Comparison of Personality Traits and Cognitive Emotion Regulation Strategies between Women Addicted to Stimulants and Normal Women

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Abstract

Objective: Personality and emotion have always been effective factors in the vulnerability and continuity of addiction. Due to the lack of adequate research in women's addiction, the aim of this study was to investigate personality traits and cognitive-emotional regulation strategies in women addicted to stimulant drugs and non-addicted women. **Method:** In the present causal comparative study, 40 women addicted to stimulant drugs were selected from among the women presenting to methadone maintenance centers in Tehran by considering the entry and exit criteria. In addition, non-addicted women were also selected with the maximum degree of homogenization in demographic variables through convenience sampling. Revised NEO Personality Inventory (NEO PI-R) and Cognitive Emotion Regulation Questionnaire (CERQ)-short form were employed for data collection. **Results:** The results showed that addicted women reported higher levels of extraversion, openness, and neuroticism than non-addicted women. Also, they obtained higher scores in rumination, self-blame, and catastrophizing and obtained lower scores in re-focusing and planning than non-addicted women. **Conclusion:** Personality and emotion regulation are accompanied by malfunctioning in women addicted to stimulant drugs. It is suggested that these factors be taken into account in the form of preventive and therapeutic programs.

Keywords: addiction, cognitive emotion regulation, personality traits, women, stimulants

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Introduction

Addiction is a disorder that has a very low recovery rate. This feature has also been included in the definition of this disorder in such a way that recurrent relapses have become some part of the definition of addiction. Despite the harms and damages that addicts undergo, they continue addiction where this behavior is influenced by various psychological and physical mechanisms (Brady, Iwamoto, Grivel, Kaya, & Clinton, 2015). In the fifth Diagnostic and Statistical Manual of Mental Disorders, there is a wide range of different addiction types. One of the addictions in this manual is addiction to stimulants and it has been welcomed by addicts due to its different consumption type and effects from opioids. Unfortunately, the maintenance therapies that work in opiate addiction cannot be used in this type of addiction. This constraint has shifted more attention to the psychological dimensions of addiction (Herrmann, Johnson, Johnson, & Vandrey, 2016). In this regard, it can be observed that the male gender does not form the entire stratum of addicts anymore. Unluckily, women have been oriented toward this disorder, as well. Gender plays a significant role in addiction injuries, while women are more vulnerable to addiction than men. Regardless of quicker physical dependencies in women, it can bring them numerous negative consequences, such as violence, sexual abuse, sexually transmitted diseases, run away from home, and psychiatric disorders. Women's gender is a subject that has received little attention in the literature of addiction. The better identification and examination of various dimensions of women's addiction assumes greater importance (Levandowski et al., 2016). Addiction in women can be followed by irreversible consequences. The dependence and harm in addicted women are more than those in men. This issue is not only operative in the individual domain, but women's addiction has a more negative effect on the family and society. Addiction in women suffer from sexually transmitted diseases, rape, and violence to a larger extent than men. In addition, even child abuse has been reported more frequently in families with addicted mothers (Chen & Gueta, 2015). It can be argued that this difference in the severity of the injuries and the consequences can lead to some difference in the psychological state of these individuals; therefore, it is necessary to go for the recognition and pathology of these injuries from the first stages of treatment and prevention of addiction in women. Women's differences in comparison with men can be viewed in social domains, such as women's different and sensitive roles in family; psychological domains, such as the high prevalence of mood disorders in women; and even in the biological domain, such as severe effects of addiction in them. All these points add to the complexity of women's addiction (Kelly & Hoeppner, 2013).

Personality is one of the variables that has been identified as a vulnerability for drug use and its continuity (Dasgupta, 2017). The personality can be defined on the basis of the impact that the individual exerts on to others. Personality traits

are important etiologic factors in the tendency toward high-risk behaviors, such as smoking, alcohol drinking, drug use, and insecure sexual activities (Borna, Hamid, & Hayati, 2016; Watzke, Schmidt, Zimmermann, & Preuss, 2008). Among the various personality theories, Costa, & McCrae's Five-Factor Personality Model has received a great deal of attention in this area. This theory is the product of four decades of research and includes five dimensions, namely neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. According to this theory, these five dimensions have biological foundations and are less influenced by environmental stimuli (Costa, & McCrae, 1990). Personality plays an important role in people's adaptation. For example, neuroticism and extraversion are stable personality factors and can have an impact not only on individuals' adaptation, but also on their response to situations and emotions (Löckenhoff, Duberstein, Friedman, & Costa, 2011). These personality traits can be effective in vulnerability to addiction. Neuroticism personality trait can lead to symptoms of anxiety, depression, and stress. These symptoms can lead a person to addiction as a remedy. On the other hand, a personality trait like extraversion, which is associated with more communication and social networking can be considered as one of the vulnerabilities. These personality traits are associated with self-efficacy and appropriate problem-solving in the treatment process. For example, the personality trait of conscientiousness has a positive relationship with addict's self-efficacy, but neuroticism has a negative relationship with addicts' self-efficacy (Terracciano, Löckenhoff, Crum, Bienvenu, & Costa, 2008).

Another influential factor in addiction is emotion and its regulation (Tang, Tang, & Posner, 2016). Effective management of emotions reduces the risk of drug use when a person is at risk of drug use. The ability to manage emotions, or emotion regulation, makes it possible for an individual to use coping strategies in situations where the risk of substance use is high (Gili, Zanganeh Motlagh, & Taghvayi, 2017). When it comes to craving as the main cause of relapse and slip in addicts, optimal emotion regulation can act as a protective factor and the inability to regulate emotions can predict the failure of treatment (Khalilzadeh, Mika'eali Mani'ea, & Easazadegan, 2017). People who have an effective emotion regulation are more likely to predict the wishes of others. They perceive the unwanted pressure of others and control their emotions in a better way. Thus, they exhibit greater resistance to substance use. In contrast, those with lower emotion regulations are often oriented to drug use in order to cope with their negative emotions (Jalali, & Ahadi, 2015). The emotion regulation ability is one of the key determinants of addicts' impulsiveness and craving and can be considered as a prognosis for the treatment of these individuals (Jabra'eali, Moradi, & Habibi, 2017).

One of the important dimensions of emotions is emotion regulation. It is notable that emotion regulation has different dimensions and aspects and plays an important role in people's lives by maintaining sustainable social

relationships. One of the important aspects of the emotional regulation process is the regulation of emotional experiences through the use of cognitive elements. This concept is referred to as cognitive emotion regulation in psychological contexts. Cognitive emotion regulation implies a method to manipulate the entry of information that triggers emotions (Garnefski & Kraaij, 2006), and refers to all cognitive styles used by individuals to increase, decrease, or retain emotional experiences. In other words, cognitive strategies of emotion regulation are the actions that show ways to cope with stressful situations or bad events. The general concept of cognitive emotion regulation refers to the cognitive mode of manipulating the arrival of the data that arouse emotions (Ochsner & Gross, 2005). In other words, cognitive emotion regulation strategies refer to the way people think after experiencing a negative or harmful event. Previous studies have identified nine different conceptual strategies for cognitive emotion regulation, namely self-blame, acceptance, rumination, positive refocus, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and others' blame (Garnefski, Koopman, Kraaij & ten Cate, 2009). The community of female addicts needs more attention because of greater vulnerability, the negative consequences of addiction for the family and society in this stratum, and the lack of significant research on this population. Addiction is associated with more severe consequences for women than men, and children of the family are the first source that are exposed to harm. According to reports, addicted women experience more sexual abuse, negligence, and violence (Chen & Gata, 2015). Regarding the stated issues and the role of personality traits and emotion regulation in addiction and lack of evaluation of these variables in addicted women, the present study aims to investigate personality traits and cognitive emotion regulation strategies in women with addiction to stimulants.

Method

Population, Sample, and Sampling Method

The present research is a causal-comparative study. In this study, two groups, i.e. women with addiction to stimulants and non-addicted women participated. Accordingly, 40 women addicted to stimulant drugs were selected from among the women presenting to methadone maintenance centers in Tehran. The entry and exit criteria were not suffering from any physical disease, not taking psychiatric drugs, passing a detoxification period, and having a history of taking a variety of stimulants. In addition, non-addicted women were also selected with the maximum degree of homogenization in demographic variables through convenience sampling. After checking the entry the criteria, a written consent was received from the participants and some explanations about the research process were provided to them. After data collection, the data were analyzed in SPSS22.

Instruments

1. Cognitive Emotion Regulation Questionnaire (CERQ-P-SHORT): This multi-dimensional questionnaire has been developed by Garnefski in 1999 to identify individuals' cognitive coping strategies after experiencing negative events or situations. This is a self-reporting tool and consists of 18 items. It includes 9 cognitive strategies, namely self-blame, acceptance, rumination, positive refocus, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and others' blame. The items are scored based on a 5-point Likert scale from 1 (never) to 5 (almost always). Each subscale consists of 2 questions (Garnefski & Kraaij, 2006). In the standardization of this questionnaire Iran, Mashhadi, Hassani, & Mirdoraghi (2011) reported the Cronbach's alpha coefficients of the scale and its subscales within the range of 0.62 to 0.80. In that research, the correlation between the scales has been reported relatively high. Cronbach's alpha coefficients of cognitive components of self-blame, acceptance, rumination, positive refocus, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and others' blame have been respectively obtained equal to 0.66, 0.75 , 0.77, 0.71, 0.69, 0.72, 0.77, 0.70, and 0.78 in the current study.

2. Big Five Personality Traits Questionnaire: This questionnaire was designed by Costa, & McCrae in 1985 and consists of five main factors of personality, namely neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. It consists of 60 items that are scored based on a five-point Likert scale from zero to 4. The minimum and maximum scores in each factor are equal to zero and 48, respectively (Costa, & McCrae, 1987). This test was standardization by Garousi Farshi, Mehriar, & Tabatabaee (2001) on a sample of 2000 students from Tabriz, Shiraz, and the medical universities of these two cities where they reported the correlation coefficients of the five main dimensions to range from 0.56 to 0.87. Cronbach's alpha coefficients of different factors of the scale, namely extraversion, openness to experience, agreeableness, conscientiousness, and neuroticism were obtained equal to 0.86, 0.56, 0.73, 0.86 and 0.87, respectively (Garousi Farshi, Mehriar, & Tabatabaee, 2001). In the same way, Roshan et al (2006) reported the concurrent validity of this questionnaire by correlating it with the 90-item Symptom Checklist-90-Revised and obtained the correlation coefficients within the range of 0.66 to 0.86 for the five personality factors. In the current study, Cronbach's alpha coefficients for the components of extraversion, openness to experience, agreeableness, conscientiousness, and neuroticism were obtained equal to 0.70, 0. 67, 0.71, 0.74, and 0.70, respectively.

Results

The mean value of female addicts' age (33.56 ± 4.72) was higher than that of normal women (31.83 ± 3.44), but this difference was not statistically significant ($t = 0.26$, $p > 0.05$). The mean of education level in the normal group

(13.74 ± 3.92) was higher than that of the addicted group (11.60 ± 4.09), but this difference was not statistically significant (P> 0.05, t = 0.176). Duration of drug use was 4.4 years with the standard deviation of 3.1 years. The types of substance used were amphetamine (19%), cocaine (70%), and ecstasy (11%). The descriptive statistics of the research variables are presented in Table 1.

Table 1: Descriptive Statistics of the Research Variables for each Group

Variable	*Women with addiction*		*Normal women*	
	Mean	*SD*	*Mean*	*SD*
Neuroticism	32.58	7.18	23.93	5.23
Extraversion	22.38	4.41	16.74	5.45
Openness to Experience	21.65	6.39	15.07	4.70
Agreeableness	28.15	6.62	27.33	4.76
Conscientiousness	23.83	5.44	25.60	4.53
Self-Blame	13.53	2.98	7.81	2.13
Acceptance	11.08	2.63	13.13	3.12
Rumination	14.49	3.29	9.76	4.11
Positive Refocus	9.51	3.43	11.06	4.19
Refocus on Planning	8.72	4.16	13.40	3.05
Positive Reappraisal	8.44	2.66	10.21	3.47
Putting Into Perspective	12.42	5.27	10.75	4.33
Catastrophizing	13.61	3.47	9.54	2.58
Others' Blame	11.30	3.18	10.69	2.89

Multivariate analysis of variance should be used to compare two groups in personality traits and cognitive emotion regulation. One of the assumptions for running this test is the equality of the variance-covariance matrix. The results of Box test showed that this assumption has been met (P> 0.05, F=1.18, M box = 1.29). Another assumption of this analysis is the equation of error variances, and the results of the Levene's test examining this assumption are presented in Table 2.

Table 2: Results of the Levene's Test Examining the Equality of Error Variances in the Research Variables

Variable	*F*	*Df*	*Sig.*	*Variable*	*F*	*Df*	*Sig.*
Neuroticism	4.00	78	0.52	**Rumination**	0.51	78	0.47
Extraversion	3.04	78	0.162	**Positive Refocus**	0.19	78	0.65
Openness to Experience	0.12	78	0.284	**Refocus on Planning**	0.01	78	0.91
Agreeableness	0.05	78	0.223	**Positive Reappraisal**	0.24	78	0.48
Conscientiousness	0.35	78	0.550	**Putting Into Perspective**	2.44	78	0.12
Self-Blame	0.04	78	0.965	**Catastrophizing**	0.87	78	0.48
Acceptance	2.26	78	0.135	**Others' Blame**	3.87	78	0.10

As it has been shown in Table 2, the assumption of the equality of error variances has been satisfied in all variables. Therefore, multivariate analysis of variance was run and its results were indicative of the presence of a significant

difference (P < 0.001, F = 14.65, Wilks' lambda = 2.44). To analyze the patterns of difference, univariate analysis of variance was used, as presented in table 3.

Table 3: Univariate Analysis of Variance Examining Patterns of Difference in Research Variables between the two Groups

Variable	*Sum of squares*	*Df*	*Mean squares*	*F*	*Sig.*
Neuroticism	39.250	1	39.250	65.97	0.001
Extraversion	49.613	1	49.613	62.16	0.001
Openness to Experience	42.015	1	42.015	37.32	0.001
Agreeableness	37.813	1	37.813	1.37	0.61
Conscientiousness	55.513	1	55.513	2.18	0.52

As it has been shown in Table 3, there is a significant difference between the two groups in some personality traits, such as neuroticism, extraversion, and openness to experience (P <0.001). On the other hand, there was no significant difference between groups in other variables (P >0.05). In the following, the results of univariate variance analysis of cognitive emotion regulation strategies are presented in Table 4.

Table 4: Univariate Analysis of Variance Examining Patterns of Difference in Research Variables between the two Groups

Variable	*Sum of squares*	*Df*	*Mean squares*	*F*	*Sig.*
Self-Blame	241.12	1	241.12	97.49	0.0005
Acceptance	12.27	1	12.27	2.51	0.187
Rumination	238.61	1	238.61	78.22	0.0005
Positive Refocus	151.41	1	151.41	3.92	0.156
Refocus on Planning	241.35	1	241.35	74.93	0.0005
Positive Reappraisal	145.29	1	145.29	4.23	0.213
Putting Into Perspective	162.61	1	162.61	4.08	0.309
Catastrophizing	284.50	1	284.50	73.08	0.0005
Others' Blame	132.39	1	132.39	1.25	0.154

As it has been shown in Table 4, there is a significant difference between the two groups in the strategies of self-blame, rumination, re-focusing on planning ,and catastrophizing (P <0.001). However, there was no significant difference between the two groups in other variables (P >0.05).

Discussion and Conclusion

The aim of the present study was to compare personality traits and cognitive emotion regulation strategies between women with addiction to stimulants and non-addicted women. The results showed that women with addiction to stimulants have a significant difference with non-addicted women in personality traits of openness to experience, neuroticism, and extraversion. This finding is consistent with the research findings reported by Dasgupta (2017); Brents, Tripathi, Young, James, & Kilts (2015); Sattler, & Schunck (2015); and Lackner, Unterrainer, & Neubauer (2013). Neuroticism is a personality trait associated with emotional instability, anxiety, depression, pessimism, stress, and

disappointment. Those who obtain high scores in this personality trait are the ones that are psychologically distressed while appearing calm (Beigi, & Tale Pasand, 2015). Anxiety and depression are common addiction comorbidities, which have a two-way relationship with each other and are still introduced in the research literature as risk factors for addiction. The notable point is that both the risk factor and the consequences of anxiety and depression necessitate the assignment of attention to these factors in treatment and prevention programs (Tolliver, & Anton, 2015). Individuals with neuroticism are prone to substance abuse and may show high risk behaviors to cope with mood disorders. They have a stimulant-induced autoimmune system compared to normal people. In fact, high neuroticism is associated with extreme reactivity and psychological instability (Sarramon, Verdoux, Schmitt, & Bourgeois, 2007).

The extraversion index is a significant personality trait that has been the focus of many studies. There are a large number of related factors to this indicator. One of the important factors is brain-behavioral systems. Behavioral activation system is a behavioral brain system that is associated with conditioning with pleasant stimuli. It is believed that individuals with extraversion are more sensitive to reinforcement and have a stronger behavioral activation system than introverted people. Hence, addicts are more susceptible to reinforcement and seek rewards and pleasant stimuli where these searches are related to extraversion. Drug use increases the arousal in these individuals and people with high levels of sensation seeking are less likely to predict the risks of drug use in the face of stimulants, such as opioids due to their low levels of anxiety and high levels of irritability and impulsivity (Terracciano et al., 2008). They seek new pleasures and unconventional values, and also need new, sometimes risky, experiences to reach a level of irritability. In fact, fresh and high-risk experiences will maintain a mental balance in people who need high levels of arousal (Parke, Griffiths, & Irwing, 2010). The personality factor of openness to experience is a factor that is related to the number and frequency of new experiences and the search for these experiences. People with this trait have more curiosity, a higher tendency to unusual risks and thoughts, mental imagery, diverse experiences, and novelty seeking attitudes toward life. Generally, people who are open to experience are both curious about the inner world and the outside world. They seek their own experiences and try to gain different experiences. This factor is associated with more high risk behaviors, higher risk-taking, and high predisposition for addiction, and is one of the risk factors for drug addiction (Modaresifard, & Maredopour, 2016). This trait is characterized by the multiplicity of interpersonal relationships in adolescence, high-risk behaviors, sensation seeking, and more hedonism, all of which are considered to be risk factors for addiction. This factor can be found in interpersonal relationships and the kinds of behaviors that a person performs. This trait in addiction has been referred to as one of the areas of prevention and risk factors (Borna, Hamid, & Hayati, 2016).

Moreover, the results showed that the women with addiction to stimulants obtained higher scores than normal women in the components of cognitive emotion regulation, including self-blame, rumination, and catastrophizing, while they gained lowers scores in the component of refocusing on planning than non-addicted women. This finding is consistent with the research findings reported by Gha'ednia Jahromi, Hassani, Farmani, & Zare'ea (2016); Ghasemi, Rabi'ea, Haghayegh, & Palahang (2011); Hejazi, Aghayari, & Jarchi (2016); and Tang, Tang, & Posner, (2016). The individuals taking adaptive emotion regulation strategies are more capable of managing the needs of others. They understand the unwanted pressure of others and better control their own emotions. In addition, they resist against substance use. In contrast, the individuals taking maladaptive strategies tend to be drawn to drug use in order to cope with their negative emotions (Gha'ednia Jahromi et al., 2016). In the present study, women with addiction to stimulants achieved higher mean scores in the rumination strategy. It is noteworthy that rumination is one of the main causes of depression and exacerbates anxiety and depression, which is associated with weaker adaptation and more stress. Although rumination is the beginning of the way to focus on finding a solution, it leads to exacerbation of the problem and negative emotions. Rumination has a negative effect on information processing and directs the person from here and now to the processing of the past experiences, which, in itself, results in aggravated mood and anxiety disorders (Cooney, Joormann, Eugène, Dennis, & Gotlib, 2010). These anxiety and depression, which arise from rumination, are the first comorbidity of addictive disorder and plays an unbreakable role in the process of addiction intensification and treatment (Tolliver, & Anton, 2015).

Catastrophizing is one of the maladaptive cognitive emotion regulation strategies, which has been found to have a significant relationship with psychological distress. When a person overestimates his/her experiences, s/he undergoes a lot of cognitive errors that subsequently directs the person towards more negative emotions. This also reduces his/her coping capabilities (Zhao, & Zhao, 2015). Self-blame is accompanied by a high level of anxiety and depression and is considered as an obstacle to adaptation to stressful events of life. When a person experiences a bad event, s/he is attributes it to his/her suffering from deficiencies and defects, blames him/herself, and undergoes more depression in such a situation. This strategy is related to emotional and anxiety difficulties (Garnefski, Koopman, Kraaij & ten Cate, 2009). This strategy prevents the person from adapting to stressful and harmful events and directs him/her to disorders. Self-blame as a cognitive emotion regulation strategy is the same as attributional style that is more intrinsic, stable, and general. Internal attributions are related to specific psychological states. Self-blame can have a prolonging and exacerbating role in the addiction process through the anxiety and depression that it produces. Additionally, it plays an important role in addicts' craving for drug use (Li et al., 2015). Refocusing on planning is, in fact,

thinking of what steps a person can take to resolve the problem. This strategy is associated with better cognitive capabilities, appropriate mental health and quality of life, and coping with problems in addicts (Kirby, 2007).

The present study showed that women with stimulant addiction had a significant difference in personality traits and cognitive emotion regulation strategies compared to non-addicted women. The personality traits that may affect the lifestyle and behaviors associated with addiction relapse in addition to addiction exacerbation are discussed. On the other hand, addicts in the present study obtained high scores in maladaptive cognitive emotion regulation strategies, but gained low scores in adaptive cognitive emotion regulation strategies. This indicates that these individuals suffer some difficulties in management of their emotions that can contribute to their addiction or to the exacerbation of their addiction. Among the limitations of this study, one can refer to some issues, such as limitations in the study of addiction duration, limitations in the study of different types of stimulants separately, and paper and pen evaluation tools in this study. It is recommended that these limitations be investigated in future studies and hat other variables, such as gender, other types of addictive drugs, and the effectiveness of treatment programs based on emotion regulation and personality in addicted women be surveyed.

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