If the use of cigarette, alcohol, and substance are predictive variables for each other, the early use of one is expected to cause early use of others. Therefore, the determination of the relationship between the ages of onset in the study supports the mentioned relationship. In this sense, the finding of a positive relationship between the ages of smoking, alcohol, and substance use in our study is consistent with the literature. Another finding obtained in the study is that there is a significant relationship between the temperament features of the participants and the age of starting substance and alcohol use and smoking. Temperament is the personality dimension that is thought to be inherent and assumed to be the reason for personal differences in a person's reactions to stimuli (Burger, 2019).

Table 3.
Correlation Values Between the Scores of Participants Temperament Features and Age of Substance, Alcohol, and Smoking

Temperament Inventory Sub-dimensions	r	**SAS (n = 280)**	**SAA (n = 92)**	**SAC (n = 257)**
Novelty seeking	r	.025	.046	.096
Excitement to explore – an indifferent rigidity	r	.007	−.004	.072
Impulsivity – contemplating	r	.010	.115	.017
Prodigality – prudence	r	−.078	.015	−.044
Dysregulation – regularity	r	.100	−.028	.130*
Harm avoidance	r	.029	−.005	.086
Anticipation anxiety and pessimism – infinite optimism	r	−.039	−.021	.031
Intolerance of uncertainty – trust	r	.051	.153	.044
Social phobia – love of society	r	.008	−.023	−.004
Getting tired quickly/energy-haleness	r	.054	−.101	.119
Reward addiction	r	−.022	.040	−.059
Emotivity – adiaphory	r	.056	−.009	−.001
Attachment – remotion	r	−.089	.083	−.058
Commitment – independence	r	−.027	−.003	−.030
Persistence	r	.128*	.124	.141*

Note: *Correlations are significant at $p < .05$.
SAS = Starting age of substances; SAA = Starting age of alcohol; SAC = Starting age of cigarette.

Table 4.
Attachment Style Scale and Independent Samples t-Test Results of subscale Scores According to the Variables of Smoking, Alcohol Use, and Inpatient Treatment in the ADATRC

Attachment Styles		*n*	$\bar{X}$	**ss**	**SD**	*t*	*p*
Use of cigarette							
Secure attachment	Yes	254	32.45	8.52	278	−1.15	.25
	No	26	34.50	9.24			
Anxious attachment	Yes	254	24.52	8.03	278	1.04	.30
	No	26	22.81	7.18			
Avoidant Attachment	Yes	254	25.58	8.14	278	1.96	.05
	No	26	22.27	8.92			
Use of alcohol							
Secure attachment	Yes	202	32.75	8.10	278	.33	.74
	No	78	32.37	9.82			
Anxious attachment	Yes	202	25.15	8.00	278	2.71	.01*
	No	78	22.30	7.51			
Avoidant attachment	Yes	202	32.75	8.10	278	1.79	.07
	No	78	32.37	9.82			
Inpatient treatment in ADATRC							
Secure attachment	Yes	105	31.23	9.03	278	−2.15	.03*
	No	175	33.50	8.25			
Anxious attachment	Yes	105	24.42	8.14	278	2.23	.91
	No	175	23.31	7.88			
Avoidant Attachment	Yes	105	26.07	8.22	278	.11	.21
	No	175	24.81	8.28			

*$p < .05$.

Therefore, temperament features express more of biological effects and resistance to change of personality (Cloninger et al., 1993). A positive relationship has been found between the age of starting smoking and the "disorder" temperament feature, one of the sub-dimensions of novelty seeking, "persistent" which is also a feature of temperament and the age of starting smoking and substance use.

It is a significant finding of our study that these temperament sub-dimensions are crucial factors in the age of onset of smoking and substance use. It is an expected result that the temperament sub-dimensions have a strong relationship with the age of starting substance and smoking. Since in addiction, novelty seeking, reward addiction, and harm avoidance temperaments are prominent, and these temperament features are effective in initiating or attempting to experience addictive substances. Along the same line, it has been stated that these temperament features are related to the age of onset in participants who smoke. Another finding of the study is that as the scores of persistent temperament features decrease, the age to start smoking and substance use also decreases. The persistent sub-dimension is defined as the tendency to be hindered, failure to satisfy the expectations, and maintaining the continuity of behavior despite fatigue (Cloninger et al., 1993). People who score high on the persistent subscale tend to continue working and be determined despite the failure of the satisfaction of the expectations, experiencing frustration, and being tired (Cloninger et al., 1993). The above-mentioned individuals are open to criticism and perceive criticism as a force that will enable them to move forward (Gardini et al., 2009). The low levels of the mentioned temperament feature show that people are closed to criticism and have low strength to endure obstruction. Poor resistance to frustration is also associated with poor self-development. It will be logical to deduce that individuals with poor self-development will have a high risk of opting for substances that have addictive potential and provide an anxiety-relieving effect in the face of inhibitions. In light of this information, a low level of the persistence temperament feature stands out as an effective factor on early-onset age in smoking and substance use, although it does not stand out as effective in alcohol use. The above-mentioned finding is consistent with the literature finding supporting the relationship between low persistence and substance use disorder. It has also been examined in the study whether the attachment styles of the participants differed according to the smoking, alcohol use of the participants, and treatment status of the individuals in the ADATRC. While it has been found that attachment styles scores have not shown a significant difference according to the smoking variable, the anxious attachment scores of alcohol users have been found to be high, and the secure attachment scores of those treated in the ADATRC have been found to be significantly lower. Attachment is basically evaluated under two main headings: secure and insecure. Avoidant and anxious attachment appear under insecure attachment (Bartholomew & Horowitz, 1991).

In contrast to the mentioned study in which attachment styles have not differed according to the smoking variable, Uluman (2015) found a negative significant relationship between secure attachment and smoking in a study conducted with young participants aged 16 – 20. A positive significant relationship between avoidant attachment and smoking has been found in another study (Ahrens et al., 2012). In a study conducted by Kassel et al. (2007), a positive significant relationship has been found between anxious attachment and smoking. It appears that there are quite different results in the literature. It has been thought that the reason for this situation may be due to the different sample groups of the studies. It was found that the anxious attachment scores of the participants who used alcohol were significantly higher. As a result of the study conducted by Ateşer (2014), it was found that insecure attachment style was significantly higher in people diagnosed with alcohol addiction. In this study, on the other hand, while the average scores of avoidant attachment of the participants did not differ, which is the sub-dimension of insecure attachment, the average anxious attachment scores of the participants differed significantly. Different findings are also found in the literature. Kocaoglu (2018) found in their study that alcohol/substance addicts have more apathetic attachment type. Besides, it has also been stated that indifferent attachment mediated the emergence of harmful habits, such as long-term alcohol and substance use (Finzi-Dottan et al., 2003). It has been found that the secure attachment scores of the inpatients in the ADATRC are significantly lower. The ADATRC provides outpatient and inpatient treatment. Inpatient treatment is mostly preferred in cases where outpatient treatment is not possible and the person harms themselves and their environment, and the person loses control over substance use. Karagul (2019) found that individuals with substance use disorder have more anxious, indecisive, and avoidant attachment styles than individuals without substance use disorder at the end of their study, which examined the differences between the attachment styles of individuals with and without substance use disorder hospitalized in the ADATRC. In a study conducted by Thorberg and Lyvers (2010) with inpatients in an alcohol and substance rehabilitation center, it was found that the highest scores of individuals who received alcohol and substance addiction treatment had an anxiety level. In another study, the prevalence of substance use was reported to be higher in individuals with an insecure attachment style compared to an individual with a secure attachment style (Caspers et al., 2005). In the study conducted by Comert and Ogel (2014), it is stated that people with indifferent or obsessive attachment styles showed significantly higher levels of substance abuse/addiction compared to those with a secure attachment style. In some studies, it has been found that people with substance use disorder have a lower level of secure and obsessive attachment style, compared to others, and higher levels of fearful and indifferent attachment (Aydogdu, 2013).

Considering the studies showing that substance users have an insecure attachment style and those who receive inpatient treatment in the ADATRC have a severe substance addiction, it is not shocking that the average score for secure attachment style is low. Findings obtained in this study were discussed in light of the literature. The following results were obtained from the study:

1. The ages of the participants to start smoking, alcohol, and drug or stimulant substance use are related.
2. Participants receiving inpatient treatment in the ADATRC use a less secure attachment.
3. Attachment styles of the participants according to smoking status do not differ.
4. Participants consuming alcohol use anxious attachment more.

Ethics Committee Approval: Ethics Committee permission for the research and legal permissions for the application has been obtained from the Çağ University (936-26.04.2019).

Informed Consent: Written informed consent was obtained from the participants.

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