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The comparison of the motivation and personality risk profile in different substance use

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Abstract

Objective: This study investigates the different motives and substance use risk profile in opium and methamphetamine use.

Method: The statistical sample includes Seventy-eight individuals with substance use history who referred to Drop-In Center (DIC). The respondents completed research instruments including demographic information (researcher-made questionnaire), substance use motives (Hecimovic, Barrett, Darredeau, & Stewart, 2014), and substance use risk profile scale (Woicik et al., 2009). Multivariate analysis of variance was utilized for data analysis on SPSS-24.

Results: The results of the MANOVA indicated that availability, relaxation, enjoying, and sexual motives are significantly higher in individuals using methamphetamine. Also, the results of the substance use risk profile represent that there are significant differences in anxiety sensitivity, sensation-seeking, and impulsivity in opium and methamphetamine use.

Conclusions: Findings indicate the important role of motives and substance use risk profile in the tendency to the use of different types of substances. These various motives and personality risk factors should be considered in educational settings and psychological treatment for different types of substance use, especially opiate or stimulating substances.

Keywords: substance use, motivation, personality risk profile, Opium, Methamphetamine

Introduction

Personality traits are capable to discriminate individuals with substance use according to a variety of factors such as clinical profile (Cloninger, 1987; Fehrman et al., 2019; Rogers, McKinney, & Asberg, 2018) and different motives for substance use (Comeau, Stewart, & Loba, 2001; Schultz, Bassett, Messina, & Correia, 2019). Motives for substance use are the underlying psychological factors that guide substance use behavior (Blevins, Lash, & Abrantes, 2018). Substance use motivations in some people are focused on obtaining reward (positive reinforcement) and in others, is due to avoiding negative emotions (negative reinforcement). Therefore a better understanding of these motives may lead to more effective strategies for prevention and treatment (Adams et al., 2003; Patricia, 2016). For example, as mentioned by McCabe and Cranford (2012), nonmedical use of prescription opioids is associated with some motivations such as relaxation, pain relief, and affect regulation, nonmedical use of prescription stimulants is related to weight loss, enhance energy, awakeness, experiment, and affect regulation and finally, nonmedical use of prescription tranquilizers is relevant to experiment, relaxation and affect regulation. Compared to the individuals that are motivated by pain reduction, getting buzzed, or wasted are more likely to have smoked cigarettes, drank alcohol, and smoked marijuana in the future

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(Weiler, Haddox, Pealer, & Barnett, 2014).

Researches indicated that any conformity seeking, enhancement (receiving positive reinforcement) or coping (coping with negative emotion) motives have different effects on the amount of substance use and probably problems associated with substance and alcohol use (Foster, Allan, Zvolensky, & Schmidt, 2015; Norberg, Olivier, Schmidt, & Zvolensky, 2014). Furthermore, social motives, affect regulation motives and boredom relief motives were significant motives for smoking and drinking (Piko, Varga, & Wills, 2015); the enhancement motives were assessed as the most, and conformity motives as the least salient motives in tobacco, alcohol and marijuana use (Glavak Tkalic, Sucic, & Devic, 2013). Motivational theorists argue that substance use motives are the final common pathway to substance use through which personality factors, exert its effects (Cooper, 1994). In fact, different motives are associated with unique patterns of use and its consequences (Cox & Klinger, 1990). Individuals with substance use history, classified based on their different motives (P. J Conrod, Pihl, Stewart, & Dongier, 2000) and those personality variables that defined as a substance use risk factor, indeed are associated with specific motives (Chowdhury, Kevorkian, Sheerin, Zvolensky, & Berenz, 2016; Stewart, Loughlin, & Rhyno, 2001).

In the context of substance use, a principal component of prevention programs is the identification of individuals at increased risk, and one area of risk shown to be particularly predictive of substance misuse is personality (Woicik et al., 2009). Along with Gray (1993) and Eysenck's (1997) studies, as ground-breaking studies about the role of personality and motives in alcohol and substance use, Cloninger (1987) has suggested that different personality profile is capable to predict future substance use. According to Cloninger's tridimensional personality theory, individuals with low novelty-seeking are tended to prefer alcohol and marijuana, and their motives are related to avoiding negative emotions or negative life experiences, whereas those with high novelty seeking prefer significantly greater stimulant use and their motivations have been focused on obtaining positive rewards (Adams et al., 2003). Personality dimensions identify persons at increased risk for substance use disorders (Chinneck et al., 2018).

Consistent with Cloninger's (1987) theory, Conrod et al. (2000) argue that there are specific personality risk factors for substance abuse that reflect differences in the functioning of brain motivational systems. Therefore, they expand Cloninger's typology and concentrated on the four personality risk factors and corresponding motivational determinants of substance use that include: anxiety sensitivity, introversion and hopelessness, sensation seeking, and impulsivity. Anxiety sensitivity refers to a cognitive and personality style that involves an expectation or fear that anxiety and physical arousal will lead to physical illness, social embarrassment, loss of mental control, or some combination of these (Reiss, Peterson, Gursky, & McNally, 1986), and according to scientific evidence anxiety sensitivity moderated the relationship between enhancement motives and cannabis use (Norberg et al., 2014). Depression and hopelessness as a personality trait have been considered as a risk factor for alcoholism and the development of alcohol problems, particularly for women (Hartka et al., 1991). As noted by Ali et al. (2016) hopelessness, impulsivity, and sensation seeking are risk factors for drug use, and anxiety sensitivity is a protective factor for alcohol, tobacco, and cannabis use.

Extraversion, sensation seeking, and novelty are additional personality characteristics that have been associated with elevated substance use and tendency to drink with the aim of experience the euphoric and intoxicating effects of alcohol (Conrod, Peterson,

& Pihl, 1997; Poelen, Schijven, Otten, & Didden, 2017). Finally, impulsivity as a multidimensional construct that refers to individual tendency to act rashly and without adequate forethought is a strong predictor of problematic alcohol use (Adams, Kaiser, Lynam, Charnigo, & Milich, 2012) and is associated with an elevated risk of early-onset substance and alcohol use (Pulkkinen & Pitkanen, 1994). Each of these four personality risk factors is linked with the preference of the specific type of substance and specific motives for use (Krank et al., 2011; Woicik, Stewart, Pihl, & Conrod, 2009). For instance, anxiety sensitivity and hopelessness more than anything are associated with motives that refer to avoidance and escape from negative affect. Sensation-seeking that usually accompanied by alcohol consumption and substance use (Hopley & Brunelle, 2016) is associated with positive emotion motives, and finally, impulsivity is relevant to the use of a variety of stimulants such as cocaine that arises immediate reward feeling (Woicik et al., 2009).

According to the substance use vulnerability theories, a specific personality trait is capable to reflect the individual differences in preparation for substance use. For example, anxiety sensitivity is a predictor of conformity motives for alcohol and marijuana use (Comeau et al., 2001). also, some personality traits act as a pathway, for instance, Adams et al. (2012) indicated that enhancement motives mediated the impact of sensation seeking on alcohol consumption.

Over the past 10 years, numerous studies investigated the role the substance use plays in various drugs and drinking (King, Mrug, Windle, 2020; Blevins, Lash, Abrantes, 2018; Cooper et al, 2016); however, there is any comparative study about the role of motivation in a different type of substances.

In sum, the literature indicated that substance use motives can be a reliable predictor of substance use and problematic drinking in the future (Kuntsche, Stewart, & Cooper, 2008; Merrill & Read, 2010). Therefore, understanding the individual motives for substance use clarifies how some specific personality trait may lead to substance use and problematic drinking (Cooper, 1994). Based on this fact that individuals with substance use are completely a heterogeneous group (Alterman & Tater, 1986; Scourfield, Stevens, & Merikangas, 1996) and there are various substance use pathways, it seems that the assessment of substance risk factor profile and motives have an important application in prognosis and treatment, especially treatment planning appropriate to individual personality (Litt, Babor, Del Boca, Kodden, & Cooney, 1992). This study aimed to assess substance use motives and risk personality profile in individuals with a history of opium (as an opiate substance) or methamphetamine (as a stimulant substance) use. We hypothesize that substance use motives and risk personality profile is different in this two groups of substance use.

Methods

Participants and procedure

This was causal-comparative research, and according to previous research (Delavar, 1390), for calculating the sample size, it is necessary to consider the minimum of 30 participants in any group. In the present study, each group includes 39 persons. Each study group involved 34 males and 8 females. The statistical population includes individuals who referred to the Drop-In Center (DIC) in Guilan. Drop-In Centers are for outpatients and temporary centers for addiction treatment. Seventy eight people (male=79.5 %; female= 20.5%) were selected based on convenience sampling method. Participants have been homogeneous according to several variables including age, gender, marital status, job status, and level of education. Finally, assigned to opium or methamphetamine use groups

according to the type of substance use. Anyone with a history of comorbid these two substance use was excluded from the study. Participants ranged in age from 18 to 81 years (mean= 41.71 years; SD= 9.84). The mean age was 42.68 and 39.84 years old in opium and methamphetamine groups, respectively. In terms of matching both study groups, all demographic characteristics including age, marital and job status, and level of education were assessed in both groups and according to the results of a Chi-square test, there were no significant differences between these two groups (Table 1). Multivariate analysis of variance (MANOVA) was utilized to examine differences between two groups. Accordingly, the multivariate tests statistic (Wilks' Lambda) are reported.

Ethical statement

For ethical consideration, all information about the research process was provided for individuals and an informed consent form was completed by every participant to ensure their consent in participating in this study. All data were kept confidential and their name were kept anonymous and data protection was performed at all stages of the study. Moreover, participants had the right to withdraw from their participation at any time during the study.

Measures

For the assessment of the research variable, we serve substance use motives and personality risk factors and also a demographical questionnaire.

Motives for substance use: This scale has been made by Hecimovic, Barrett, Darredeau, and Stewart (2014) and includes a list of twenty-seven motives that assesses participant motives for substance use (in this study specifically opium and methamphetamine). These motives (Curiosity,

Table 1 Demographic characteristic and Chi-square test (n= 78)

	Methamphetamine (n=39)		**Opium (n=39)**		**Chi-square test**	**Significance**
Age	Mean	SD	Mean	SD		
Years old	39.84	8.32	42.68	12.71	27.001	0.672
Gender	N	Percent	N	Percent		
Male	31	79.5	31	79.5	0.000	1.000
Female	8	20.5	8	20.5		
Marital status	N	Percent	N	Percent		
Single	10	25.7	9	23.1		
Married	23	59	24	61.5	0.417	0.937
Divorced	4	10.2	3	7.7		
Widow	2	5.1	3	7.7		
Level of education	N	Percent	N	Percent		
Illiterate	1	2.6	0	0		
Primary school	13	33.3	11	28.2		
High school	23	59	24	61.6	1.375	0.711
Academic education	2	5.1	3	7.7		
Missing	0	0	1	2.5		
Job-status	N	Percent	N	Percent		
Unemployed	13	33.4	10	25.8		
Self-employment	25	64.1	26	66.6	4.021	0.134
Employee (agent)	0	0	1	2.5		
Missing	1	2.5	2	5.1		

To reduce anxiety, To reduce pain, For sexual reasons, To increase the effects of another drug, To concentrate or study, To see things differently, Enjoying, Avoidance of withdrawal symptoms, To get drunk, Relaxation, Awaking, To give energy, To reduce appetite/manage weight, To heighten senses, To help with withdrawal from another drug, Because it was safer than other drugs, Availability, Self-confidence, To fit in with peers, To celebrate or party, To help socialize, To forget about problems, To be more creative, To help with sleep, To enjoy the feeling, To decrease the effects of another drug) were author-compiled based on a review of the literature about substance use. The participant respond to each item with yes (1) or no (0). The principal components analysis confirmed the psychometric properties of this scale (Hecimovic, Barrett, Darredeau, & Stewart, 2014).

Substance use risk profile scale (SURPS-Persian version) (Woicik et al., 2009): This scale has twenty-three questions, which according to Conrod et al.'s (2000) model assesses personality risk factors of addiction through four subscales including anxiety sensitivity, introversion and hopelessness, sensation seeking, and impulsivity (Woicik et al., 2009) scoring in the range of 1 (completely disagree) to 4 (completely agree). Concurrent, discriminant, and incremental validity of the SURPS are supported by convergent/divergent relationships between the SURPS subscales and other theoretically relevant personality and drug use criterion measures (Krank et al., 2011; Woicik et al., 2009). The Cronbach alpha for the SURPS scales ranged from acceptable (0.70 for anxiety sensitivity) to very good (0.88 for introversion and hopelessness) (Hecimovic et al., 2014). About the Persian version of this scale, the results showed that the factor structure and reliability of the internal consistency of the substance use risk profile scale was suitable. The reliability of the Persian version of SURPS indicated the Cronbach alpha coefficient (0.74) for the total score, as well as subscales (0.72, 0.69, 0.68, 0.70 for hopelessness, anxiety sensitivity, sensation seeking, and impulsivity respectively) (Zeinali, 2014). In the current study, the alpha coefficient acquired 0.76 for a total score of SURPS.

Results

If the most common motives in the opium use group were relaxation, pain reduction, forgetting the problems, enjoying and finally getting more energy, whereas, in methamphetamine use group, prevalent motives include relaxation, enjoying, availability, pain reduction, and eventually sexual reasons.

Multivariate tests of group differences in substance use motives revealed a significant effect of groups (Wilks' Lambda=0.371; F=3.143; P<0.000). The results of MANOVA indicated that there are a statistically significant differences between these two groups in terms of availability motive (F= 11.674; p= 0.001), relaxation motive (F=7.322; p=0.001), enjoying motive (F=4.385; p=0.040), and sexual motive (F=4.385; p=0.040). The scores of all motives were higher in the methamphetamine use group (Table 2).

Similarly, the multivariate tests of group differences in substance use risk profile revealed a significant effect of groups (Wilks' Lambda=0.854; F=3.111; P<0.000). Investigation of substance use risk profile indicated that there are statistically significant differences between individuals with opium and methamphetamine substance use, based on anxiety sensitivity (F= 6.305; p=0.014), sensation seeking (F=5.766; p=0.019), and impulsivity (F=7.214; p=0.009). The scores of all these three subscales were statistically higher in the methamphetamine group than the other group. Whereas, about the hopelessness (F= 0.582; p=0.448), there were no significant differences between groups (Table 3).

Table 2. descriptive statistics and results of MANOVA for substance use motives in methamphetamine and Opium groups (n= 78)

	Substance type	Mean	SD	Sum of square	df	Mean square	F	sig
Curiosity	Methamphetamine	0.35	0.48	.051	1	.051	.212	0.647
	Opium	0.41	0.49					
To reduce anxiety	Methamphetamine	0.25	0.44	.115	1	.115	.545	0.463
	Opium	0.33	0.47					
To reduce pain	Methamphetamine	0.58	0.49	.205	1	.205	.813	0.370
	Opium	0.48	0.50					
For sexual reasons	Methamphetamine	0.53	0.50	1.038	1	1.038	4.385	0.040*
	Opium	0.30	0.46					
To increase the effects of another drug	Methamphetamine	0.07	0.26	.013	1	.013	.153	0.697
	Opium	0.10	0.30					
To concentrate or study	Methamphetamine	0.05	0.22	.000	1	.000	.000	1.000
	Opium	0.05	0.22					
To see things differently	Methamphetamine	0.10	0.30	.000	1	.000	.000	1.000
	Opium	0.10	0.30					
Enjoying	Methamphetamine	0.69	0.46	1.038	1	1.038	4.385	0.040*
	Opium	0.46	0.50					
Avoidance of withdrawal symptoms	Methamphetamine	0.07	0.26	.013	1	.013	.153	0.697
	Opium	0.10	0.30					
To get drunk	Methamphetamine	0.12	0.33	.115	1	.115	.818	0.369
	Opium	0.20	0.40					
Relaxation	Methamphetamine	0.79	0.40	1.551	1	1.551	7.322	0.008**
	Opium	0.51	0.50					
Awaking	Methamphetamine	0.20	0.40	.051	1	.051	.283	0.597
	Opium	0.25	0.44					
To give energy	Methamphetamine	0.23	0.42	.821	1	.821	3.776	0.056
	Opium	0.43	0.50					
To reduce appetite/ manage weight	Methamphetamine	0.05	0.22	.013	1	.013	.339	0.562
	Opium	0.02	0.16					
To heighten senses	Methamphetamine	0.10	0.30	.000	1	.000	.000	1.000
	Opium	0.10	0.30					
To help with withdrawal from another drug	Methamphetamine	0.05	0.22	.051	1	.051	2.054	0.156
	Opium	0.00	0.00					
Because it was safer than other drugs	Methamphetamine	0.10	0.30	.205	1	.205	1.567	0.214
	Opium	0.20	0.40					
Availability	Methamphetamine	0.58	0.49	2.513	1	2.513	11.674	0.001**
	Opium	0.23	0.42					
Self-confidence	Methamphetamine	0.30	0.46	.051	1	.051	.248	0.620
	Opium	0.25	0.44					
To fit in with peers	Methamphetamine	0.33	0.47	.000	1	.000	.000	1.000
	Opium	0.33	0.47					

Table 2. (continue) descriptive statistics and results of MANOVA for substance use motives in methamphetamine and Opium groups (n= 78)

	Substance type	Mean	SD	Sum of square	df	Mean square	F	sig
To celebrate or party	Methamphetamine	0.23	0.42	.205	1	.205	1.382	0.243
	Opium	0.12	0.33					
To help socialize	Methamphetamine	0.10	0.30	.013	1	.013	.123	0.727
	Opium	0.12	0.33					
To forget about problems	Methamphetamine	0.43	0.50	.013	1	.013	.051	0.823
	Opium	0.46	0.50					
To be more creative	Methamphetamine	0.07	0.26	.013	1	.013	.209	0.649
	Opium	0.05	0.22					
To help with sleep	Methamphetamine	0.02	0.16	.013	1	.013	.339	0.562
	Opium	0.05	0.22					
To enjoy the feeling	Methamphetamine	0.38	0.49	.462	1	.462	2.171	0.145
	Opium	0.23	0.42					
To decrease the effects of another drug	Methamphetamine	0.07	0.26	.115	1	.115	3.167	0.079
	Opium	0.00	0.00					

* P<0.05 ** P<0.01

Table 3 descriptive statistics and results of MANOVA for personality risk profile in methamphetamine and Opium groups (n= 78)

	Substance type	Mean	SD	Sum of square	df	Mean square	F	sig
Anxiety sensitivity	Methamphetamine	14.10	1.95	33.346	1	33.346	6.305	0.014*
	Opium	12.79	2.59					
Hopelessness	Methamphetamine	17.07	3.54	8.667	1	8.667	0.582	0.448
	Opium	16.41	4.15					
Sensation seeking	Methamphetamine	16.15	2.37	46.154	1	46.154	5.766	0.019*
	Opium	14.61	3.21					
Impulsivity	Methamphetamine	13	2.31	54.167	1	54.167	7.214	0.009**
	Opium	11.33	3.10					

* P<0.05 ** P<0.01

Discussion

This study aimed to investigate the substance use motives and personality risk profile in opiate and stimulant use. According to descriptive results, relaxation is the most common motive in both opium and methamphetamine groups. This result is consistent with previous studies (ghobadzadeh, Masudi, Mohammadkhani, & Hasani, 2017; Hecimovic et al., 2014; McCabe & Cranford, 2012) confirming the importance of unpleasant internal state and the use of substance use as a solution for improving the negative mood. Furthermore, a relaxation motive is capable to drive people into any type of opiate or stimulant drugs. The preference of "pain reduction" and "forgetting the problems" motives in the substance use of opium can be attributed to the folk beliefs about relieving opium properties. Also, in explanation the high frequency of "sexual" and "enjoying" motives in individuals with methamphetamine use, it should be mentioned

it is the stimulating effects of methamphetamine as a stimulant drug and its physiological bases (Gawin & Ellinwood, 1988). Understanding underlying mechanisms that lead to substance use can provide insight into targets for treatment. A wealth of research has evaluated substance use motives as such mechanism (Blevins, Lash, Abrantes, 2018). Given to literature, some motives such as reinforcement, coping with negative emotion, expansion, and social motives were associated with greater amounts of the substance use in per occasion (Norberg et al., 2014; Villarosa-Hurlocker et al., 2019). One of the considerable results is the significantly higher frequency of relaxation, enjoying, availability, and sexual motives in stimulants compared to opiate group. This finding is an important subject of addiction prevention. On one hand, prevention from methamphetamine availability requires social and legal actions and on the other hand, tendency to methamphetamine use with the relaxation, enjoying, and sexual motives emphasize the necessity of increasing awareness, correcting attitude, and promoting the skills in general. This suggests that indicated prevention programs could be tailored to individual motives for use and that addressing alternative means for satisfying different needs. The findings suggest that identifying motives for different substance use may help improve approaches to reduce consumption among this population.

The findings of this study also highlightes the role of personality traits (Conrod et al., 2000; Cooper, 1994; Cox & Klinger, 1990; Ramazanzadeh et al., 2016; Stewart et al., 2001). A personality trait is associated with continued use, relapse, and unfavorable treatment outcome in various addictive disorders such as dependency to opiate (Helmus, Downey, Arfken, Henderson, & Schuster, 2001) and cocaine (Broos, Diergaarde, Schoffelmeer, Pattij, & De Vries, 2012). As noted by Hecimovic et al. (2014), anxiety sensitivity is relevant to confirming motives, whereas hopelessness is related to coping with negative emotion motives. Sensation seeking is associated with expansion motives and eventually impulsivity accompanied by availability motive. Similarly, the finding of the current study indicated the significant difference in anxiety sensitivity, sensation seeking, and impulsivity in opium and methamphetamine use. However, there are no significant differences in hopelessness, between these two groups. This finding is consistent with previous study that suggested hopelessness is not associated with illicit drug use in the Australian sample (Newton et al, 2016). Moreover, it is considerable that personality dimensions can significantly and negatively predict emotions and cognitive failures (Moatamedy & Tangestani, 2018).

Based on previous studies, whereas anxiety sensitive individuals demonstrated greater risk for anxiolytic dependence, those with sensation-seeking are at risk to exclusive alcohol dependence, and individuals with higher rates of impulsivity displayed cocaine and alcohol dependency (Conrod et al., 2000). However, a high level of substance use risk profile mean scores in individuals with methamphetamine use rather than opium use demonstrates the relationship between stimulant drugs properties with each of anxiety sensitivity, sensation seeking, and impulsivity subscales. Given the higher behavioral approach system in addiction context in comparison with a healthy group (Franken, Muris, & Georgieva, 2006), this frequency can be considered as a cause or maybe an outcome. To answer to the question of "do personality risk profile result in substance use, or substance use give rise to the development and exacerbation of some specific personality characteristics?", we need to do a longitudinal research, because personality profile plays various and sometimes opposite role in relevant to substance use. As noted by Zaaijera et al. (2014), novelty seeking and harm

avoidance are the personality risk factors for opioid use onset, whereas the need for social approval and self-efficacy are protective factors against opioid dependency. Ultimately, we required further investigation to access to motivational models and characterization of specific personality profiles for substance misuse.

It should be noted that several limitations should be considered in this research. First, several other biopsychosocial factors play a role in the development of substance use disorder. It is important to understand the role of these variables in substance use and their relations with motives and personality traits. Second, the finding of this study restricted to the two substance use drugs including opium and methamphetamine. Furthermore, additional research is needed to document the motives and personality risk factors in a variety of alcohol and substance use.

Finally, given to the protective role of low personality risk profile in the dependency and other psychopathology (P. J Conrod et al., 2000), and concerning the impact of substance use motives as a pathway on the personality risk profile and its effects on the substance use (Z. W. Adams et al., 2012), for prevention, in the first step, it seems essential to identify at-risk individuals through substance risk profile, especially in the high-risk period such as adolescence. In the next step, we suggest considering the substance use motives and personality risk profile in the preventive programs, therapeutic interventions, and relapse prevention planning. Finally, given the various neurological effects of a different substance on the brain structure, the impact of specific effects of each drug on the cognition, emotion, and behavior should not be neglected.

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