Research Paper: The Role of Dimensional Maladaptive Personality Traits and Severity of Personality Pathology in Predicting Substance Use

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ABSTRACT

Objective: In recent decades, the relationship between personality traits and attitudes toward substance use has attracted much attention. Accordingly, evidence suggested a significant direct relationship between personality traits and the tendency to substance use. However, studies on the relationship between the Personality Inventory for Diagnostic and Statistical Manual of Mental Disorders-5th Edition (DSM–5) (PID-5) PID-5 model, personality pathology, and the tendency to substance use are scarce. Moreover, our survey revealed that no studies had been conducted in this respect in Iran. Drug abuse, as a prevalent condition, is of numerous etiologies, one of which is maladaptive personality traits. The present study aimed to investigate the relationship between maladaptive characteristics and the severity of personality disorders in predicting substance use tendency.

Methods: This descriptive research was conducted from January 2018 to December 2019 in Tehran City, Iran. The statistical population of this study consisted of 300 healthy individuals with substance abuse disorder referring to substance dependence treatment centers who were selected by the convenience sampling method. Data gathering tools were the Personality Inventory for DSM-5-Brief Form (PID-5-BF), the Standardized Assessment of Severity of Personality Disorder (SASPD), and the Addiction Tendency Questionnaire. The obtained data were analyzed by correlation and stepwise multiple regression analysis methods using SPSS.

Results: The current study results revealed that drug use tendency is significantly associated with personality traits. Among the maladaptive traits, antagonism had the highest correlation with drug use (0.45). Moreover, the obtained data indicated a low correlation (0.014) between the severity of drug tendency and personality traits, according to PID-5.

Conclusion: The current study results revealed that drug use tendency is significantly associated with personality traits. Among the maladaptive traits, antagonism had the highest correlation with drug use (0.45). Moreover, the obtained data indicated a low correlation (0.014) between the severity of drug tendency and personality traits, according to PID-5.

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Highlights

- Personality traits play a significant role in individuals' tendency to substance.

- Antagonism had a higher relationship with the tendency to substance use.

- The severity of maladaptive traits on the tendency for substance wasn't significant effect.

Plain Language Summary

The results of this study showed that maladaptive personality features have a significant relationship with the tendency to addiction. we can consider it in individual therapies and as an effective way to encourage people to maintain healthy and provide practical strategies for avoiding future drug use.

1. Introduction

Substance use and its deleterious consequences are among the most challenging issues in individual and public health. According to the Public Relations Office of the Anti-Narcotic Headquarters in the National Plan for Drug Abuse in Iran (2016), substance abuse is of the major challenges for public, therapeutic, social, and cultural health. More than 90% of individuals have expressed their concern in this regard. The prevalence rate of narcotics and psychotropic drug use in the population of 15-64 years is reported as 5.39, and the frequency of individuals with substance dependence equals 2802800. Regarding the gravity of the narcotic and psychotropic substance use issue and the rate of substance dependence in the country, it seems the necessary measures remain untaken (Saremi, Rahimi Movakhar & Rafiee, 2017).

Recognizing the factors affecting the tendency to drug use is among the most important measures in preventive programs (Wood, Dawe & Gullo, 2013). Concerning the individual and social problems associated with substance use, understanding the risk factors that predict different patterns of use is essential to guide better preventive and therapeutic efforts (Gebraeely, Moradi & Habebi, 2018).

Several underlying factors are proposed respecting the tendency to substance use; however, none can explain substance use alone. This is because substance use is a multifaceted and multi-factor phenomenon, in which sociocultural, environmental, familial, individual, and personality characteristics are involved (Delavar, Rezaee & Alizadeh, 2010). Personality theory is a prominent model for explaining the tendency to substance use. Moreover, Swann stated that the behavioral structure of individuals or personality traits can lead to various addictions (Swann, 2012). Personality traits are the long-standing patterns of perception, communication, and thinking about oneself and the environment that appear across various personal and social situations; they are constant features beginning in adolescence or early adulthood (American Psychiatric Association, 2013).

Although previous studies have signified a relationship between personality aspects and the tendency to addictive substances, they mainly considered healthy personality traits and paid less attention to maladaptive ones. In contrast, the new approach, namely the dimensional approach of the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5) and the International Classification of Diseases 11th Revision (ICD-11), has emphasized the role of maladaptive features and their severity in the formation and persistence of chronic mental health disorders (Amini, Lotfi, Sadeghi, & Khorrami, 2019).

Thomas et al. explored the structural convergence of 5-DSM personality dimensions and the Big Five personality traits; accordingly, they identified an overlap between the healthy and unhealthy models. Negative Affectivity (NA) is the opposite of emotional stability. Detachment is the opposite of extroversion. Antagonism is the opposite of agreeableness; disinhibition is the opposite of conscientiousness, and psychoticism is the opposite of mental health (Thomas et al., 2013).

Gunnarsson (2012), Vanderblick and Clark (2015), as well as Creswell, Bachrach, Wright, Pinto, and Ansell (2016) investigated the relationship between healthy personality traits and the tendency to substance use. Subsequently, they introduced personality traits as a critical factor in the tendency to substance use.

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Furthermore, individuals with maladaptive personality traits have poor mental health and social functioning and are at high risk for depression, substance use, and harm to themselves and others (Coid, Yang, Tyrer, Roberts, & Ullrich, 2006). However, there are differences in the severity of personality traits (Crawford, Koldobsky, Mulder, & Tyrer, 2011); this is an essential issue because research suggested that the severity of personality disorders predicts mental health disorders and various adverse outcomes depending on the type of personality disorder (Wright, Hopwood, Skodol, & Morey, 2016).

From this perspective, assessing the severity of harm in personality function is essential for any dimensional system; therefore, the Alternative Model of Personality Disorders (AMPD) model is discussed in Section 3 of the DSM-5. In this approach, harm severity assessment is critical for the diagnosis of personality disorder. Besides, injury severity is evaluated as a continuum -from non-injury to severe injury- in the dimensional model of personality disorders (Bach & Anderson, 2020).

Given the findings and alternative models of personality disorders in the DSM-5 and the need to assess the severity of personality traits in substance use tendency, further studies are required to determine the predictive role of each of these factors as criterion A and B in the dimensional model of DSM-5, with a tendency to evaluate substance use disorder. This can enrich the findings regarding the dimensional model of personality disorders, and provide beneficial data on the etiology of substance use disorders.

Accordingly, this study explored the role and severity of maladaptive personality traits in the tendency to substance use. Therefore, this study can provide useful information for formulating appropriate preventive and therapeutic programs with a new approach in line with DSM-5 modifications.

2. Methods

The present descriptive cross-sectional study was conducted from January 2018 to December 2019 in Tehran City, Iran. The statistical population of the study consisted of healthy individuals and those with drug use disorders referring to substance dependence treatment clinics in Tehran. The estimated sample size was calculated using the following formula $n=Z(1-\frac{a}{2})^2 \times \partial^2/d^2$, in which using the standard deviation of 8 between the variables, d as 0.13, and α as 0.05, the sample number was obtained as 228; due to 0.30 sample dropout, 300 individuals were selected using the convenience sampling method. The age range of the study subjects was 18-55 years.

The inclusion criteria of the research were being above 18 years of age, willingness to participate in research, and no history of drug use for the non-addict group, as well as a history of drug use for the substance-dependent group. The exclusion criteria of the study were the lack of a history of any biopsychological illnesses that require treatment, a mental health disorder that has led to hospitalization, and reluctance to participate in the research, based on the individual's self-report. The following research tools were applied in the current study.

Personality Inventory DSM-5-Brief Form (PID-5-BF): This is a 25-item scale developed by Krueger, Derringer, Markon, Watson, and Skodol (2012). Furthermore, it examines 25 personality traits based on the DSM-5 proposed dimensional model. These features are classified into 5 domains and are the opposite of healthy personality traits. The functional structure of the questionnaire includes NA (e.g. anxiety, separation insecurity), detachment (e.g. isolation, dissatisfaction, intimacy avoidance), antagonism (e.g. manipulation, cheating, hauteur), disinhibition (e.g. irresponsibility, impulsivity, distraction), and psychoticism (e.g. irrational beliefs & experiences, avoidance from perceptual misconceptions (American Psychiatric Association, 2013). Kruger et al. (2012) reported the internal consistency of these subscales, as 0.91, 0.96, 0.97, 0.93, 0.89, respectively. In this questionnaire, responses are scored on a 4-point Likert-type scale from zero (very false or often false) to 3 (very true or often true). In the study by Kruger et al. (2012) the Cronbach's alpha coefficient for the domains ranged from 0.78 for non-inhibition domains to 0.96 for dissociation. The Cronbach's alpha coefficient calculated for the study traits also ranged from 0.71 for pessimism to 0.94 for eccentricity (Anderson, Snider, Sellbom, Krueger, & Hopwood, 2014).

The validity and reliability of this questionnaire in Iran were evaluated by Amini et al (2019) and American Psychiatric Association (2013). The mean Cronbach's alpha coefficient for PID-5 in the current study was equal to 0.74, ranging from 0.52 (suspiciousness) to 0.90 (eccentricity). The majority of scales, i.e. 18 of them, presented Cronbach's alpha coefficients of >0.70. The range of Cronbach's alpha coefficient for domains was from 0.70 (antagonism) to 0.84 (psychoticism) (Amini et al., 2019). Standardized Assessment of Severity of Personality Disorder (SASPD): The SASPD assesses the severity of personality disorders based on the ICD-11 Personality Disorder classification. This questionnaire is a reliable and concise tool for assessing the severity of personality traits. The SASPD is a 9-item self-report scale that assesses the severity of personality disorders on a four-point scale,

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namely, from no disorder to severe disorder (Olajide et al., 2018). The questionnaire was translated and adapted in Iran by the second author of the present article with the permission of its creator and has been approved by the developer after its adaptation. The Cronbach's alpha coefficient calculated for the SASPD in this study was equal to 0.81, indicating an appropriate internal consistency.

The Addiction Tendency Questionnaire (ATQ): The ATQ has 16 questions, and its purpose is to examine the level of addiction tendency concerning social, individual, and environmental dimensions in individuals. This is a researcher-made scale and designed using some scientific sources, including Farchad et al. (2006). The questionnaire was distributed among several students in Mir Hessami's (2009) research to measure its validity and reliability. After ensuring the obtained results, the questionnaire was distributed in the statistical sample, and the Cronbach's alpha coefficient was reported to be 0.79.

The non-addicted subjects were introduced to the study by referring to companies and universities. By coordinating with substance dependence treatment centers, the psychologists in the centers were requested to provide the questionnaires to the study participants after explaining the purpose of the study and obtaining their informed consent. The first author of the article referred to the substance dependence treatment centers to instruct the psychologists; they could contact him in case of any ambiguity. To respect the participants' rights, this study was approved by the Research Ethics Committee of Iran University of Medical Sciences. The study participants were also briefed on the purpose of the study prior to conducting the research. They gave written informed consent to participate in the study with an emphasis on the confidentiality of the collected information. The research participants were also allowed to withdraw from the study at any stage of the research. Correlation and regression analysis were used for data analysis in SPSS.

3. Results

Due to the incompletion of 17 questionnaires, 283 questionnaires were finally evaluated. The study samples were in the age range of 18-55 years. The demographic information of the study subjects is presented in Table 1. Of 283 subjects, approximately 79% were male. The age range of 26-35 years had the highest frequency, and the lowest frequency belonged to the class of 15-25 years. Most of the study participants also had no academic education.

According to Table 2 and Table 3, personality traits were significantly related to the tendency to addiction, antagonism, psychoticism, detachment, disinhibition, NA, orderly. However, they were not significantly related to SASPD.

Table 1. Demographic data of the study participants

	Variabels	No. (%)			
		Opioid Users (n: 153)	Stimulant Users (n: 23)	Total Opioid & Stimulant Users (n: 176)	Total Opioid and Stimulant (n: 283)
Age (y)	15-25	11 (7.2)	1 (4.3)	12 (6.8)	12 (4.2)
	26-35	53 (34.6)	7 (30.4)	60 (34.1)	116 (41)
	36-45	40 (26.1)	7 (30.4)	47 (26.7)	98 (34.8)
	46-55	49 (32)	8 (34.8)	57 (32.4)	57 (20.1)
Gender	Male	124 (81)	23 (100)	147 (83.5)	223 (78.8)
	Female	29 (19)	-----	29 (16.5)	60 (21.2)
Education	Non-college education	133 (86.92)	23 (100)	156 (88.63)	246 (86.92)
	College education	20 (13.1)	-----	20 (11.4)	37 (13.1)

Table 2. Descriptive index statistics

Factor	Mean±SD			
	Opioid Users	Stimulant Users	Total Opioid and Stimulant Users	Total Opioid and Stimulant Users, And Healthy Subjects
NA	1.78±0.5	1.5±0.47	1.74±0.5	2±0.58
Detachment	1.72±0.52	1.64±0.51	1.71±0.52	2.03±0.61
Antagonism	1.51±0.47	1.47±0.53	1.5±0.48	1.83±0.7
Disinhibition	1.73±0.6	1.62±0.48	1.72±0.59	1.99±0.65
Psychoticism	1.62±0.58	1.54±0.69	1.61±0.59	1.96±0.69
PID_5	1.65±0.41	1.55±0.43	1.64±0.41	1.95±0.55
SASPD	16.47±4.37	15.04±4.48	16.28±4.4	16.09±4.14

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Table 3. Correlation analysis for all investigated individuals

Factor	NEG	DE	AN	DIS	PSY	PID-5	SASPD	Drug Use Tendency
NA	1							
Detachment	0.67**	1						
Antagonism	0.56**	0.54**	1					
Disinhibition	0.71**	0.75**	0.57**	1				
Psychoticism	0.67**	0.65**	0.75**	0.69**	1			
PID_5	0.82**	0.79**	0.83**	0.84**	0.90**	1		
SASPD	-0.047	-0.081	-0.11	-0.055	-0.105	-0.097	1	
Drug use tendency	-0.21**	-0.29**	-0.45**	-0.26**	-0.38**	-0.39**	0.014	1

Significant level is**$P<0.01$.

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in Table 4, linear regression analysis was used to investigate the effects of personality traits and severity of disorder on the tendency to addiction. Based on the Variance Inflation Factor (VIF) indicators, no severe collinearity was observed between the predictive variables. Furthermore, the Durbin-Watson test data revealed the independence of the remainder.

According to the results respecting the relationship between personality traits and the severity of the disorder, and the tendency to addiction, the predictive variable of antagonism significantly impacted the tendency to addiction in the regression method; it had the highest correlation with the tendency to addiction. Although at a significance level of 0.05, the Pearson correlation coefficient between personality traits was obtained as significant at <0.05. However, antagonism had the highest significance among personality traits.

4. Discussion

This study investigated the predictive role of maladaptive traits and severity of personality disorders on substance use tendency. The current research results revealed that maladaptive personality traits were significantly related to the tendency to addiction. Among the predictive components of personality, antagonism presented a stronger relationship with the tendency to substance use. In this study, the effects of the severity of maladaptive problems on the tendency for substance was also examined; however, no significant effect was observed in this regard.

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Table 4. The impact of personality traits and personality disorder on the tendency to substa nce use in the whole study sample

Factor	r	adjR^2	β	VIF	The Tendency to Substance Use
					Durbin-Watson
NA	-0.214**		0.154	1.84	
Detachment	-0.291**		-0.123	2.12	
Antagonism	-0.450**	0.20**	-0.391**	2.34	1.54
Disinhibition	-0.265**		0.042	3.07	
Psychoticism	-0.381**		-0.144	2.28	
SASPD	0.014		-0.045	1.01	

** Significant level is*$P<0.01$.

In recent decades, the relationship between personality traits and attitudes toward substance use has attracted much attention. Additionally, evidence indicated a significant direct relationship between personality traits and the tendency to substance use. However, studies on the relationship between the PID-5 model, personality pathology, and the tendency to addiction are scarce. Moreover, our survey illustrated that no studies were conducted in this respect in Iran.

A study aimed at analyzing the relationship between different aspects of personality using the PID-5 personality questionnaire and impulsivity and substance use in patients with substance use disorders. Accordingly, it was revealed that the severity of dependency on heroin and cocaine differed depending on personality aspects. Moreover, the association between the severity of alcohol and cannabis dependence and impulsive behavior and personality traits was signified based on PID-5 (Moraleda-Barreno, Díaz-Batanero, Pérez-Moreno, Gómez-Bujedo, & Lozano, 2018).

The study by Creswell et al. (2016), in line with previous research, demonstrated that severe unhealthy personality traits, especially antagonism and disinhibition, are associated with drug and alcohol use disorders. The results also suggested that NA and the ability to resist drinking were significantly correlated. Furthermore, the obtained data reported that the tendency to alcohol abuse is associated with psychoticism. Antagonism was a strong predictor of alcohol predisposition in the elderly. Besides, disinhibition was a strong predictor of alcohol predisposition in young populations. As a result, NA can be expressed as a desire to experience negative emotions, such as anxiety, depression, aggression, impulsivity, and emotional disorders. NA can disrupt cognition in the form of insecurity, persistence, and interference with interpersonal behavior in the form of anger and surrender. These individuals might suppress negative emotions through attentive behavior or forced acts on their environment (Hopwood, Thomas, Markon, Wright, & Krueger, 2012). Furthermore, a study on various legal offenses by Vanderbleek and Clark (2015) also reported that disinhibition and psychoticism presented the highest association with drug and alcohol abuse and delinquency. In their research, they found that individuals who encounter impairments in disinhibition, present traits, such as impulsivity; risk aversion; dry perfectionism; acting abruptly in response to immediate stimuli; taking momentary action without prior planning regardless of the outcome; difficulty in planning or adhering to plans; feelings of distress, and self-harming behaviors, which make them vulnerable to risky behaviors, like drug and alcohol abuse in emotional turmoil.

Additionally, Gunnarson evaluated the psychological factors related to drug use in adolescents; they concluded that the risk of substance use is related to antagonism and impulsivity (Gunnarsson, 2012).

The dimensions of antagonism and maladaptation include the tendency to ignore others' needs and vindication, deceitful and controlling behaviors, cruelty, hauteur, and attentive behavior. Hopwood et al. (2012) argued that these individuals strive to achieve a colossal self-image as unique and superior people. These individuals fail to care about the feelings and problems of others and lack the guilt and remorse about the adverse and harmful effects of their actions on others. Moreover, failure to tolerate uniformity makes them prone to any attempts. This diversity when accompanied by their general impulsivity and deficits in the system of emotion inhibition and disinhibition predisposes them to almost any substance (Alcorn III et al., 2013). Moreover, according to

Hopwood et al. (2012), the psychoticism dimension of unhealthy personality has a significant relationship with substance and alcohol use.

According to Armstrong, in contrast to the isolation and separation that characterizes these individuals and the perceived notion of them as unemotional individuals, they are very sensitive; therefore, the reason for their isolation is to maintain security and to prevent being hurt by others. Such a situation makes them prone to substance use to alleviate the pain of this loneliness. Another possible reason could be their failure in life, which has damaged their self-esteem; they are resorting to drugs to cope with these unpleasant feelings (Armstrong, 2002). This study also concluded that detachment was significantly associated with substance abuse. In Thomas' study, the detachment was the opposite of extroversion (Thomas et al., 2013). Studies have reported that higher extraversion, i.e. lower detachment, is strongly associated with using substances, such as cocaine and methamphetamine, compared to alcohol (Jesús & Isabel, 2011). However, Saarnio's (2010) stated that individuals with low extraversion were more prone to substance abuse, i.e. contrary to the results of this research and those of (Jesús & Isabel, 2011).

In summary, according to the present study, and in line with the previous research, there was a significant relationship between personality traits and drug use tendency. Hopwood et al. (2012) suggested that individuals obtaining a higher score in the PID-5 have more irrational beliefs and negative pragmatism; moreover, they are less able to control their impulses and are more exposed to social damage, including substance dependence. This is they fail to cope with the stresses and problems of life.

Although the present study was in line with previous research, it was unique in terms of considering the tendency to substance use in general (i.e. drugs, stimuli, & healthy). The present research was among the first studies in this field in Iran as a cross-sectional study; thus, we have no definite conclusion about the pathological effects of personality and the tendency to use drugs. Furthermore, the studied sample consisted of a higher percentage of men than women; this matter could be problematic considering the recognized gender differences in extraversion disorders. Accordingly, studies with an equal number of samples from both genders may lead to different results. Moreover, to better represent research variables, it is preferred to use methods other than self-report measures. Another limitation of this project was the lack of compliance between the number of stimuli and addicted samples, which may

vary depending on the culture of societies, and differences in social status and age.

Overall, this study highlighted the need for further research in investigating the pathology of personality and the tendency to substance use in a more developed framework to better understand the patterns of stability and change in the tendency to the consumption of stimulants, or other substances in different cultures, genders, social classes, and age groups. The present research findings indicated the necessity for future studies to more accurately investigate the relationship between personality traits and the tendency to use drugs. As per DSM-5, personality disorders should be assessed concerning race, culture, and social background; thus, selecting a relatively small clinical sample was a limitation of the present research. Referrals to inpatient treatment centers, substance dependence treatment camps, and methadone maintenance treatment centers can also provide more valuable results. However, this study signified that personality traits are predictive of substance abuse. Moreover, the obtained data have implications for promoting individuals' health.

5. Conclusion

The current study results revealed that personality traits significantly affect individuals' tendency to substance use; accordingly, we can consider these points in treating maladaptive personality traits. Thus, an effective method can be proposed to encourage individuals to maintain health and provide practical strategies for avoiding future drug use.

Ethical Considerations

Compliance with ethical guidelines

Funding

Authors' contributions

Conceptualization, methodology, investigation, writing – original draft, and data analysis: Fatima Vaezipoor and

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