

Abstract

Objective: This study was aimed to compare the behavioral activation/inhibition system and temperament and character between addicted and non-addicted people.

Method: A descriptive research design along with a causal-comparative method was employed for the conduct of this research. The research population consisted of all addicted and non-addicted men living in Kish Island, among whom 200 individuals were selected by convenience sampling method. The data were gathered using Cloninger's Temperament and Character Inventory and Behavioral Inhibition/Activation System. Data analysis was performed using Pearson correlation test and multivariate analysis of variance.

Results: The results showed that there was no significant difference between the two groups in terms of behavioral activation system, fun seeking, and reward dependence, while there was only a significant difference between the groups in drive and inhibition system ($P < 0.05$). In addition, there was a significant difference between the two groups in terms of harm avoidance and self-directedness ($P < 0.01$). The results did not show any significant difference between the two groups in terms of novelty seeking, persistence, cooperativeness, and self-transcendence.

Conclusion: Substance dependent individuals have a weaker behavioral system than non-addicted subjects. However, unlike previous studies, the drive sensitivity in non-addicted individuals was obtained higher than those in addicts in this study. High levels of harm avoidance and low self-directedness affect the severity of addiction in drug dependent people. Regarding the large sample size of this study in comparison with previous studies and the homogeneity of the research sample, the conduct of similar research is needed to achieve more clear results.

Keywords: Behavioral Activation/Inhibitory System, temperament and mood, addicted people, non-addicted people

On the Comparison of Behavioral Activation/Inhibitory System and Temperament and Character between Addicted and Non-addicted Persons

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Introduction

Dependency or substance abuse has become a social ill in recent years and is a chronic and relapsive disorder that imposes high costs on the involved individual, family, and society. Clinical findings have shown that various biological, psychological, and social factors contribute to the formation of this disorder (Abdi, Bakhshipour Roudsari, & Alilou, 2011). Therefore, these factors must be considered for the prevention, control, and treatment of this disease. One of the major neuropsychological theories in the field of addiction is Reinforcement Sensitivity Theory (Gray, 2001; Bijjetbier, Beck, Clase & Vanderecken, 2009); which is an explanatory model of personality traits based on brain systems that makes individuals vulnerable to some psychological disorders. Based on this theory, there are three brain systems that control the behaviors and emotions. These systems include behavioral approach system (activation system), behavioral inhibition system, and fight-flight-freeze system. These systems are independent but interact with each other at the same time (Bijjetbier et al., 2009).

According to Reinforcement Sensitivity Theory, the activation system is the motivational- appetitive system of the brain, and its role is to stimulate a tendentious behavior in response to conditional and unconditional stimuli (Corr, 2004). The overstimulation of this system results in mania states and more involvement with the consumption of alcohol and substances (Gray, 1993). The dopamine mesolimbic system seems to function the acute and chronic effects of all the substances that are abused and are involved in enhancing the effects of stimuli. Anton (2001) concluded that psychoactive drugs affect the dopaminergic system, which regulates the emotional responses, and the mesolimbic pathway of this system has a role in the emotional reward of drug use. Research has shown the relationship of activation system, behavioral inhibition system, and fight-flight-freeze system with addiction and substance abuse, while, in some cases, contradictory results have been reported in this regard. For example, Abdi et al. (2011) compared the sensitivity of behavioral activation and inhibitory systems between substance abusers, smokers, and normal people and concluded that the activation system scores were higher in the two groups of smokers and substance abusers than those in the normal group. However, the two groups of smokers and substance abusers did not differ from each other in this domain. In the subscale of behavioral inhibition system, the smokers' scores were higher than those of the other two groups.

Zisseron & Palfai (2007) studied 88 hazardous alcohol abusers and showed that reactivity and sensitivity to appetitive cues are associated with activation system. Franken (2002) and Franken, & Muris (2006) also found that substance and alcohol consumption have a positive relationship with personality traits of behavioral inhibition systems. In addition, substance and alcohol consumption had a negative relationship with personality traits of behavioral inhibition

systems in students. Loxton & Dawe (2001) and Jrom et al. (1999) confirmed the relationship between the activation and the use and abuse of substance in a non-clinical population. In another study, Johnson, Turner, & Iwata (2003) showed that high levels of responsiveness to the reward and arousal of the activation system are associated with alcohol abuse during life. In the same way, Franken, Muris & Georgieva (2006) showed that addicts obtained significantly higher scores in the subset of the behavioral inhibition system/ behavioral activation system compared to the two control groups, i.e. alcohol drinkers and normal people. On the other hand, many studies have reported the role of personality traits in addiction. Researchers believe that certain personality traits, such as impulsivity, aggression, and sensation seeking play an important role in the initiation, formation, and continuation of substance abuse (Ball, 2002). Cloninger (2004 and 2006) is a biology theorist of personality who has provided a solid theoretical framework in two areas of temperament and character with a look at and emphasis on the biological foundations of personality. The concept of temperament in Cloninger's perspective refers to individual differences in the area of basic emotional responses and the inherited traits that remain stable over the course of life. On the other hand, character (which may have grown or not grown) reflects the goals of life and is the value system and emotions of the individual; however, the dimensions of character are less inherited and are often influenced by social learning (Takeuchi, Et al., 2011). From this perspective, temperament includes four dimensions of novelty seeking, harm avoidance, reward dependence, and persistence. Novelty seeking is associated with the behavioral activation system or reward dependence system, harm avoidance is associated with behavioral inhibition system or punishment, reward dependence is related with social reinforcement and sensitivity to stimuli, and persistence is associated with the maintenance of a specific behavior in silent conditions (Adan, Grabulosa, Caci & Natale, 2009). In Cloninger's biologic perspective, character also includes three dimensions, namely self-directiveness, cooperativeness, and self-transcendence. Self-directiveness refers to one's capacity of conducting regular behavior in order to adapt him/herself to the principles, goals, and beliefs. Cooperativeness involves behaviors in harmony with the community norms, and is an indicator of social adjustment. Self-transcendence also consists of the ability to accept and perceive the self and environment as an integrated whole. The combination and integrity of the dimensions of temperament and character leads to the formation of the socio-social theory of personality (Adan et al., 2009). Cloninger (2006) argues that different personality profiles anticipate two paths towards alcoholism and, in general, drug abuse. According to his original theory, the interaction of three independent genetic, neurobiological, and biological systems, including behavioral activation, inhibition, and maintenance systems in the central nervous system generates unique patterns of behavioral responses to new experiences, reward dependence, and punishment. These response patterns lead to personality

disorder and other disorders, such as alcoholism and drug abuse (Adams et al., 2003). According to research findings, personality traits play an unavoidable role in the initiation and spread of addiction (Fassino, Abbate-daga, Delsedime, Rogna & Boggio, 2004; Hosak, Preiss, Halier, Cermakova & Csemy, 2004; Ball, 2005; Abbate-daga, Amianto, Rogna, & Fassino, 2007; Evren, Evren, Yancar & Erkiran, 2007). Asghari, Pourshbaz, & Farhadian (2010) found that the patients with relapse obtained higher scores in terms of novelty seeking and harm avoidance compared to the patients without relapse, but obtained lower scores in self-directedness and cooperativeness dimensions. However, there was no significant difference between the two groups in the personality dimensions of persistence and reward dependence. Nouri Feshalanji et al. (2012) conducted a study to predict cigarette smoking dependence in men through personality dimensions of Cloninger's seven-factor model, and concluded that self-directedness is the most important predictor of cigarette dependence and proposed harm avoidance and self-directedness as the most important predictors of cigarette smoking dependency. Abolghasemi, Kiamarsi, & Momeni (2013) also showed that the average scores of harm avoidance and novelty seeking in drug addicts were significantly higher than those in non-addicted people. In the same way, the mean scores of reward dependence, cooperativeness, and self-directedness in addicted people were significantly lower than those in non-addicts.

Bisol, Soldado, Albuquerque, Lorenzi, & Lara (2010); Kim et al. (2010); Wills, Pokhrel, Morehouse, & Fenster (2011); and Lee & Jung (2012) also showed that the temperamental dimensions of harm avoidance and reward dependence are positively correlated with the onset of drug use and the severity of nicotine dependence. In addition, the temperamental dimension of novelty seeking is associated with a wide range of behaviors pertaining to substance use. Leventhal et al. (2007) showed that the individuals with a high level of novelty seeking reported more negative effects and a higher level of smoking craving when entering the nicotine withdrawal process. During the process of smoking withdrawal, individuals with a high degree of harm avoidance reported more negative effects and a higher motivation for consumption when they feel distressed. However, there was no relationship between reward dependence and smoking withdrawal. Based on what was mentioned, the role of behavioral approach and inhibition systems as well as personality traits of temperament and character in drug dependent people has been less discussed in domestic research. Therefore, the present study aims to compare behavioral activation/inhibitory system and temperament and character between addicted and non-addicted persons in order to obtain more accurate results in this regard.

Method

Population, sample, and sampling method

A descriptive research design along with a causal-comparative method was employed for the conduct of this research. The research population consisted of all addicted men presenting to Hami rehabilitation center of Kish and non-addicted sample included different people in Kish who had a health and non-addiction card in fall, 2013. The research sample consisted of 200 participants (100 drug dependent participants and 100 non-addicted participants). The sample units of both groups were matched in terms of age, marriage, and education. Non-addicted samples were selected randomly from different strata.

Instruments

1. Carver & White's Behavioral Activation System/ Behavioral Inhibition System (BIS/BAS) Scale: This scale is composed of 24 items. The Behavioral Inhibition System scale includes 7 items and the Behavioral Activation System scale includes 13 items and 4 items of it are deviant questions. The Behavioral Activation System scale is divided into three subscales of reward responsiveness drive, and fun seeking search where the sum of scores of these items equals the total activation system. The items of this scale are scored based on a 4-point Likert scale (1 = I agree to 4 = I strongly agree). Carver & White reported the Cronbach's alpha coefficients of above 0.71 for all sub-scales. In Iran, the re-test reliability of all the subscales of this measure has been reported above 0.78 (Abdollahi, 2007). In this research, reliability coefficient of the total scale obtained equaled to 0.81.

2. Temperament and Character Scale: This scale was developed by Cloninger, Przybeck, Svrakic & Wetzel in 1994 to measure temperament, biogenetics, and acquired character. This scale contains 125 true/false items that are scored as zero and one. Kaviani & Poornaseh (2005) reported the internal consistency coefficients of the seven subscales within the range of 0.55 to 0.80, and reported the re-test reliability coefficients of 0.73 to 0.90 for the subscales. There are weak to medium correlations between the four-dimensional scale of temperament and the triple-dimensional scale of character (lower than 0.40). Except for self-directiveness and harm avoidance correlation that is above 0.40, the only correlation above 0.40 is between the three dimensions of character pertaining to cooperativeness and self-directiveness.

Results

The descriptive statistics of the components of BIS/BAS have been presented in Table 1 for each group.

Table 1: Descriptive statistics of the components of BIS/BAS for each group

<i>Variable</i>	<i>Group</i>	<i>Mean</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>N</i>
Activation system	Addicts	29.23	23.5	13	37	100
	Non-addicts	99.23	19.4	15	35	100
Inhibition system	Addicts	49.13	73.2	8	23	100
	Non-addicts	5.14	59.2	9	21	100
Reward responsiveness	Addicts	34.7	23.2	5	15	100
	Non-addicts	37.7	83.1	5	13	100
Drive	Addicts	80.6	13.2	4	15	100
	Non-addicts	55.7	84.1	4	14	100
Fun seeking	Addicts	15.9	91.2	3	16	100
	Non-addicts	17.9	45.2	4	16	100

The descriptive statistics of temperament and character have been presented in Table 2 for each group.

Table 2: Descriptive statistics of temperament and character for each group

<i>Variable</i>	<i>Group</i>	<i>Mean</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>N</i>
Novelty seeking	Addicts	43.90	41.3	3	19	100
	Non-addicts	51.90	46.3	3	19	100
Harm avoidance	Addicts	43.90	37.3	2	17	100
	Non-addicts	31.80	93.3	2	17	100
Reward dependence	Addicts	61.80	6.2	3	13	100
	Non-addicts	58.80	38.2	1	14	100
Persistence	Addicts	20.30	35.1	0	5	100
	Non-addicts	23.30	36.1	0	7	100
Cooperativeness	Addicts	79.15	39.3	6	24	100
	Non-addicts	54.16	50.3	8	23	100
Self-directiveness	Addicts	6.11	29.4	2	20	100
	Non-addicts	98.13	27.5	4	25	100
Self-transcendence	Addicts	96.80	58.2	3	14	100
	Non-addicts	87.80	74.2	3	14	100

To answer the research questions regarding the differences in the components of behavioral activation/ inhibitory system, multivariate analysis of variance (MANOVA) should be used. One of the assumptions of this test is the homogeneity of covariance-variance matrices. The results of Box's test indicated that this assumption has been met ($P > 0.05$; $F = 1.002$; $M \text{ Box} = 2.35$). Another assumption for using this test is the equality of error variances. In this regard, the results of Levene's test showed that this assumption has been met ($P > 0.05$). Therefore, multivariate analysis of variance was run and the results showed that the two groups were different in the linear combination of the components ($P < 0.001$; $F = 21.24$; Wilks's Lambda = 0.022). To examine the patterns of difference, univariate analysis of variance was used as presented in table 3.

Table 3: ANOVA results examining the differences between the two groups in the subscales of the behavioral activation/ inhibition system

<i>Variable</i>	<i>Mean squares</i>	<i>F</i>	<i>Sig.</i>
Inhibition system	57.245	8.075	0.005
Drive	28.125	7.042	0.009
Fun seeking	0.320	0.044	0.834
Reward responsiveness	0.045	0.011	0.917

As it has been shown in Table 3, there is a significant difference between the two groups in behavioral inhibition system ($P < 0.001$) and response to drive ($P < 0.01$). Regarding the descriptive statistics, it can be said that the non-addicted group obtained a higher score in the subscale of the behavioral inhibition system, but obtained a lower score in the subscale of drive.

To answer the research questions regarding the differences in the temperament and character, multivariate analysis of variance (MANOVA) should be used. One of the assumptions of this test is the homogeneity of covariance-variance matrices. The results of Box's test indicated that this assumption has been met ($P > 0.05$; $F = 1.25$; $M \text{ Box} = 2.42$). Another assumption for using this test is the equality of error variances. In this regard, the results of Levene's test showed that this assumption has been met ($P > 0.05$). Therefore, multivariate analysis of variance was run and the results showed that the two groups were different in the linear combination of the components ($P < 0.001$; $F = 35.607$; Wilks's Lambda = 0.008). To examine the patterns of difference, univariate analysis of variance was used as presented in table 4.

Table 4: ANOVA results examining the differences between the two groups in character and temperament

<i>Variable</i>	<i>Mean squares</i>	<i>F</i>	<i>Sig.</i>
Novelty seeking	0.320	0.027	0.870
Harm avoidance	64.980	4.840	0.029
Reward dependence	0.045	0.009	0.924
Persistence	0.045	0.024	0.876
Cooperativeness	28.125	2.362	0.126
Self-directiveness	269.120	11.633	0.001
Self-transcendence	0.405	0.57	0.812

As it has been shown in Table 4, there is a significant difference between the two groups in terms of harm avoidance ($P < 0.05$) and self-directiveness ($P < 0.001$). Regarding the descriptive statistics, it can be argued that the non-addicted group has obtained lower scores in the subscale of harm avoidance, but a higher score in the self-directiveness scale.

Discussion and Conclusion

The aim of this study was to compare behavioral activation/inhibitory system and temperament and character between addicted and non-addicted persons. The results of this study showed that there was a significant difference between the two groups of substance dependent persons and non-addicted persons in terms of drive and the results indicated that this personality dimension was higher in

healthy subjects. With regard to the insignificant difference between the two groups in terms of the activation system, fun seeking, and reward responsiveness, the results are in contrast with those of the studies Franken et al. (2006), Franken (2002), Franken & Muris (2006), and Abdi et al. (2011). However, regarding the significant difference between the two groups in terms of drive and its higher level in drug dependent group, the result is to some extent consistent with the results of the above-mentioned studies where it was reported that substance abuse patients compared to healthy people have a more dominant activation system in terms of activity and sensitivity and, subsequently, there are higher degrees of the personality dimensions of drive responsiveness and reward responsiveness. The findings of this section of the study are also in contradiction with Gray's reinforcement sensitivity theory that asserts the relationship of the activation system with tendency behaviors (such as drug use). Therefore, we should draw conclusions from this finding with caution. Johnson et al. (2003), Jorm et al. (1999), and Laxton, & Dawe (2001) also confirmed the association between the sensitivity of activation system and alcohol consumption in a non-clinical population. This also indicates the inconsistency of findings of this study with the results of the above-mentioned research.

It can also be maintained that since the substance-dependent people in this study were under methadone treatment and the use of methadone may have affected their nervous system, it is likely that their behavioral activation/inhibition system has also been influenced by methadone. The findings of this section of the study indicate that impulsivity, risk taking, pleasure, novelty, and variety seeking are not always necessarily associated with high levels of activity and sensitivity of the activation system and are not always necessarily the predictors of substance use. Therefore, more similar research should be conducted to provide more accurate information in this regard.

Another finding of the present study was indicative of a significant difference between the two groups of drug dependent people and normal people in the mean score of the behavioral inhibition system, which was higher in the normal group than that in the substance dependent group. The role of the sensitivity of the behavioral inhibition system in substance use is ambiguous and unclear. The studies that have investigated the relationship between reward sensitivity and drug use have reported a significant negative correlation between substance abuse and sensitivity of behavioral inhibition system, this finding is in line with the findings of the present study. For example, Franken, & Murice (2006); Genovese & Wallace (2007); Hundt, Kimbrel, Mitchell, & Nelson-Gray (2008); Kimbrel et al. (2007); Pardo, Aguilar, Molinuevo, & Torrubia (2007); and Simons et al. (2008) showed that an increase in the sensitivity and activity of behavioral inhibition system in individuals leads to a reduction in the rate of drug use tendency. Therefore, it is likely that the high sensitivity of the behavioral inhibition system is an important factor in non-tendency to substance abuse in healthy people. In this regard, Abdi, Abdollahi Majarshin, Babapoor Kheiroddin,

& Ghoujazadeh (2008) compared the personality traits pertaining to brain behavioral inhibition/ activation systems between individuals with high-risk sexual relations, individuals with low-risk sexual relations, and normal people, and concluded that the personality trait of behavioral activation system in people with an illegitimate sexual relationship was consistent with the non-application of condom, and the personality trait of the brain inhibition system was consistent with the use of condom. These results are consistent with the findings of the present study where it has been revealed that substance abuse tendency was reduced and the sensitivity of behavioral inhibition system was higher in healthy individuals than those in substance abusers.

To explain the findings of this section of the research, it can be claimed that the behavioral inhibition system keeps the individual alert regarding possibility of the occurrence of any risk or punishment and, thereby, it facilitates avoidance behavior. This is so while the behavioral activation system is sensitive to reward symptoms and makes the person involved in (tendentious) behaviors. In general, the behavioral inhibition system causes anxiety and stops the current activity of the person so that s/he can examine the cues and indicators available in the situation (Muris, Meesters, Dekanter, & Timmerman, 2005).

The results also showed that the mean score of harm avoidance in substance dependent individuals was higher than that in healthy subjects. This finding is consistent with those of the studies conducted by Asghari, Pourshahbaz, & Farhadian (2010); Leventhal et al. (2007); Etter (2010); Abbate et al. (2007); Hosak et al. (2004); Weijers et al. (2003); and Gerdner et al. (2002) where the relationship between harm avoidance and drug addiction was confirmed. For example, Etter et al. (2010) identified high harm avoidance as the main predictor of drug addiction severity and cigarette smoking. To interpret this finding, it can be said that harm avoidance indicates one's intrinsic desire for behavioral inhibition in response to punitive or non-rewarding stimuli. This feature is manifested as fears of uncertainty, shyness, social inhibition, and inescapable avoidance of problems and dangers, fatigue, and cynical concern in situations where the occurrence of problems is expected, even the situations that do not worry others. High levels of harm avoidance can be adaptive and lead to caution and accurate planning in situations where there is the possibility of a risk. However, in the severe state of harm avoidance, despite the absence of any risk, the person experiences anxiety and is always struggling to overcome these imaginative risks. People with harm avoidance are prone to depression, anxiety, and low self-confidence. Harm avoidance in some way represents negative emotion ability and has an inherited basis (Cloninger, & Svrakic, 2005). High harm avoidance is associated with personality disorders of conscientiousness and mood disorders, and people with high levels of harm avoidance are more at risk of these disorders (Cloninger, & Svrakic, 2005). In some studies, drug use has been introduced as a self-medication to reduce the symptoms and cues of these disorders. What has influenced harm avoidance component in the present

study include concern, pessimism, anxiety, agitation, emotional distress, aggressive behaviors, nausea, drug-seeking behaviors, and high craving (Curie et al., as cited in Momeni, 2009). Various studies have shown that addiction holds the highest comorbidity with anxiety and depression (Harrel & Karim, 2008) and individuals with harm avoidance turn to drug use as the only known method to control the level of anxiety and negative mood.

On the other hand, the results showed that the mean score of self-directiveness was higher in healthy subjects than that in drug dependent individuals. The finding that the level of self-directiveness in substance dependent individuals is lower than that in healthy subjects is in harmony with the findings reported by Purper-Ouakil et al. (2010); Kim et al. (2010); Van Dijk, Lappenschaar, Kan, Verkes, & Buitelaar (2011); Abbate-daga et al (2007); Hosak et al. (2004); and Fassino et al. (2004). As Cloninger (2004) points out, the success in the withdrawal of substance abuse can be predicted from the person's efficiency level rather than from his/her degree of physical attachment to the abuse of substances, such as heroin and tobacco. From the perspective of neurological approaches, it can also be argued that low levels of self-directiveness in drug dependent individuals are representative of the concept of escape and response inhibition that put them at higher risks of impulsivity and behavioral problems (Biederman et al., 2008). In other words, low levels of self-directiveness are associated with high levels of behavioral problems, impulsivity, anxiety, depression, attention problems, and violent behaviors in drug addicts.

The results also showed that there was no significant difference between the two groups of substance dependent individuals and healthy subjects in terms of novelty seeking, persistence, cooperativeness, and self-transcendence. This finding is not consistent with those of the previous studies carried out by Evren et al. (2004); Fassino et al. (2004); Le Bon et al. (2004); Weijers et al. (2003); Adams et al. (2003); Gerdner et al. (2002); and Ketabi et al. (2008). To account for this contradiction, it can be claimed that novelty seeking entails the receipt of repeated stimuli for the optimal maintenance of post-synaptic dopaminergic activity, and related studies have constantly reported the association of high levels of novelty seeking with behaviors, such as smoking and drug abuse. However, due to the high sample size of the present study compared to the previous studies, more similar research should be done in this field to achieve more accurate results. Also, with regard to the dimension of cooperativeness, although Cloninger's personality system (1994) assumes collaboration based on self-concept as a part of the human world and the community and research has introduced poor skills in this dimension as an orienting factor to addiction, the results of present study indicate that further research in this field seems necessary. It seems that environmental conditions, sample size, control of intervening variables, such as gender, socioeconomic status, and type of drug use can produce different results and outcomes.

In addition, the results showed that there was no significant difference between the two groups with regard to the mean scores of substance dependent people and healthy subjects. This finding contradicts the other research findings (Purper-Ouakil et al., 2010; Kim et al., 2010; Van Dijk et al., 2011; Cloninger, & Svrakic, 2005). To explain this finding, it can be argued that self-transcendence is associated with religious beliefs, dignity, and unconditional patience, and acts as an obstacle to impulsiveness in these individuals.

Finally, it should be noted that substance dependent people obtained a lower score in the inhibition system than that of healthy people. However, the results showed that the healthy subjects obtained a higher score in the drive system than substance dependent people although the subjects with substance dependence were expected to obtain a higher score in the drive system. Moreover, in the present study, no significant difference was observed between the two groups in terms of behavioral activation system, which indicates that care and discretion should be exercised in the generalization of results due to the research limitations. Although the strength of the present study was its high sample size of where the number of 100 participants was considered for each group, it is necessary to achieve more accurate and clearer results by the conduct of similar studies with high sample sizes and the higher control of variables. Furthermore, the present study indicated that there was a significant difference between the two groups only in the components of harm avoidance and self-directiveness of temperament and character. Although it was expected that a significant difference be observed at least in features of novelty seeking, persistence, and cooperativeness, the differences between the two groups in terms of these traits were not statistically significant. The important point in this study was that the results of the study might undergo changes in the case of changing the sample size of the research. Single gender sample, control of the consumed drugs, control of methadone effect on the nervous system of drug dependent individuals, consideration of similar socioeconomic status, age, education, and occupational status are the factors that can be included in future studies in order to obtain more accurate results.

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