

PERSONALITY TRAITS AND PSYCHOPATHOLOGICAL SYMPTOMS IN ADULTS WITH SUBSTANCE USE DISORDERS

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Abstract

This study aimed to characterize the personality traits of individuals with substance use disorders to verify the association and predictive value of personality traits for psychopathological symptoms and impulsivity. The participants were 77 adults undergoing treatment at a psychosocial care center for alcohol and drug, who completed a sociodemographic and clinical data questionnaire, the NEO Five-Factor Inventory, the Adult Self-Report (ASR), and the Barratt Impulsiveness Scale (BIS-11). Most participants presented very low/low scores on extroversion and openness factors. The five personality factors revealed significant associations with most ASR subscales and BIS-11. High rates of neuroticism and low levels of extraversion, agreeableness, and conscientiousness are related to a greater occurrence of symptoms of anxiety, depression, attention, problems of thought and social isolation, somatic complaints, aggressive behavior, and impulsivity. According to the regression models, conscientiousness and neuroticism factors were more significant for symptoms related to anxiety/depression, thought problems, and rule-breaking behavior.

KEY WORDS: *personality traits, substance-related disorders, impulsive behavior.*

Resumen

Este estudio buscó caracterizar los rasgos de personalidad de individuos con trastornos por consumo de sustancias, medir la asociación y el valor predictivo de los rasgos de personalidad con los síntomas psicopatológicos y la impulsividad. Participaron 77 adultos de un centro de atención psicosocial para el tratamiento de alcohol y drogas, quienes completaron un cuestionario de datos sociodemográficos y clínicos, el "Inventario de cinco factores NEO", el "Autoinforme para adultos" (ASR) y la "Escala de impulsividad de Barratt" (BIS-11). La mayoría de los participantes obtuvieron puntuaciones muy bajas/bajas en extraversión y apertura. Los cinco factores de personalidad revelaron asociaciones significativas con la mayoría de las subescalas del ASR y la BIS-11. Altos niveles de neuroticismo y bajos niveles de extraversión, amabilidad y escrupulosidad se relacionan con una mayor

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ocurrencia de síntomas de ansiedad, depresión, atención, problemas de pensamiento y aislamiento social, quejas somáticas, comportamiento agresivo e impulsividad. Según los modelos de regresión, los factores de escrupulosidad y neuroticismo fueron más significativos para los síntomas relacionados con la ansiedad/depresión, problemas de pensamiento y comportamiento de incumplimiento de reglas.

PALABRAS CLAVE: *rasgos de personalidad, trastornos relacionados con sustancias, comportamiento impulsivo.*

Introduction

Recent data indicate that approximately 15 million people have some substance use disorder. In 2017, nearly 275 million individuals used some type of illicit drug and, among these, about 30 million with problematic use. The use of psychoactive substances can influence the development of psychiatric comorbidities such as depression, anxiety, and impulsive behaviors (Bosma-Bleeker & Blaauw, 2018; United Nations Office on Drugs and Crime, 2017).

Personality traits have been used to understand a series of psychopathologies possibly related to impulsivity and substance use disorder (Adan et al., 2017; Marquez-Arrico et al., 2019). The Big Five Personality model comprises personality as a hierarchical arrangement of five domains (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience), broadly recognized and applied in personality studies (Aday et al., 2021; McCrae & Sutin, 2018).

In addition to personality traits, studies show a relation between the history of substance use and the presence of risk and impulsive behaviors, a crucial role in many psychopathological conditions, such as mood disorders, personality disorders, and developmental disorders (Jakubczyk & Wojnar, 2018; Landa et al., 2005). Krieger et al. (2016), for example, identified that 55% of patients admitted for treatment due to substance use disorder were also diagnosed with personality disorder. Additionally, personality disorders and addictions are associated with an increased risk of committing crimes (Flórez et al., 2019). Impulsivity is a characteristic to consider in the course and development of substance use disorders and psychiatric complications (Joyner et al., 2021).

However, few studies have investigated personality traits and psychopathological symptoms in substance users (Martínez-Loredo et al., 2021), particularly in outpatient treatment with a different clinical profile from patients admitted to psychiatric units. The literature presents studies focusing on the treatment of inpatients (Soundararajan et al., 2017), the majority including patients undergoing involuntary treatment (García-Marchena et al., 2018). Thus, this study aimed to characterize personality traits of adults with substance use disorders, in order to verify the association between personality traits, psychopathological symptoms, and impulsivity in substance users in outpatient treatment, and to investigate the predictive value of personality traits for the manifestation of psychopathological symptoms and impulsivity.

Method

Participants

Participants was recruited for convenience and the sample consisted of 77 adults, in outpatient treatment for substance use disorder at a Psychosocial Care Center for Alcohol and Drugs (CAPS-Ad) in Southern Brazil. The age varied between 26 and 65 years. The mean age of participants was 46.75 years ($SD= 11.00$), with a minimum of 26 and a maximum of 65 years old. The education level average was 8.02 ($SD= 3.56$) years, ranging from one to 15 years. Among the individuals, 80% ($n= 62$) were men and 20% ($n= 15$) women, 42% ($n= 32$) were married, 38% ($n= 29$) single, and 20% ($n= 16$) divorced. Substance use: tobacco 76% ($n= 59$), alcohol 78% ($n= 60$), cannabis 35% ($n= 27$), cocaine/crack 56% ($n= 43$), amphetamine type stimulants 2% ($n= 1$), inhalants sedatives or sleeping pills 46% ($n= 36$), hallucinogens 6% ($n= 4$) and opioids 2% ($n= 1$).

Instruments

- a) *Ad hoc sociodemographic and clinical data questionnaire*. Applied to collect information regarding age, education, gender, professional status, and subjective perception of health. In addition, information on the clinical history of diseases, medications used, the most substance used, family history of substance use, and clinical care performed due to substance use was also collected.
- b) *NEO Five-Factor Inventory, short version* (NEO-FFI-R; Costa & McCrae, 2007). It provides a brief and comprehensive measure of the five personality factors (neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness). Sixty affirmative questions with 12 items for each personality factor must be answered on a 5-point Likert scale. Higher scores suggest greater intensity of the specific personality trait. Cronbach's alpha coefficients for the subscales ranged from .70 to .83.
- c) *Adult Self-Report* (ASR; Achenbach, 2009), adapted version by Silveiras et al. (2013). A scale for adults to report their own behavioral and adaptive functioning. Composed of 126 questions rated on a 3-point Likert scale (0 to 2 points for each item). The subscales used for this study were the syndromes scales (anxious/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior, rule-breaking behavior, and intrusive behavior). Higher scores suggest greater intensity of the clinical symptoms evaluated. Cronbach's alpha values of ASR subscales for the Brazilian version ranged from .70 to .86.
- d) *Barratt Impulsiveness Scale* (BIS-11; Patton et al., 1995), adapted version by Malloy-Diniz et al. (2010). This scale originally aims to assess the personality/behavioral construct of impulsiveness. Consisting of 30 items and answered on a 4-point Likert scale. Higher scores suggest greater intensity of impulsive symptoms. The Cronbach's alpha found was .85, and Wagner et al.

(2022) also found a reliability value equivalent to .823 in a clinical sample of adults with substance use disorder.

Procedure

This study was approved by the ethical research committee, recognized by the National Health Council (CNS) under the number CAAE 61569416.1.0000.5319. The consent form was read and signed by the participant and the researcher before the data collection, and a copy of the document was provided for the participant. The assessment of each participant was performed by a psychologist and a psychology undergraduate student, both rigorously trained for the administration, recording, and correction of the instruments. The data collection was performed individually in two meetings with an average duration of 60 minutes each, in well-lit rooms without distracting stimulation, providing privacy to participants.

Data analysis

Data were analyzed using SPSS statistical package v.23 for Windows. Descriptive analyses included mean, standard deviation, and percentage. Data distribution was verified by the Kolmogorov-Smirnov Test. Associations between personality factors and psychopathological symptoms were verified by Pearson correlation. The magnitude of the associations was based on the classification proposed by Cohen (1988): small ($\leq .299$), moderate (.300 - .499), and strong ($\geq .500$). The classification of NEO-FFI-R scores was based on normative reference data, according to the instrument manual. Multiple linear regression models (enter method) were conducted to verify the predictive value of personality factors (NEO-FFI-R) in the occurrence of psychopathological symptoms (ASR) and impulsivity (BIS-11). Only variables with associations of moderate or greater magnitude were included in the models. Significant results were considered if $p < .05$.

Results

Table 1 presents the descriptive values obtained from the instruments and Table 2 presents the classification of scores obtained in the NEO-FFI-R. Most of the participants reached an average rating in the factors Neuroticism, Agreeableness, and Conscientiousness. The scores were considered low or very low in Extroversion and Openness to Experience factors.

Correlation analyses are shown in Table 3. Neuroticism factor showed positive associations, moderate to strong, with all subscales of the ASR (except for the Intrusive Behavior subscale) and BIS-11. A similar result was observed in the Conscientiousness factor, although associations were negative. Extroversion and Agreeableness factors also showed negative associations with most of the subscales of ASR and BIS-11. However, a greater variation in magnitude between associations (small to strong) was found. The factor Openness to Experience presented the least number of associations, being negatively related to Withdraw (ASR), Somatic Complaints (ASR) and BIS-11.

Table 1
Descriptive values of the NEO-FFI-R, ASR and BIS-11 (n= 77)

Variables	<i>M</i>	<i>SD</i>	Minimum	Maximum
Neuroticism (NEO-FFI-R)	28.10	6.41	14	45
Extraversion (NEO-FFI-R)	25.40	5.91	8	35
Openness to experience (NEO-FFI-R)	27.18	5.30	17	39
Agreeableness (NEO-FFI-R)	29.27	5.70	13	39
Conscientiousness (NEO-FFI-R)	29.92	5.47	16	40
Anxiety/Depression (ASR)	15.70	8.63	2	34
Withdraw (ASR)	6.64	3.92	0	17
Somatic complaints (ASR)	6.92	5.03	0	23
Thought problems (ASR)	7.26	4.48	0	18
Attention problems (ASR)	11.36	5.60	0	24
Aggressive behavior (ASR)	9.73	5.73	0	23
Rule-breaking behavior (ASR)	5.84	4.66	0	24
Intrusive (ASR)	2.65	2.66	0	11
Impulsiveness (BIS-11)	69.21	12.89	43	100

Table 2
Classification of Scores Obtained in the NEO-FFI-R (n= 77)

Factors	Very low/Low		Average		Very high/High	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Neuroticism	10	13	34	44	33	43
Extraversion	40	52	34	44	3	4
Openness to experience	51	66	20	26	6	8
Agreeableness	34	44	35	46	8	10
Conscientiousness	31	40	35	46	11	14

Multiple regression models for each subscale of ASR and BIS-11 are shown in Table 4. The model with the highest explanatory indices refers to the subscales Anxiety/Depression (59%), Attention Problems (50%), Aggressive Behavior (50%), Thought Problems (47%), Withdraw (41%), BIS-11 (43%), Rule-Breaking Behavior (30%), and Somatic Complaints (21%). The factors with the greatest prediction for psychopathological symptoms and impulsivity, considering all models, were neuroticism and conscientiousness, and with less explanatory power was openness to experience.

Table 3
Pearson correlation between NEO-FFI-R, ASR, and BIS-11 (n= 77)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Neuroticism (NEO-FFI-R)	-												
2. Extraversion (NEO-FFI-R)	-.489***	-											
3. Openness to experience (NEO-FFI-R)	-.116	.287*	-										
4. Agreeableness (NEO-FFI-R)	-.262*	.158	.062	-									
5. Conscientiousness (NEO-FFI-R)	-.360***	.516***	.147	.358***	-								
6. Anxiety/Depression (ASR)	.718***	-.503***	-.209	-.387***	-.513***	-							
7. Withdraw (ASR)	.560***	-.609***	-.250*	-.244*	-.394***	.748***	-						
8. Somatic complaints (ASR)	.355**	-.278*	-.316**	-.217	-.327**	.678***	.501***	-					
9. Thought problems (ASR)	.572***	-.251*	-.126	-.400***	-.555***	.785***	.578***	.587***	-				
10. Attention problems (ASR)	.517***	-.423***	-.223	-.323*	-.663***	.779***	.586***	.565***	.691***	-			
11. Aggressive behavior (ASR)	.481***	-.339**	-.197	-.598***	-.520***	.803***	.581***	.567***	.714***	.691***	-		
12. Rule-breaking behavior (ASR)	.400***	-.066	-.054	-.320*	-.515***	.501***	.233*	.409***	.570***	.584***	.512***	-	
13. Intrusive (ASR)	.081	-.258*	.157	-.291*	-.191	.233*	.024	.220	.405***	.265**	.333**	.357***	-
14. Impulsiveness (BIS-11)	.386***	-.246*	-.337**	-.367***	-.584***	.578***	.344**	.423***	.599***	.708***	.694***	.615***	.247*

Notes: NEO-FFI-R= NEO Five-Factor Inventory, short version; ASR= Adult Self-Report; BIS-11= Barratt Impulsiveness Scale. *p< .05; **p< .01; ***p< .001.

Table 4
Multiple regression models (n= 77)

Variables	B	SE	β	t	p	95% CI	ΔR^2
Anxiety/Depression (ASR)							.593*
Neuroticism	.747	.116	.555	6.437	$\leq .001$	[.516 - .979]	
Conscientiousness	-.325	.143	-.206	-2.271	.026	[-.610 - -.040]	
Agreeableness	-.229	.121	-.152	-1.901	.061	[-.470 - .011]	
Extraversion	-.148	.136	-.101	-1.092	.279	[-.418 - .122]	
Withdraw (ASR)							.441*
Extraversion	-.274	.072	-.414	-3.825	$\leq .001$	[-.417 - -.131]	
Neuroticism	.206	.061	.336	3.386	$\leq .001$	[.085 - .327]	
Conscientiousness	-.042	.072	-.059	-.583	.562	[-.187 - .102]	
Somatic complaints (ASR)							.205*
Openness to experience	-.245	.099	-.258	-2.488	.015	[-.441 - -.049]	
Neuroticism	.200	.086	.254	2.313	.024	[.028 - .372]	
Conscientiousness	-.181	.102	-.197	-1.784	.079	[-.384 - .021]	
Thought problems (ASR)							.471*
Neuroticism	.281	.063	.402	4.443	$\leq .001$	[.155 - .407]	
Conscientiousness	-.286	.076	-.349	-3.737	$\leq .001$	[-.438 - -.133]	
Agreeableness	-.134	.071	-.170	-1.881	.064	[-.275 - .008]	
Attention problems (ASR)							.504*
Conscientiousness	-.553	.103	-.540	-5.393	$\leq .001$	[-.757 - -.349]	
Neuroticism	.279	.083	.319	3.350	$\leq .001$	[.113 - .444]	
Agreeableness	-.048	.086	-.049	-.558	.579	[-.221 - .124]	
Extraversion	.018	.097	.019	.187	.852	[-.175 - .212]	
Aggressive behavior (ASR)							.501*
Agreeableness	-.433	.089	-.431	-4.886	$\leq .001$	[-.610 - -.256]	
Neuroticism	.242	.085	.271	2.841	.006	[.072 - .412]	
Conscientiousness	-.280	.105	-.268	-2.663	.010	[-.489 - -.070]	
Extraversion	.000	.100	.000	-.005	.996	[-.199 - .198]	
Rule-breaking behavior (ASR)							.303*
Conscientiousness	-.332	.091	-.390	-3.632	$\leq .001$	[-.514 - -.150]	
Neuroticism	.166	.075	.228	2.199	.031	[.016 - .316]	
Agreeableness	-.099	.085	-.121	-1.164	.248	[-.268 - .070]	
Impulsiveness (BIS-11)							.425*
Conscientiousness	-1.026	.231	-.435	-4.436	$\leq .001$	[-1.487 - -.565]	
Openness to experience	-.595	.215	-.244	-2.772	.007	[-1.023 - -.167]	
Neuroticism	.322	.190	.160	1.694	.095	[-.057 - .702]	
Agreeableness	-.349	.213	-.154	-1.634	.107	[-.774 - .077]	

Notes: ASR= Adult Self-Report; CI= confidence interval for β . * $p \leq .001$.

Discussion

This study aimed to characterize the personality trait of individuals with substance use disorders, in order to verify the association between personality factors and psychopathological symptoms, and to investigate the predictive value of personality traits for psychopathological symptoms and impulsivity. NEO-FFI-R score classification indicated most participants obtained scores considered low or very low in Extraversion and Openness to Experience factors. The five personality factors showed significant correlations with most measurements of ASR and BIS-11. Thus, high rates of Neuroticism and low levels of Extraversion, Agreeableness, and

Conscientiousness are related to a greater occurrence of symptoms of anxiety, depression, attention, thought problems and social isolation, somatic complaints, aggressive behavior, and impulsivity. According to the regression model, Conscientiousness and Neuroticism factors were more significant for symptoms related to anxiety/depression, thought problems, and rule-breaking behavior.

Previous research supports that both impulsivity, personality, lack of inhibition and self-control are the main psychological aspects that characterize individuals who use some psychoactive substances (Carou et al., 2017). Individuals with lower levels of extraversion presented higher difficulty in social interaction. Thus, the use of these substances can be reinforced since it enables social interactions (Soundararajan et al., 2017). These personality characteristics are possibly considered risk factors for substance use, considering their connection with impulsive behaviors, lack of inhibitory control, and lack of planning. On the other hand, openness concerns exploratory behaviors and the importance of living new experiences daily (John et al., 2008). Individuals with problematic substance use certainly have difficulty in changing some behaviors and dynamics related to substance use and can impair changes in life and habits in general.

Neuroticism had significant and positive associations with most symptomatologic and impulsive subscales. Higher levels of neuroticism are associated with emotional adjustment, considered one of the main risk factors for several mental disorders (Allen & Laborde, 2020). Therefore, positive and significant associations indicate the greater neuroticism, the greater the risk of developing impulsivity problems, lack of inhibitory control, depression, anxiety, inattention, hyperactivity, and internalizing and externalizing problems (Allen et al., 2018). In addition, lack of impulse control is considered a central characteristic of personality disorders associated with psychoactive substances use (Few et al., 2015). Lower levels of agreeableness were identified in patients with alcohol use disorder (Zilberman et al., 2018), and patients with high neuroticism and low agreeableness were associated with cannabis use addiction (Dash et al., 2019). Furthermore, high impulsivity scores is often found in patients with diagnoses of mental disorders, an aggravating factor in patients with suicidal ideation and behavior (Costanza et al., 2020).

The use of alcohol and other drugs can cause consequences for the individual, increasing the risk of developing physical diseases, psychopathological symptoms such as depression and anxiety, impulsive and risky behavior, and impairment in family, social and professional relationships (Matos et al., 2018). Consequently, individuals undergoing treatment for substance use, with depressive symptoms, may have a poor quality of life and a higher risk of using drugs again, compared to individuals without such symptoms. Depressive symptoms can increase the chances of searching for hospitalization due to the use of psychoactive substances as a treatment at the time of crisis (Castro et al., 2011). In addition, depressive symptoms can guide alcohol and other drug users to search for outpatient treatment for the comorbid symptoms (Saatcioglu et al., 2008). Anxiety symptoms also deserve distinction in debates about alcohol and other drug use and may also be associated with substance use disorders.

In summary, this study data suggest substance use disorder is associated with psychopathological symptoms and impulsive behavior. Moreover, these results highlight the role of personality and impulsivity in identifying different profiles within the specific population of substance users. There is a need to create personalized treatment strategies that consider the presence of psychopathological symptoms in psychoactive substances users. Some limitations must be considered, such as comparisons between genders and clinical subgroups that were not performed due to the sample size and the same reason can affect the study's conclusions, in addition, the study design does not allow assigning cause-and-effect between variables. Further studies should include larger samples and adopt a longitudinal design.

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