

The Examination of The Relationship Between 5-Factor Personality Traits and Social Anxiety Among Individuals With Alcohol and Substance Use Disorders

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ABSTRACT

The five-factor personality, which includes the dimensions of neuroticism, extraversion, openness, agreeableness and conscientiousness, serves as a comprehensive framework for understanding how personality influences behavior and emotional regulation. The present study aims to determine the correlation between 5-factor personality traits and social anxiety in individuals diagnosed with alcohol and substance use disorder in Eastern Turkey, a non-Western, Islamic society, using a descriptive cross-sectional design. This study was conducted with 172 individuals with substance use disorders who were treated at the SBU Van Training and Research Hospital Alcohol and Substance Addiction Treatment Centre between July and September 2023. Participants completed the Big Five Inventory-Short Form and the Liebowitz Social Anxiety Scale. A linear regression model is used to test a predictive effect of the five-factor personality on social anxiety. Most participants were male, of adolescent age and all participants exhibited social anxiety. There was a weak negative correlation between the five-factor personality traits such as extraversion ($r: -.205, p=.007$), agreeableness ($r: -.162, p=.034$), conscientiousness ($r: -.164, p=.031$) and the Liebowitz Social Anxiety Scale anxiety subscale. In addition, there was a weak negative correlation between the the Liebowitz Social Anxiety Scale total score and extraversion ($r: -.179, p=.019$), while there was a weak positive correlation between neuroticism and the Liebowitz Social Anxiety Scale total score ($r: .289, p<.001$). The multiple regression model revealed that neuroticism was a significant predictor of social anxiety. These results suggest that personality traits, particularly neuroticism, may play an important role in social anxiety in individuals with substance use disorders.

Keywords: 5 Factor Personality Traits, Social Anxiety, Substance Use Disorders

Introduction

Substance use disorders (SUDs) are a major health problem that leads to physical and mental health problems. Substance use disorders (SUDs) are a major public health challenge worldwide, with prevalence rates varying by region and population group. According to the "World Drug Report 2021," the global prevalence of drug use is on the rise. Around 275 million people are reported to have used drugs at least once in the past year, an increase of 22% since 2010. This trend is particularly worrying among young people, as early initiation into drug use can lead to long-term

dependence and associated health problems (1). In Turkey, the rate of substance use is constantly increasing. According to data from the Institute for Health Metrics and Evaluation (IHME), 1.54% of the population in Turkey used drugs in 2017. According to Turkish drug reports, methamphetamine was the most used substance at 37.1%, followed by heroin (28%) and cannabis (11.2%) (3). Especially in Turkey, in Van, the city in the eastern Anatolian region of Turkey, where a considerable number of Kurds live, drug use is the highest among the other cities in Turkey (3).

Significant progress has been made in identifying the individual and environmental factors that

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contribute to substance addiction (4). Among these factors, personality traits can play an important role in substance use disorders (5). In particular, self-derogation theory views substance use as the result of a personality defect or inadequacy. In contrast, problem behaviour theory assumes that drug use is merely a symptom of a problematic pattern of behaviour that causes individual difficulties (6). The relationship between personality traits, particularly those of the Five Factor Model (FFM), and social anxiety in individuals with alcohol and substance use disorders is an important area of study in psychological research. The FFM, which includes the dimensions of neuroticism, extraversion, openness, agreeableness and conscientiousness, serves as a comprehensive framework for understanding how personality influences behaviour and emotional regulation. Individuals with high levels of neuroticism often show increased susceptibility to anxiety disorders, including social anxiety, which can exacerbate their tendency to use substances as a maladaptive coping mechanism (7). The five-factor model of personality assumes that personality is made up of five dimensions, namely openness, conscientiousness, extraversion, agreeableness and neuroticism (6). Openness is a personality dimension that distinguishes creative and dreamy individuals from those who view the world superficially and from those who adhere to stereotypical norms (8). Conscientiousness is defined as a person's tendency to show a high degree of thoughtfulness, good impulse control and goal-directed behaviour, as well as general intelligence and reliability (9). Extraversion generally refers to individuals who are highly social, enjoy being with people, are enthusiastic and action orientated. Agreeableness generally refers to people who are thoughtful, friendly and willing to compromise. Finally, neuroticism refers to the tendency to experience negative, distressing emotions and to exhibit associated behaviours and cognitive traits (8). It has also been shown that personality plays an important role in whether or not a person experiences social anxiety. People with neurotic traits tend to be anxious, fearful, distressed and agitated. It has been observed that such individuals are more prone to social anxiety (10).

Social anxiety is a widespread form of anxiety disorder. Social anxiety disorder is characterised by the experience of anxiety or fear in situations in which the affected person could be exposed to scrutiny, evaluation or judgement by others. These

situations include speaking in public, meeting new people, going on dates, attending a job interview, answering a question in class or talking to a cashier in a shop. Even routine activities such as eating or drinking in the presence of others or using a public toilet can trigger anxiety because you fear being humiliated, criticised or rejected (11).

A study conducted in the United Kingdom on the relationship between personality traits and illicit drug use in young people aged 16 to 21 found that individuals with the personality traits neuroticism, openness and extraversion were positively associated with illicit drug use, while individuals with the personality traits conscientiousness and agreeableness were negatively associated with substance use (6). In another study conducted in the United States on the association between the five-factor personality traits and social anxiety, it was found that there was a positive association with the neurotic personality trait, a negative association with extraversion, and a weaker association with agreeableness and openness (12). Finally, a study conducted in Nigeria found that individuals who consume alcohol have higher levels of extraversion, while people who do not consume alcohol have significantly lower levels of agreeableness (13).

Current Study: In reviewing the literature, it was noted that the relationship between the 5-factor personality traits and social anxiety has been studied in individuals with SUD. However, studies investigating the relationship between the 5-factor personality traits and social anxiety in individuals with substance use disorders have been found to be insufficient, especially in Eastern Turkey. The aim of this study was to investigate the relationship between 5-factor personality traits and social anxiety in individuals with substance use disorders. It is believed that this study has the potential to make a significant contribution to the existing literature by demonstrating the intricate relationships between personality traits, social anxiety and addictive behaviour. By integrating findings from various disciplines, including psychology, psychiatry and addiction research, the study contributes to a better understanding of the multifaceted nature of addiction and emphasises the importance of considering individual differences in the development and treatment of substance use disorders. By addressing underlying psychological factors such as social anxiety and adverse coping mechanisms, it is possible to introduce tailored prevention and treatment programmes to support individuals struggling with SUD.

To this end, this study sought to answer four research questions:

Q1: What are the levels of social anxiety in individuals with SUDs?

Q2: What are the personality traits of individuals with SUDs?

Q3: Is there a relationship between personality traits and social anxiety in individuals with SUDs?

Q4: Do personality traits affect the social anxiety in individuals with SUDs?

Materials and Methods

Study design and sample collection: A cross-sectional study was conducted at the SBU Van Training and Research Hospital in the department of the Alcohol and Drug Abuse Treatment and Research Centre (ASATC) in the province of Van between July and September 2023. The study sample consisted of 172 participants who were admitted to the ASATC and met the inclusion criteria, using purposive sampling. The inclusion criteria included: (a) being at least 18 years of age, (b) being in treatment at the Alcohol and Drug Abuse Treatment and Research Centre at the time of data collection, and (d) having no communication difficulties and consenting to participate in the study. The exclusion criteria for the study sample were as follows: (a) they were under 18 years of age and (b) they were mentally retarded. Given the challenges associated with engaging individuals with SUDs, who represent a vulnerable population, and considering that the study focused on those undergoing treatment, all individuals who volunteered and met the inclusion criteria were incorporated into the study. The required sample size was estimated using G*Power. Prior to data collection, a preliminary analysis was conducted to determine the minimum required sample size for linear multiple regression. The given input metrics for a medium effect size of Cohen's $d = 0.15$, with a significance level of $p = 0.05$ and a statistical power of 95%, suggest that a sample size of 138 would be appropriate. A post-hoc power analysis yielded an effect size of 99% with a medium effect size of Cohen's $d = 0.15$, a significance level of $p = 0.05$, a total sample size of $N = 172$ and two predictors. These values show that our sample size ($n=172$) is sufficient for this study.

Measures: The data was collected using a socio-demographic form, the Big Five Inventory-Short Form, and the Liebowitz Social Anxiety Scale.

Socio-demographic form, prepared by the researchers in line with the literature, including questions such as the patient's gender, age, marital status, number of siblings, number of children, living environment, type and frequency of substance used.

Big Five Inventory-Short Form is a 10-item five-factor personality scale developed by Rammstedt and John in 2007 (14) which consists of five sub-dimensions that define personality in the most comprehensive way and has two items for each sub-dimension. The results of the explanatory and confirmatory factor analysis, evidence of construct validity, and findings on the reliability of the scale indicate that the scale is a dependable measuring instrument in Turkish culture (15). In this study the Cronbach's alpha value was found to be .64.

Liebowitz Social Anxiety Scale (LSAS) was originally developed by Liebowitz in 1987 to assess the social interactions and performance scenarios in which clients exhibit fear-anxiety and/or avoidance behavior (16). The Turkish conformation of the reference was established by Tükel et al. in 1998, and its accuracy and consistency were assessed by Dilbaz and Guz in 2001 (17,18). The assessment has 24 items suitable for both adolescents and adults, divided into two sub-dimensions: social interactions (11 items) and performance (13 items). The questions comprise a 4-point Likert scale, spanning from 1 to 4, which assesses the intensity of the person's anxiety and avoidance throughout the last week. The aggregate score is derived by adding together the ratings for fear and avoidance. The scores allocated to these questions are evaluated in the following manner: 55-65 indicated moderate, 65-80 indicated pronounced, 80-95 indicated severe, and 95+ indicated very severe. The lowest attainable score on the scale is 48, and the highest score falls between 39 and 192. The validity and reliability assessment of the scale revealed a Cronbach's alpha coefficient of .96 (18). In this study the Cronbach's alpha value was found to be .94.

Procedure: The data were collected from July 2023 to September 2023 at the SBÜ Van Training and Research Hospital Alcohol and Substance Addiction Treatment Centre (ASATC). This study was ethically and institutionally approved by the ethics committee of the researcher's institute (15/02/2023;2023/04-06). Prior to data collection, participants were informed about the study and their consent to participate was obtained. After being informed about the methods of the study, all participants signed a written informed consent form. They were also explicitly

informed that their answers would be treated confidentially and that the survey would take thirty minutes. Participants were explicitly informed that their participation in the study was completely voluntary and they were instructed to give open and honest answers. This was done at the same time as the questionnaire was distributed to the participants. The researchers strictly adhered to the ethical standards set out in the Declaration of Helsinki.

Statistical Analysis: IBM SPSS 28.0 (Statistical Package for the Social Sciences) package program was used to analyze the data. In order to evaluate the features of the sample and the main elements, descriptive statistics (number, percentage, mean and standard deviation) were applied. For normality assumptions, Shapiro-Wilk and Kolmogorov-Smirnov tests were examined. The Pearson correlation was applied to assess the relationship between the variables. Multiple regressions analysis was conducted to examine the extent to which personality traits are associated with social anxiety. Level of significance was set at $p < 0.05$.

Results

The socio-demographic characteristics of the participants was given in the Table 1. Accordingly, 25.6% (n=44) of the participants were under 20 years of age, 24.4% (n=42) were between 21-30 years of age. The majority of participants 99.4% (n=171) were male. A total of 59.3% (n=102) of participants resided in cities, 65.7% (n=113) of the participants were married, and 61.0% (n=105) lived with their wives and children. Moreover, 50.6% (n=87) of the participants had completed primary school and most participants had incomes less than their expenses (66.3%, n=114).

Participants' clinical characteristics was given Table 2. 34.9% (n=60) of the participants had used more than one substance and the most used substance among participants was heroin, accounting for 51.7% (n=89) of reported cases, followed by cannabis (23.3%, n=40) and opium gum (14%, n=24).

The level of 5 factor personality traits and social anxiety among participants was given in the Table 3. Consequently, the agreeableness which of trait of the 5-factor personality was 8.05 ± 1.78 , while the extraversion was 6.20 ± 2.40 . The conscientiousness was 7.31 ± 1.98 , the neuroticism was 5.93 ± 2.32 , and the openness was 6.09 ± 2.09 . Finally, social anxiety was found to be 88.93 ± 25.01 among the participants.

Table 4, below shows the severity of social anxiety of participants. The severity of social anxiety of participants categorizing into different levels ranging from mild to extreme. Accordingly, the majority of individuals in the sample experience social anxiety at the extreme level, with 34.3% (n=59) falling into this category. This is followed by those at the severe level (26.2%, n=45), obvious level (21.5%, n=37), moderate level (13.4%, n=23), and mild level (4.7%, n=8).

The correlation between the five personality traits and social anxiety was given in the Table 5. Consequently, there was a weak negative correlation between the five factors personality traits such as extraversion ($r: -.205, p=.007$), agreeableness ($r: -.162, p=.034$), Conscientiousness ($r: -.164, p=.031$) and the Liebowitz Social Anxiety Scale (LSAS) anxiety subscale. It was also found that there was a positive correlation between neuroticism and the Liebowitz Social Anxiety Scale (LSAS) anxiety subscale ($r: .294, p<.001$). Moreover, there was a weak negative correlation between LSAS total score and extraversion ($r: -.179, p=.019$) while there was a weak positive correlation neuroticism and LSAS total score ($r: .289, p<.001$).

A multiple regression was conducted to see if 5 factor personality traits predicted the total value of social anxiety (see in Table 6). Using the enter method it was found that extraversion and neuroticism level explain a significant amount of the variance in the value of social anxiety ($F(2,169) = 8.212; p < .001; R^2_{adj} = 0.078$). The analysis shows that extraversion personality traits did not significantly predict the level of social anxiety ($\beta = -.07, t(172) = -.946, ns$), however neuroticism did significantly predict the level of social anxiety ($\beta = .25, t(172) = 3.23, p = .001$).

Discussion

The current study aimed to provide insight into the relation between 5-Factor personality traits and social anxiety among individual with substance use disorders conducted with 172 participants. The majority of participants were male (99.4%) were men and half of the participants have primary school graduate. In similar studies that were conducted in different countries revealed the same sociodemographic characteristic of substance addicted individuals that participated in those studies (6, 19, 20). However, the socio-demographic findings of our study are comparable to those of previous studies, yet they diverge significantly from those of other

Table 1: Socio-Demographic Characteristic of Participants (N:172)

Variables	N	%
Age		
Under 20	44	25.6
21-30	42	24.4
31-40	34	19.8
41-50	37	21.5
51-60	11	6.4
61 and above	4	2.3
Gender		
Male	171	99.4
Female	1	0.6
Place of residence		
City	102	59.3
District	54	31.4
Village	16	9.3
Marital status		
Married	113	65.7
Single	59	34.3
Living with whom		
Alone	14	8.1
With parents	46	26.7
With spouse	4	2.3
With spouse and children	105	61.0
Other	3	1.7
Educational status		
Literate	20	11.6
Primary school	87	50.6
High school	53	30.8
University	12	7.0
Employee status		
Employee	63	36.6
Unemployed due to substance use	12	7.0
Unemployed	97	56.4
Income status		
Income less than expenses	114	66.3
Income equal to expenses	51	29.7
Income more than expenses	7	4.1

studies, particularly in regard to gender. This discrepancy can be attributed to the socio-cultural characteristics of the Kurdish nationality, which is predominantly male and exhibits a stigma towards female gender in matters of substance use. According to the Turkish Drug Report (2023), 92.3% of the people who apply to the ASATC were men. Consistent with the literature, it revealed that the cultural side of the fact that men

are more likely to apply to ASATC in Turkey (3). In addition, SUD, which is the disorder that is subject to more stigma among mental disorders, may be more stigmatized against women, which suggests that it may prevent the search for treatment (20). It was also found that the most used substance among participants were heroin. According to the Turkish Drug Report (2023), people with opioid use disorders are the most

Table 2: Clinical characteristic of participants (N:172)

Alcohol use		
Yes	27	15.7
No	145	84.3
Cigarette use		
Yes	158	91.9
No	14	8.1
Use of more than one drug at the same time		
Yes	60	34.9
No	108	62.8
Most used Substance		
Cannabis	40	23.3
Heroin	89	51.7
Opium gum	24	14
Synthetic Cannabinoid	2	1.2
Ecstasy	2	1.2
Methamphetamine	7	4.1
Rivotril etc. drugs	2	1.2
Not specify	6	3.5
Age of first use of the substance		
20 and under	82	47.7
21-30	59	34.3
31-40	22	12.8
41-50	9	5.2
First way to supply the substance		
Through family Members/relatives	21	12.2
Through friends	129	75.0
Through partners	6	3.5
By purchasing	5	2.9
Through strangers	9	5.2
Reason for starting substance use		
Curiosity	72	41.9
Emulation	25	14.5
Friend's Insistence	50	29.1
Personal Problems	13	7.6
Domestic Problems	2	1.2
Fun/Enjoyment	6	3.5
Attempting to quit using substance in the last 5 years		
Yes	168	97.7
No	3	1.7
History of substance use in the family-relatives		
Mother	2	1.2
Father	2	1.2
Sister/Brother/ Close relatives	13	7.6
No use history in the family	41	23.8
Prison History	113	65.7
Yes	64	37.2
No	108	62.8

Table 3: The Five Factor Personality Traits and Social Anxiety Among Participants (N:172)

	Minimum	Maximum	Mean	Std. Deviation
The five factor personality traits				
Extraversion	2.00	10.00	6.20	2.40
Agreeableness	2.00	10.00	8.05	1.78
Conscientiousness	2.00	10.00	7.31	1.98
Neuroticism	2.00	10.00	5.93	2.32
Openness	2.00	10.00	6.09	2.09
Social Anxiety Scale (total)	48.00	159.00	88.93	25.01
Social avoidance	24.00	79.00	43.68	12.07
Social anxiety	24.00	88.00	45.25	14.24

Table 4: The Severity of Social Anxiety Among Participants (N:172)

Social Anxiety		
Levels of social anxiety	N	%
Mild	8	4.7
Moderate	23	13.4
Obvious level	45	26.2
Severe	37	21.5
Extreme	59	34.3
Total	172	100.0

Table 5: The correlation between the five personality traits and social anxiety

	1	2	3	4	5	6	7	8	
Extraversion	r	1	.245**	.298**	-.398**	.329**	-.205**	-.141	-.179*
Agreeableness	r		1	.218**	-.128	.176*	-.162*	-.113	-.142
Conscientiousness	r			1	-.259**	.343**	-.164*	-.095	-.134
Neuroticism	r				1	-.378**	.294**	.259**	.289**
Openness	r					1	-.070	-.022	-.047
LSAS /Anxiety	r						1	.805**	.941**
LSAS /Avoidance	r							1	.958**
LSAS Total	r								1

LSAS: Liebowitz Social Anxiety Scale; r: Pearson Correlation Coefficients, *p<.05; **p<. 01

apply to ASATC. These findings showed that the rate of opioid use disorder seeking treatment is higher in Turkey (3).

The participants in our study indicated that agreeableness was the most prominent mean trait of the 5-factor model of personality, followed by conscientiousness, extraversion, openness, and finally, neuroticism. In a similar study that conducted among undergraduate substance abusers in Africa yielded similar results (13). Furthermore, in our study the participants also exhibited a high level of social anxiety, with a mean of 88.93 ± 25.01 , indicating significant distress and avoidance in social situations. Research have shown that substance addicted

individuals often exhibit high levels of social anxiety (22, 23, 24). Finally, in a study it was found that in the substance addicted individuals' neuroticism, openness, and extraversion are positively related to drug use whereas Agreeableness and Conscientiousness are negatively associated with it (6).

In our study, it was seen that a very weak negative correlation between extraversion and social anxiety. Moreover, a very weak negative correlation was observed between agreeableness and social anxiety, as well as between conscientiousness and social anxiety. Furthermore, a weak positive correlation was observed between neuroticism and social anxiety. Finally, no

Table 6: Linear Regression Coefficients of Extraversion and Neuroticism Traits To Social Anxiety

Model	Estimate	SE	95% CI		p	F	p
			LL	UL			
(Constant)	77.268	8.792	59.911	94.626	<.001		
Extraversion	-.788	.833	-2.433	.857	.346	8.212	<.001
Neuroticism	2.789	.862	1.089	4.490	.001		

R: .298; R²:.089; R²_{adj}: .078

Dependent Variable: Social Anxiety

correlation was observed between openness and social anxiety. Studies has shown that, a correlation has been identified between social anxiety and some traits of 5 factors personality among individuals with substance addicted individuals. It was also shown that individuals with social anxiety often exhibit higher levels of neuroticism and lower levels of extraversion, agreeableness, and conscientiousness (25). Furthermore, a meta-analysis of the associations between personality traits, including depressive, anxiety, and substance use, revealed that individuals with these problematic behaviors tend to score high on neuroticism, low on conscientiousness, and no tendency toward openness (26).

Consequently, the regression analysis revealed that, only neuroticism is a significant predictor of social anxiety among individuals with SUD. Neuroticism, characterized by heightened emotional instability and negative affectivity, has been consistently linked to anxiety disorders, including social anxiety. Studies indicate that neuroticism serves as a transdiagnostic risk factor for anxiety disorders, suggesting that individuals with higher neuroticism are more prone to experience anxiety symptoms, including social anxiety. Moreover, in another study that examined the association between fear of death, neuroticism, and anxiety, neuroticism was found to be positively correlated with anxiety. This finding is consistent with the current study's result that neuroticism plays a pivotal role in predicting social anxiety (26, 27) finally, neuroticism has been repeatedly identified as a significant predictor of social anxiety in a multitude of studies (28, 29).

Conclusion and Recommendation: The study highlighted the intricate relationship between 5-factor personality traits and social anxiety in individuals with alcohol and substance use disorders in eastern Turkey. The study highlights the central role of neuroticism as a predictor of social anxiety in this ethnic group, contributing to

a deeper understanding of the psychological factors underlying substance abuse and mental health. These findings have implications for the development of tailored interventions that take into account the personality profile of the individual to treat social anxiety and addiction simultaneously. This highlights the need for holistic approaches in treatment and support programmes for this vulnerable population. Further research in this area is warranted to improve the understanding of the complex interplay between personality traits, social anxiety and addiction.

Strengths and Limitations: The study is characterised by exemplary methodological rigour, a theoretical foundation in the five-factor model, a focus on individuals with substance use disorders in Eastern Turkey, a comprehensive assessment of social anxiety and a careful measurement of personality traits. By integrating these elements, the study provides a nuanced exploration of the complex interplay between personality traits, social anxiety and addictive behaviour and offers insights into the underlying dynamics of these phenomena.

It should be noted that the present study has several limitations. Firstly, it should be noted that this is a cross-sectional study. Therefore, the results cannot be generalised to the population dependent on alcohol and other substances. Secondly, the answers of the study participants were based on self-report, which may have led to socially desirable answers. This is considered another limitation of this study. This phenomenon of social desirability could be related to the widespread stigmatisation that exists among the Kurdish population in this region towards individuals who are addicted to drugs.

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