

Attachment styles, personalities, trait anger and anger expression styles of prisoners with and without illegal substance abuse, the Cyprus example

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Abstract

This study investigates the attachment styles, personalities, trait anger and anger expression styles of prisoners with and without substance use disorder. The study was performed at the blinded of Turkish Republic of Northern Cyprus between 20 March and 20 July 2018. The study sample consisted of 72 subjects between the ages of 18 and 65 who were in prison due to substance use disorder and 59 subjects at the same age group who were in prison for reasons other than substance use. The data was collected by using the Personal Information Form created by the researchers, the Experiences in Close Relationship Scale, the Big Five Inventory, and the Trait Anger and Anger Expression Style Scale. No significant difference was found between the prisoners with or without substance use disorder in terms of personality traits, the trait anger level, and anger expression styles. Regarding the attachment styles, the anxious attachment scores of the prisoners with substance use were found to be higher than the non-users. Being male, living with parents, death of a parent, and anxious attachment were found to be risk factors for substance use disorder in this study. There is an obvious need for drug treatment programs in prison. These factors should be considered when planning prevention and treatment approaches.

Keywords: prisone, substance use, attachment styles, personality, anger

Main points

- In the study, the majority of inmates who used substances were men, young adults, and those with low levels of education; in contrast, there were more women and individuals with high levels of education among inmates who did not use substances.
- Among the factors influencing substance use, gender, living environment and parental status play a significant role.
- No significant differences were found between inmates who use substances and those who do not in terms of personality, attachment styles, and expressions of anger; however, individuals who use substances exhibit higher levels of anxious attachment.

Introduction

Substance and alcohol use has been increasing and has become a priority issue affecting society as a health problem in recent years. It is quite common to encounter prisoners who have been convicted of drug offenses and have substance use problems in many prisons around the world (European Monitoring Centre for Drugs and Drug Addiction [EMCDDA], 2019; Fazel et al., 2017)

There is similarly an increase in the number of prisoners with substance use problems in Cyprus. According to official

government statistics covering the years 2017 to 2019, the total number of persons convicted of drug offenses (for crimes such as drug use, sale, possession, and production) within these three years was found to be 671. The total number of persons benefiting from the probation law until 31 December 2019 was seen to be 391 (Karaokçu et al., 2019).

Investigation of psychosocial risk factors in individuals with substance use problems in prison is very important in terms of prevention studies. Negative experiences in the developmental period of the convicted individuals are

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reported to affect the crime rate and substance use (Henry, 2020). Individuals with insecure attachment styles are found to have a higher risk of substance use compared to individuals with secure attachment (Davidson & Ireland, 2009; Karimi et al., 2019; Morsünbül, 2009). Additionally, studies have shown that many prisoners with a history of various crimes have an insecure attachment style (Gori et al., 2017; Miller & Klockner, 2019).

In addition to attachment styles, some personality traits also play a role as important risk factors in the onset, development, and continuation of substance addiction (Shahini et al., 2021). Personality traits such as excitement-seeking behavior, impulsive behavior, and lack of anger control are reported to be risk factors in terms of substance use (Ögel et al., 2015). When then personality traits of prisoners are examined, it is expected that traits such as impulsive behavior and low levels of conformance will be at the forefront (Eriksson et al., 2017). Indeed, personality evaluation in prisoners who use drugs has revealed personalities with high rates of extroverted, antisocial features, and sensation-seeking behavior, together with low levels of conformance (Eriksson et al., 2017; Shimotsukasa et al., 2019).

Anger is reported to be a factor that needs to be evaluated when dealing with substance use (Ekinci et al., 2016). Individuals with substance use have been reported to experience anger more commonly and more intensely than those without substance use in relevant studies (Ayhan et al., 2020; Laitano et al., 2022). The situation is similar in the case of prisoners with substance use. These persons are more likely to show angry behaviors such as rule breaking and fighting while incarcerated, compared to prisoners without mental illness (Blevins & Soderstrom, 2015). There is a limited number of studies reporting a relationship between anger and socio-demographic characteristics, attachment, and personality in prisoners with and without substance use. Some studies have attempted to identify the prevalence of substance use and risk factors in Turkish Republic of Northern Cyprus (Çakıcı et al., 2014, 2017). We believe that this study conducted in Turkish Republic of Northern Cyprus will contribute to the relevant literature and aid experts working in the field and educators in the development of strategies to prevent criminal behavior and substance use.

The aim of the study is to determine the attachment styles, personality traits, trait anger, and anger expression styles of prisoners who use and do not use substances, and to examine the relationship between them.

Method

Study Model

In this research, a relational survey model was used to determine the attachment styles, personality traits, trait anger, and anger expression styles of prisoners with and without substance use disorder, and to examine the relationship between them.

Population and Sample of the Study

A total of 72 subjects aged 18–65 years who were convicted for drug-related crimes (such as drug use, sale, possession, and production) in the Central Prison of the Turkish Republic of Northern Cyprus and who voluntarily agreed to participate in the study formed the study group, while 59 subjects without substance use formed the control group, with data collection conducted between 20 March and 20 July 2018. Prisoners of all ages, genders, and economic status were included in the study, and the control group was matched with the study group in terms of age ($X^2 = 3.73$ $p = 0.15$), gender ($X^2 = 6.036$ $p = 0.23$), and economic status ($X^2 = 3.85$ $p = 0.14$).

Data Collection Tools

The Personal Information Form, Big Five Inventory (BFI), Experiences in Close Relationship Scale (ECR), and the Trait Anger and Anger Expression Inventory (STAXI) were used to collect data in this study.

Personal Information Form

The form was created by the researchers in order to obtain the socio-demographic characteristics that are thought to have an effect on substance use such as age, gender, and educational status.

Big Five Inventory (BFI)

The scale developed in 1991 by John, Donahue, and Kentle to identify personality traits consists of 44 questions of the five-point Likert-type scale. The scale includes five subscales consisting of Extroversion (question 1, 6R, 11, 16, 21R, 26, 31R, 36), Compatibility (2R, 7, 12R, 17, 22, 27R, 32, 37R, 42), Self-discipline (3, 8R, 13, 18R, 23R, 28, 33, 38, 43R), Neuroticism (4, 9R, 14, 19, 24R, 29, 34R, 39), and Openness to development (5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44). The Turkish adaptation of the scale was conducted by Sümer and Sümer (2005) and the Cronbach Alpha reliability coefficient of the Big Five Inventory was found to be .79, .77, .76, .70, and .78 for the "neuroticism", "extroversion", "openness to development", "compatibility" and "self-discipline" factors, respectively, at the end of the study (Sümer & Sümer, 2005). The Cronbach alpha coefficient value was found to be 0.794, and the factors of "neuroticism," "extraversion," "openness to development," "compatibility," and "self-discipline" were determined to be .371, .482, .606, .420, and .531, respectively.

The Experiences in Close Relationships Scale (ECR)

The scale was developed in 1998 by Brennan, Clark ve Shaver to measure two basic dimensions of adult attachment behaviors in close relationships: anxiety and avoidance (Brennan et al., 1998). The scale consists of 36 items in total, including 18 to measure the anxiety dimension and 18 to measure the avoidance dimension, and is a 7-point Likert-type scale. A score below the mean score in both dimensions of the scale indicates secure attachment. The scale measures anxiety

and avoidance scores, and the subjects are divided into four attachment style types as disorganized (high anxiety and high avoidance), anxious (high anxiety and low avoidance), avoidant (low anxiety and high avoidance), and secure (low anxiety and low avoidance), according to the result. The adaptation study regarding the reliability and validity in a Turkish sample was conducted by Sümer (2006). The anxiety dimension reliability was found to be .86, and the avoidance dimension reliability was found to be .90 in the study where the factor structure and reliability were investigated (Sümer, 2006). In this study, the anxiety dimension was found to be $\alpha=0.843$, the avoidance dimension to be $\alpha=0.731$, and the Cronbach's alpha coefficient was at the level of 0.842.

State- Trait Anger Expression Inventory (STAXI)

The Turkish adaptation of the scale that was developed by Spielberger was conducted by Özer (1994). STAXI consists of 34 items and includes items for Trait Anger (10 items) and Anger Expression Style (24 items). The Anger Expression Style section also has three subscales: Anger Control (anger/control, 8 items), Anger Out (anger/outside, 8 items), and Anger In (anger/inside, 8 items). The scale has a Likert-type score varying between 1 and 4 for each item. The reliability coefficients of anger/outside, anger/inside, and anger/control were found to be $\alpha=0.78$, 0.62, and 0.84, respectively (Özer, 1994). In this study, the Cronbach's alpha coefficient for the trait anger scale was found to be 0.831, while the reliability coefficients of the subscales were as follows: anger outward $\alpha=0.813$, anger inward $\alpha=0.441$, and anger control $\alpha=0.810$.

Administration

Permission was taken from the relevant governmental authority of TRNC Ministry of Internal Affairs before starting to collect data from the blinded. Ethics Committee approval was obtained from the relevant institutional ethics committee (Approval No: YDÜ/SB/2019/368). The data collection tools were administered to the participants on a voluntary basis. The participants were informed about the scope of the study to be conducted and their consent for their participation in the study was obtained. The scales were ordered in a standard manner, starting with the Personal Information Form and continuing with BFI, ECR, and STAXI administration.

Analysis and Interpretation of the Data

The SPSS 25.0 software program was used to analyze the study data statistically. Frequency analysis results of the descriptive characteristics of the prisoners with or without substance use and the descriptive statistics of their BFI, ECR, and STAXI scores were given. Non-parametric tests were used in the comparison of the BFI, ECR, and STAXI scores based on the descriptive characteristics of the prisoners who use substances. The reason why nonparametric hypothesis tests are preferred is the fact that the scale scores were found not to show a normal distribution as a result of the Shapiro-Wilk test. When comparing the scale scores according to

the descriptive characteristics of prisoners with substance use, the independent variable was analyzed with the Mann-Whitney U test if it consisted of groups of two, and the Kruskal-Wallis test if it consisted of groups of three or more. Spearman correlation was used for the relationship between the BFI, ECR, and STAXI scores in subjects with substance use. Regression analysis was performed for the effect of BFI, ECR, and STAXI scores on the risk of substance use. Regression analysis was also conducted to identify the factors affecting substance use. The Kruskal-Wallis test was used to compare the BFI, ECR, and STAXI scores of the prisoners with and without substance use.

Results

The Descriptive Characteristics of the Prisoners

5.60% ($n=59$) of the prisoners included in the study with substance use were female, 30.56% were aged 25 or less, 37.50% were aged 26-35, and 31.94% were aged 36 or more; 55.60% were primary school graduates and 34.70% high school graduates while 9.70% had a bachelor's degree; 61.11% were single, 25% were married, and 13.89% were divorced. We found that 20.83% had been living alone, 18.06% with their spouse or partner, 43.06% with their parents, and 18.05% with a friend or relative. The parents of 59.72% were married, 20.83% were divorced, and 19.45% had died. 94.12% of the substance use group was found to use weed, 54.90% cannabis, 60.78% cocaine, 56.86% ecstasy, and 15.69% a volatile substance.

As regards the prisoners included in the study without substance use ($n=59$), 15.30% were female, 40.65% were aged 25 or less, 22.03% were aged 26-35 years, and 37.29% were aged 36 or more; 50.85% were primary school graduates and 22.03% were high school graduates while 27.12% had a bachelor's degree; 54.24% were single, 30.51% were married, and 15.25% were divorced. We found that 22.03% had been living alone, 28.81% with their spouse or partner, 23.73% with their parents, and 25.43% with a friend or relative. The parents of 76.27% were married, 10.17% were divorced, and 13.56% had died.

Results of the Logistic Regression Analysis Regarding the Characteristics Affecting Substance Use (Table 1)

The results of the logistic regression analysis performed to identify the factors affecting substance use are given in Table 1. The Table reveals that the logistic regression model created to predict substance use is correct at a rate of 71.8%. The model created explains 23.5% of the changes in substance use. According to the Table, imprisoned male individuals included in the study were 12.26 times more likely to use substances than female individuals. Individuals living with their parents are 4.74 times more likely to use substances than individuals living alone, and individuals whose parents (one or both) have died are 3.96 times more likely to use substances than individuals whose parents are married.

Table 1. Results of logistic regression regarding the characteristics affecting substance use

	B	S.H.	Wald	sd	p	Exp(B)	95.0% CI	
							Lower	Upper
Gender (Female)	2.51	0.75	11.10	1.00	0.001*	12.26	2.81	53.56
Age	0.03	0.03	1.09	1.00	0.297	1.03	0.98	1.09
Educational status (Primary school)			6.49	2.00	0.039			
Educational status (High school)	0.90	0.51	3.09	1.00	0.079	2.47	0.90	6.77
Educational status (University)	-0.76	0.61	1.54	1.00	0.214	0.47	0.14	1.55
Marital status (Single)			0.12	2.00	0.941			
Marital status (Married)	-0.22	0.77	0.08	1.00	0.777	0.80	0.18	3.66
Marital status (Divorced)	-0.19	0.69	0.07	1.00	0.785	0.83	0.21	3.23
Cohabitants (Alone)								
Cohabitants (Spouse/partner)	0.57	0.82	0.48	1.00	0.489	1.77	0.35	8.86
Cohabitants (Mother/ Father)	1.56	0.64	5.86	1.00	0.015*	4.74	1.34	16.72
Cohabitants (Friend/Relative)	0.26	0.64	0.17	1.00	0.680	1.30	0.37	4.56
Parents' marital status (Married)			6.17	2.00	0.046			
Parents' marital status (Divorced)	1.09	0.66	2.73	1.00	0.099	2.97	0.82	10.80
Parents' marital status (Dead)	1.38	0.65	4.53	1.00	0.033*	3.96	1.11	14.10

* $p < 0.05$.**Table 2.** The comparison of the big five inventory, inventory of experiences in close relationships, and the trait anger and anger expression style scale scores of the individuals with and without substance use

	Group	n	$\bar{X}$	s	M	SO	Z	p
Extroversion	Control	59	3.49	0.76	3.50	66.18	-0.049	0.961
	Substance use	72	3.46	0.80	3.56	65.85		
Conformance	Control	59	3.69	0.66	3.78	68.19	-0.600	0.548
	Substance use	72	3.64	0.66	3.67	64.20		
Self-Discipline	Control	59	3.63	0.81	3.56	64.45	-0.424	0.672
	Substance use	72	3.68	0.66	3.72	67.27		
Neuroticism	Control	59	2.73	0.85	2.63	64.73	-0.348	0.728
	Substance use	72	2.73	0.68	2.75	67.04		
Openness to development	Control	59	3.61	0.72	3.60	64.88	-0.306	0.760
	Substance use	72	3.65	0.71	3.70	66.92		
Anxious Attachment	Control	59	3.38	1.06	3.56	53.86	-3.313	0.001*
	Substance use	72	4.03	0.79	4.00	75.94		
Avoidant Attachment	Control	59	3.72	1.09	3.67	65.66	-0.093	0.926
	Substance use	72	3.75	1.17	3.58	66.28		
Trait Anger	Control	59	21.24	6.87	21.00	60.54	-1.492	0.136
	Substance use	72	22.49	6.11	22.50	70.47		
Anger-in	Control	59	17.95	4.57	17.00	66.03	-0.007	0.994
	Substance use	72	17.56	3.34	17.00	65.98		
Anger-out	Control	58	16.34	4.56	15.00	63.38	-0.578	0.563
	Substance use	72	16.63	4.52	16.00	67.21		
Anger Control	Control	59	22.44	4.84	23.00	70.15	-1.136	0.256
	Substance use	72	21.47	5.14	21.00	62.60		

* $p < 0.05$.

The Comparison of the BFI, ECR, and the STAXI Scores of the Individuals with and without Substance Use (Table 2)

The Kruskal-Wallis test results regarding the comparison of the BFI, ECR, and STAXI scores of the individuals with or without substance use are shown in Table 2. The Table reveals

no statistically significant difference between the BFI, ECR, and STAXI scores of the individuals with or without substance use ($p > 0.05$). While no difference was present between the scores obtained by the individuals with or without substance use from the Avoidance Attachment subdimension of ECR, the difference between the anxious attachment scores was found to be statistically significant ($p < 0.05$). The anxious

attachment scores of the individuals with substance use were significantly higher than those without substance use.

Discussion

Being male was found to constitute a risk for substance use disorder in this study (Table 1). Fazel et al. (2017) have emphasized in the meta-analysis of 24 different studies from 12 different countries that female prisoners had higher levels of substance use. On the other hand, there are also reports that substance addiction is more common among males, supporting the finding of the current study (Asan et al., 2015; Bilici et al., 2012; Çakıcı et al., 2014). Being male was found to be a risk factor for restarting substance use after being released from prison in another study (Chamberlain et al., 2019). The fact that being male is a risk factor for substance addiction can be explained from different perspectives. The culture's negative perception of women's use of other substances, including cigarettes and alcohol, may be a disincentive in terms of substance use, but it may also negatively affect seeking help due to the pressure and condemnation from society. Besides, women may be less prone to substance use as it may result in addiction and legal problems. Given that men are more prone to risk-taking and power-hungry behavior than women, they may be more likely to have a higher incidence of problem drinking and to turn to substances as part of their coping strategy (Koons-Witt & Crittenden, 2018).

We found in this study that approximately half of the participants were living with their parents, and that this factor created a risk for substance use (Table 1). Chamberlain et al. (2019) also reported in their study that living with family or friends was a risk factor for restarting substance use after being released from prison. Individuals continue to live with their parents until they get married in the Turkish Cypriot culture. From another point of view, it is possible that they are not able to work or somehow are unable to give up parental support due to their substance use disorder. This also emphasizes the importance of family-based care in reintegrating subjects with substance use disorder into society. While an ineffective parenting style is a protective factor in terms of substance use, it should be considered that overly critical and protective parenting also poses a risk (Choquet et al., 2008; Velleman et al., 2005). In relevant studies, parenting styles that are overly protective, critical, and authoritarian have been identified as risk factors for alcohol and substance use due to ineffective parenting skills. On the other hand, emotional bonds based on trust between parents and children, open and consistent communication, and supportive parenting skills, where responsibilities and boundaries are clearly defined, are cited as protective factors (Choquet et al., 2008; Nation & Heflinger, 2006; Van Ryzin et al., 2012; Velleman et al., 2005; Watts et al., 2024). This finding highlights the importance of family-based care in reintegrating individuals with substance use disorders into society. Considering that the family environment plays a significant role in the healthy growth and development of an individual, efforts should be focused on strengthening parenting skills for primary prevention and relapse prevention.

Death of a parent was found to constitute a risk for substance use in this study (Table 1). Another study supporting this result has emphasized that the loss of a parent in childhood has a traumatic effect and increases the risk of substance use (Atar et al., 2016). Yet another study investigating the prevalence of experiencing grief and loss in individuals with substance use has reported that most participants start this behavior because they believe that it will help them face the difficult and negative life events (for example, death of a special person, violence, parental addiction) and cope with them (Mergler et al., 2018; Otten et al., 2019).

While the levels of anxious attachment, which is a type of insecure attachment, of the prisoners with substance use were higher than in those without substance use, no difference was observed between the levels of avoidant attachment in the study (Table 2). Studies investigating the relationship between both substance use and substance use-related convictions and attachment are limited. There are studies showing a weak link between secure attachment and substance use (Branstetter et al., 2009). On the other hand, there are studies showing that the prevalence of substance use is higher in those with an insecure attachment style compared to those with a secure attachment style (Caspers et al., 2005; Cömert & Ögel, 2014; Van der Vorst et al., 2006). A similar study on 712 addicts has reported a high level of anxious attachment (Liese et al., 2020). Attachment style mediated substance use (especially alcohol use) as a coping motive to alleviate negative emotions (McNally et al., 2003).

In a study conducted with the participation of 212 university students in the USA, the relationship between adult attachment style and smoking, alcohol use, and marijuana use was examined. Insecure attachment, especially abandonment anxiety (anxious attachment), was found to be significantly associated with frequency of substance use and stress-induced substance use (Kassel et al., 2007). In the study conducted by Cömert and Ögel (2014) on the relationship between attachment style and substance use, a relationship was found between anxious attachment and substance use, while no relationship was found between fearful attachment style and substance use. Insecure attachment and traumatic childhood experiences were reported to have an effect on committing crime and substance use in a study conducted on female prisoners with a history of substance use (Kreis et al., 2016). In a study examining the relationship between attachment style and criminal status, it was determined that the population consisting of prisoners showed a more insecure attachment style than the control group (Timmerman & Emmelkamp, 2006). In a study conducted with 2013 university students in Republic of Türkiye, it was determined that parents showing insufficient interest in their children and having negative attitudes and behaviors in general pose a risk for substance use in children (Görgün et al., 2010). It is thought that secure attachment is a protective factor for substance use (Danielsson et al., 2011) and insecure attachment may be a risk for substance use (Olsson et al., 2003). In addition, anxious attachment affects an individual's self-perception, self-esteem, emotional control and coping skills and may increase the likelihood of substance use for these reasons (Hankin et al.,

2005). The reason may be that those with anxious attachment turn to addictive behaviors and substance use to manage their anxiety. People with avoidant styles, on the other hand, may not experience such emotional distress as they develop a successful strategy to suppress their emotions, resulting in a lower addiction tendency (Liese et al., 2020).

No difference was found between the personality traits of prisoners with and without substance use in this study (Table 2). Certain studies emphasize no significant difference between the personality traits of prisoners convicted for different crimes, with mostly neurotic and psychotic personality traits dominating regardless of the crime (Eriksson et al., 2017; Međedović & Kujačić, 2017). The reason could be the fact that individuals convicted due to criminal behavior have personality traits that differ from other members of society, whether they use substances or not (Falk et al., 2017).

The final finding of this study is the lack of a significant difference between trait anger and anger expression styles in prisoners with or without substance use (Table 2). When studies on prisoners are reviewed, the trait anger levels of those with substance use are found to be higher than those of other prisoners (Çivgin, 2015; Eriksson et al., 2021). On the other hand, there are also studies revealing no significant difference between the anger levels of prisoners convicted for various crimes (Unver et al., 2013). Given that anger is a common emotional response to being imprisoned (Falk et al., 2017), it is likely to be observed at high levels in incarcerated individuals, regardless of the type of crime. However, it is important to acknowledge that the internal consistency of the Anger-In subscale was relatively low in this study (Cronbach's $\alpha = 0.441$). This may have limited the reliability of the findings related to inward anger expression.

Conclusion and Recommendations

Being male, living with parents, and the death of a parent were risk factors for substance use in this study. When individuals with and without substance use were compared in terms of attachment, individuals with substance use showed higher levels of anxious attachment compared to non-users. The personality traits, trait anger, and anger expression styles of individuals were similar in subjects with and without substance use. One limitation of this study is the relatively small sample size ($n=72$ in the substance use group and $n=59$ in the control group), which may have limited the statistical power and the generalizability of the findings.

Substance use poses a serious risk both for public health and for repeat crimes. There is a need for drug treatment programs in prisons. From this point of view, the period that the prisoners are imprisoned provides an important opportunity to evaluate and take precautions in terms of intervening in substance use and the cycle of crime. Based on these findings, and regardless of the type of crime committed, it is important to develop and implement interventions that target personality traits, secure attachment, and anger control in particular. Additionally, the necessary educational support should be provided to the

families, the individual should be evaluated together with their family in substance use prevention programs, education should be provided on the effect of parental attitudes on substance use, and effective parenting skills should be encouraged.

Author contributions

Conception of the study: G.S.R., G.Y.; Study design: G.S.R., E.T.Ç.; Data acquisition: E.T.Ç.; Data analysis: G.S.R., E.T.Ç.; Data interpretation: G.S.R., G.Y.; Drafting of the manuscript: G.S.R., E.T.Ç., G.Y.; Critical revision of the manuscript: G.S.R., E.T.Ç., G.Y. All authors reviewed the results, approved the final version of the manuscript, and agreed to be accountable for all aspects of this study.

Ethical approval

This study was approved by the YDÜ/SB (Date: 2019, Decision/Protocol No: 368). Informed consent was obtained from all participants involved in this study.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflict of interest

The authors declare that this study was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Generative AI statement

The authors declare that no generative AI or AI-assisted technologies were used in the writing or preparation of this study.

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