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Instructions for Publishing Papers in Journal of Substance Abuse Addiction Research

- After mentioning the title and author(s), write the abstract as objective, method, results, conclusion, and keywords.
- Persian and English abstract of papers should include maximum 150 word and from three to five words should be included for keywords. The English abstract is required to be written exactly in agreement with the Persian version. The exact spelling of the author and co-authors’ names should be written in footnote of the English abstract.
- Bibliographical information should be inserted at the end of the paper in alphabetical order as follows:
In accordance with APA style, put the English version of an author’s name in the footnote when mentioning it for the first time in the text. If the author has any colleagues (up to five persons), write their last names in the footnote. If the number of authors is higher than five, write the author’s name and then add the term et al.; the mention of all the authors’ names is obligatory in the reference section. If you are to mention an author and colleagues’ names for the first time, there will be no need to mention the colleagues’ names in the following times; in such cases, use the term et al.
- When necessary, write the author’s name and year of publication in parentheses in the text and insert the English equivalent of English terms at the end of that page. Add the name of all the instruments and expressions that are used in the text for the first time to the footnote. As much as possible, avoid using foreign words in the text.
- Final acceptance and publication of paper in the journal hinges upon the approval of the editorial board and expert reviewers. - All the articles, to be eligible for publication, should enjoy the observation of the principles and framework for Scientific-Research criteria (introduction, main body of the paper including a theoretical or conceptual framework to explain or describe the variables and their relationships, method (population, sample, sampling method, and instrument), research results and findings, discussion and conclusion, acknowledgement, and reference).
- Mention your suggestions in the last paragraph of the paper without inserting the heading of suggestions.
- Briefly present the conclusion as the summary of the discussion.
- Each paper can contain up to 13 A4 pages, each containing 240 words.
- Papers should be necessarily typed in Microsoft Office Word Software with the font of Times New Roman and size of 11 and the related file should be forwarded accompanied by the paper.
- The author(s)’ name should be written in full. The author(s)’ affiliation, academic degree, and email address should be mentioned below the author(s)’ names.
As well, the corresponding author’s name along with the full address should be written below each article.

Meta-analyses and Reviews: - Only an article will be accepted whose author has expertise in the relevant area and refers to his/her own name in the reference section (at least four times).
- The general principles of writing such papers are similar to the above-mentioned ones.

Notes:
1. The contents published in the journal are not necessarily reflective of Drug Control Headquarters’ ideas. The responsibility of the contents lies with the authors.
2. Quoting the contents of this journal (Research on Addiction) with citing the source is allowed.
3. This journal, hereby, invites all the researchers, professors, and experts to submit their research papers on addiction and narcotic drugs.
4. The journal is allowed to edit, modify, and coordinate scientific terms of papers up to the point that concepts do not get distorted.
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First words

Individual and social health and coping with its resultant threats, especially the threats with general aspects and harmful effects on society in the short run and long run, are one of the essential duties of each governmental system. One of these threats is the spread of drug addiction among the people of society (especially among the young and adolescent people) which results in countless victims annually and, consequently, inflicts serious damages on the family and society.

Addiction in Iran is a serious warning about the current state of our society and a major cause of serious social problems (such as theft, murder, self-inflicted burn, unemployment, domestic violence, child abuse, and even increasing divorce rate), economic problems (such as unemployment, money laundering, etc.), political problems (such as lack of national security, political instability, etc.), cultural problems (such as low levels of literacy, class differences, etc.) and health-related problems (such as AIDS, hepatitis, etc.). Moreover, individual, social, familial, geographic, economic and political factors are key to drug addiction.

From this perspective, what were enumerated above as threats are the issues a society is facing; therefore, the duty of answering the questions and solving them is markedly evident on the shoulders of students and scholars. In a society that trains responsible and committed people and always makes them sensitive to the social problems, this important factor can make people well-equipped against the threats only by using scientific methods and dominating scientific thinking and problem-solving power. In other words, the logical solution to curb the threats and damage caused by drug addiction in every society becomes feasible by advancing knowledge in this field, doing applied research, disseminating such studies in the field of addiction prevention and control. Such an attitude becomes internalized and widespread in society when a research-based culture prevails the society. The conduct of longitudinal and comparative studies is of importance in the scope of addiction studies. In fact, higher attention to longitudinal studies allows more accurate assessment of threats and problems resulting from addiction.

Accordingly, tendency to drug use can be examined from medicinal, psychological, sociological, economic, cultural, and geographical perspectives. With regard to the geographical requirements and conditions of Iran, it is strongly needed to deeply examine this issue in order to achieve operational strategies, interventionist solutions, and management techniques for practitioners and stakeholders. On the other hand, due to the success of many developing countries in social problems, in particular fighting drug addiction phenomenon, it is required to include in-depth scientific studies done by experts
in these countries (some of them are very specific and extensive studies over a long period of time or longitudinal studies) in the country's anti-drug research priority. In this way, we can obtain the requirements and conditions pertaining to the socialization of the fight against drugs; therefore, the most important issue in this framework is the development of operational models and methods in community-based prevention, education and general and specific awareness (for pupils, students, industrial environment and labor). In fact, two important steps measures should be taken to achieve these goals. First, a scientific attitude, along with a practical approach should be geared to by university professors, academia, and scientific centers. Second, stakeholders and authorities responsible for fight against drugs and psychedelics should propose more effective solutions in this area by this thought that scientific analysis on different aspects of the issue is the only fundamental solution to comprehensively fight against this phenomenon. It is hoped that scholars or academia will submit their scientific papers and help the administrative officials and planners of the country with the realization of the 6-percent reduction in addiction rate during the sixth country program so that we can have a clean and ideal society with a strong potential (young population) for the promotion and development of Islamic Iran (God Willing).

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Abstract

Objective: The present study was an attempt to explore the relationship of addiction potential with resiliency and subjective vitality. Method: This was a descriptive-correlational study. Lordegan Payame Noor University students constituted the population of this study. Then, the number of 172 students was selected as the participants via random sampling and responded to Resilience, Addiction Potential, and Subjective Vitality questionnaires. Results: Data analysis indicated that resiliency and subjective vitality were negatively correlated with addiction potential. Furthermore, the results showed that resiliency and subjective vitality were predictors of addiction potential. Conclusion: According to the findings of this study, it can be concluded that subjective vitality and resiliency are one of the factors effective in the generation of potential for substance use in individuals.

Keywords: Resiliency, Subjective Vitality, and Addiction Potential

On the Relationship of Resiliency and Subjective Vitality with Addiction Potential among Students

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Introduction

Human societies have always faced many problems and injuries. Social problems constitute a significant portion of the capitals and affairs; therefore, attention to them will lead to the prevention and treatment of such problems. Addiction is one of the major social ills that society is constantly involved with (Naghibossadat & Ghane, 2012). Addiction and drug abuse as a social problem, is a phenomenon that is followed by the deterioration of society’s ability to organize and maintain the existing order of society. It disrupts the normal performance of social life and causes structural changes in the economic, social, political and cultural systems of the community (Miri Ashtiani, 2006). Drug use in the past was limited only to adults; however, it suddenly became prevalent among young people in the early 1970s (Sotoudeh, 2006). Drug use is a growing phenomenon that increases linearly from early adolescence to early adulthood (Zeynali, Vahdat & Isavi, 2008). The increasing number of addicts has turned addiction into a national crisis in the country (Mohammadi, 2005). The challenging and shocking point in this regard is low average age and high rates of drug abuse tendency among youth, teenagers and students which leads to the spread of addiction and its transmission speed among this population (Javadi, Rafi’ea, Aghabakhshi, Askari & Abdi Zarin, 2011).

Statistics show that about 16 percent of Iranian addicts are under 19 years old and 28% of them are between 20 and 24 years old (Barghi, 2002). Substance abuse disorder has poor prognosis, and directly and indirectly inflicts huge treatment costs on families and society. At least half of treated addicts turn to drugs up to 6 months after treatment and this amount reaches 75 percent for a year after treatment (Vazirian & Mostashari, 2002). On the other hand, adolescent drug users are more likely to experience anxiety, low self-esteem, depression, and other psychological problems. Substance abuse puts adolescents at risk of academic failure, low adjustment, and low academic achievement; therefore, they lose job opportunities and income in the future (Meschke & Patterson, 2003). Some conditions should be provided for the emergence of drug use before its initiation. This background and preparation is referred to as addiction potential (Franke, et al., 2003). Addiction-prone personality theory asserts that some people are predisposed to drug addiction and become addicted if they are exposed to it. However, some people are not prone to addiction and, thereby, do not become addicted that much easily (Gendreau & Gendreau, 1970). Those who are prone to addiction tend to use multiple substances (Hiroi & Agatsuma, 2005).

Franke, et al. (2003) pointed to the growth of this proneness and readiness in lifetime and suggests that people prone to addiction may suffer from different psychological risk factors. They found that environmental risk factors facilitate availability of drugs, but psychological risk factors facilitate the increased likelihood of drug dependence. Minooei & Salehi (2003) showed that there was a significant difference between the scores of students and addicts in addiction
potential scale. Vahdat (2005) examined the prevalence of drug abuse among high school students of Urmia based on addiction potential scale and showed that 42.8 percent of students have moderate to high addiction potential and 14.1% of them have very high levels of addiction potential. The important point in these studies is that some people with addiction potential are at risk.

Since adolescence is the time of gaining experience and making personal choice, personal identity is shaped at this time. Therefore, youth and adolescents are very vulnerable against drug use and risky behaviors (Rotherman- Borus, Miller, Koopman, Haigenere & Selfringe, 2002). For this reason, it is very important to identify the factors effective in addiction prevention and protection of youth from drug use and risky behaviors and to apply effective teaching methods in order to raise awareness and improve attitudes and life skills among adolescents and young people.

Historically, much of the preventive research and the development of interventions have been focused on identifying risk factors and problematic behaviors in sensitive populations. However, the current research trend has now created a wider area via attention to and concentration on protective factors (Kegler & Oman, Vesley, Mc Leeroy & Aspy, 2005). One of the protective factors in this domain is resiliency (Mohammadi, 2005). Resiliency increases the ability to withstand and cope with life crises and overcome them. It also prevents the occurrence of problems among adolescents and young people and protects them against the psychological effects of problematic events (Pinquart, 2009). Resilient people benefit from a higher level of mental health, greater self-regulation skills, self-confidence, and social support; and are less involved in risky behaviors (Cuomo, Sarchiapone, Giannantonio, Mancini & Roy, 2008). Self-discovery, problem-focused coping skills and positive assessment of social support are among the factors that increase resiliency.

Resiliency is related to the positive emotions that play a protective role for people in situations of depression and drug use after a critical situation (Bonanno & Galea, Bucciareli, & Vlahov, 2007). The concept of resiliency is based on the idea that although some people might encounter several risk factors or they may be prone to the incidence of a disorder, they will not get entangled in these disorders and risk factors. Accordingly, researchers and scholars place resiliency and vulnerability in two extremes of one continuum. Vulnerability refers to the likelihood of negative consequences in the face of hazards and resiliency leads to the increase of positive outcomes in problematic situations (Zemmerman & Fergus, 2005).

Resilient people are characterized with four attributes in common: (1) Social competence (understanding, flexibility, empathy and compassion, communication skills, and sense of humor); (2) Problem solving skills (planning, seeking help from others, and critical and creative thinking); (3) Autonomy (identity, self-efficacy, self-awareness, and mastery of tasks); and (4) A sense of purpose and future (goals, optimism and spirituality) (Garmezy & Masten,
1991). Some studies have shown that resiliency is negatively correlated with anxiety and depression and resilient people can overcome the variety of adverse impacts (Good & McKay, 2006). These people assess adverse situations as challenging ones, hold a greater sense of commitment to themselves and their situation, and experience a higher sense of control over their lives (King, Keane, Faribank & Adams, 1998). People with high resiliency hold such personality characteristics that increase their mental health. Resiliency reduces threat assessment (negative thoughts) and increases the success of one's expectations. Resiliency and hardiness promote one's ability to make a trade-off between biological and mental conditions in difficult situations (Connor & Davidson, 2003). Those who benefit from higher emotional autonomy are conservative in tendency to drug abuse (Nicholas & Robert, 2014). Social skills training also reduces the tendency to addiction in students (Kakia, 2010). High levels of resiliency lead to a reduction of substance abuse among adolescents via the generation of adaptive flexibility (Barbara & Wieland, 2012). In addition, resiliency influences absence of substance use with mediation of motivational adaptive structure (Salehi, Azad & Nemati, 2010). Arevalo, Guillermo & Hortensid (2008) showed that coping responses in relation to stress are associated with trauma symptoms and when there are higher levels of sense of coherence and coping responses, pressures resulting from better treatment are controlled. Those with higher problem-focused coping ability will be less prone to addiction (Feizollahi & Feizollahi, 2012). One of the factors effective in tendency to addiction is to use emotion-focused and stress avoidance coping strategies while problem-focused strategies have a deterring role in tendency to addiction (Ahmadi, Ahmadi & Mırshekari, 2012). Membership in groups of drug addicts and drug use are predictable via resiliency component and non-addicts have a higher level of resiliency (Hosseinolmadani, Karimi, Bahrami & Ma’azedian, 2012).

The factors effective in subjective well-being are among the other protective psychological components affecting people's lack of tendency to high-risk behavior. One of the most important components of this category is subjective vitality. However, little research has been done in this area. Bostic (2003) regards subjective vitality as the inner experience rich in energy. In fact, subjective vitality refers to the mental and physical energy to experience a sense of joy, liveliness, and enthusiasm (Riyan & Deci, 2008). Subjective vitality reflects a positive state and is derived from such feelings as freedom, autonomy and internal motivation. Subjective vitality increases with the conduct of acts with a sense of independence and increased intrinsic motivation. If one feels s/he is being controlled by others, his/her subjective vitality decreases (Nix, Rayan, Manly & Deci, 1999). Subjective vitality is sometimes generated in particular situations or after the accomplishment of a particular activity; and is something beyond motivation, activity or pure physical energy. This is some psychological experience in which people feel a sense of vitality and liveliness (Ryan &
Frederick, 1997). This type of experience is different for everyone and is affected by physical and psychological factors; indeed, subjective vitality is a reflection of a person’s mental and physical health (Ryff, 1995). Sylvester (2011) indicated that the satisfaction of the need for competence and independence has the predictive ability of subjective vitality and mental health. In addition, quality of life, life skills, ability to adapt to the conditions, and mental well-being are significantly associated with vitality. Muraven & Russman (2008) showed that behavioral disorder and vitality are mediated with self-control. Moreover, vitality is negatively correlated with feelings of pressure and positively related with positive response to stress (Baard, Deci & Rayan, 2004). Research literature indicates that some factors associated with resiliency such as emotional autonomy, social skills, coping responses in relation to stress, and problem-solving strategy are negatively correlated with high-risk behaviors such as substance abuse and are directly correlated with mental and emotional health and social adjustment (Nicholas & Robert, 2014; Kakia, 2010; Feizollahi, et al., 2012; Ahmadi, et al., 2012; Hosseinolmadani, et al. 2012). Studies have suggested the presence of a significant relationship between subjective vitality and well-being, life skills, and psychological health (Moraven, & Rosman, 2008; Baard, et al., 2004).

The important point is that the construct of subjective vitality has not been examined along with addiction potential on the one hand. However, the construct of resiliency has been compared between addicts and non-addicts. In the same way, addiction potential has been neglected in studies. Based on the theoretical foundations of addiction, prevention is superior to all aspects. Given that no research has still examined the relationship of resiliency and subjective vitality with addiction potential, this study mainly aims to examine the issue in the student sample.

**Method**

**Population, sample, and sampling method**

This is a descriptive-correlational study. Lordegan Payame Noor University students (n=320) in 2013-2014 constituted the population of this study. Then, the number of 172 students (113 males and 59 females) was selected as the participants via random sampling and according to Morgan table.

**Instrument**

1- Addiction Potential Scale: This scale was constructed by Weed, et al. (1992). Thereafter, attempts have been made to determine the validity of the scale in Iran. As a result, Iranian version of addiction potential has been developed with respect to the psycho-social aspects of Iranian society (Zargar, 2006). This scale consists of two factors, 36 items plus 6 items measuring lying. The items are scored on a continuum from zero (completely disagree) to 3 (strongly agree). The two following methods were used to examine the validity
of the scale. The criterion validity of addiction potential questionnaire discriminated drug addicted and non-addicted groups from each other well. Convergent validity of the scale was calculated by correlating it with Symptom Checklist-25 and resulted in the correlation coefficient of .45. Cronbach's alpha was obtained equal to .90 which represents its desirable reliability (Zargar, 2006). Two examples of the questions include: Companionship with drug users does not matter. / Drugs have beneficial properties.

2- Connor-Davidson Resilience Scale (2003): This questionnaire contains 25 items that are scored on a 5-point Likert scale from zero (not at all true) to four (true nearly all of the time). The maximum and the minimum scores are placed between 0 and 100. This scale was validated in Iran by Mohamadi. To determine the validity of the scale, the correlation of each item was first calculated with the total score of the scale and, then, factor analysis was used. The correlation coefficients of each score with the total score ranged from .41 to .64. Cronbach's alpha of the scale was reported .89 (Mohammadi, 2005). In the current study, Cronbach's alpha was equal to .74 and factor analysis with varimax rotation was used to explore the validity. The results confirmed the existence of one factor. Two examples of the questions include: I believe that in any good or bad event, there is some advisability. / If I fail, I do not get easily discouraged.

3- Subjective Vitality Questionnaire (SVQ): Ryan & Frederick’s subjective vitality scale (1997) was used to measure one’s positive feeling of aliveness and energy. This scale consists of 7 items that are scored on a 5-point Likert scale from 1 to 5 (strongly agree to strongly disagree). Cronbach's alpha coefficient of .89 was obtained for the reliability of the scale (Sheikholeslami & Daftarchi, 2011). In this study, Cronbach's alpha was obtained equal to .81 and factor analysis with varimax rotation was used to determine the validity of the scale. Two examples of questions in this scale are as follows: I’m feeling refreshed and rejuvenated now. / I am energetic and spirited now.

Results

Due to the incompleteness of the number of 34 questionnaires, the analyses were done on 138 questionnaires. Descriptive statistics of the variables under study are presented in the table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Min. Score</th>
<th>Max. score</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addiction potential</td>
<td>138</td>
<td>11</td>
<td>74</td>
<td>32.65</td>
<td>12.11</td>
</tr>
<tr>
<td>Resiliency</td>
<td>138</td>
<td>55</td>
<td>98</td>
<td>82.78</td>
<td>13.67</td>
</tr>
<tr>
<td>Subjective vitality</td>
<td>138</td>
<td>8</td>
<td>34</td>
<td>23.43</td>
<td>8.21</td>
</tr>
</tbody>
</table>

The correlation matrix of the variables under study is presented in the table 2. As shown in the table 2, the correlation coefficient of resiliency and subjective vitality with addiction potential were equal to -.45 and -.34, respectively that are significant at the level of .01.
Table 2: Correlation matrix of the variables under study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Addiction potential</th>
<th>Resiliency</th>
<th>Subjective vitality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addiction potential</td>
<td>1</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Resiliency</td>
<td>-0.45*</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Subjective vitality</td>
<td>-0.34*</td>
<td>0.27</td>
<td>1</td>
</tr>
</tbody>
</table>

*P< .01

To investigate the role of subjective vitality and resiliency in predicting addictive potential, simultaneous multiple regression method was used. The results of this analysis are presented in the table below.

Table 3: Model outline and regression coefficient of addiction potential based on resiliency and subjective vitality

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>$B$</th>
<th>$t$</th>
<th>Sig.</th>
<th>$R$</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>19.231</td>
<td>11.056</td>
<td>0.001</td>
<td>0.48</td>
<td>23.04</td>
</tr>
<tr>
<td>Resiliency</td>
<td>-0.40</td>
<td>-9.09</td>
<td>0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjective vitality</td>
<td>-0.11</td>
<td>-3.82</td>
<td>0.001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Discussion and Conclusion**

This study aimed to investigate the relationship of resiliency and mental vitality with addiction potential. The results showed that there was a significant negative relationship between resiliency and addiction potential. This means that those who are more resilient are less prone to addiction, and those who are less resilient are more prone to addiction. This finding is consistent with the results of the studies done by Connor & Davidson (2003), Nicholas & Robert (2014), Kakia (2010), Barbara & Wieland (2012), Salehi, et al, (2010), Arevalo, et al. (2008), Barbara et al. (2012), Feizollahi & Feizollahi (2012), Ahmadi, et al. (2012), Hosseinolmadani, et al (2012). These researchers have proved the relationship between addiction and resiliency in their studies. To account for this finding, one can argue that people with high levels of resiliency are stronger in controlling their impulses and this reduces their tendency to addiction (Spielberger & Sarason, 2005). People with low levels of resiliency have not set specific purpose in their lives and, thereby, have not found an important meaning for their lives. In the same way, such people lose their motivation in the face of difficulties, are not flexible to changes in life, always remain in fear, and, thereby, tend to drugs in threatening situations. These people are very vulnerable to problems and quickly give in and cannot control and manage their feelings and emotions. In times of crisis, they experience heavy loads of stress and imagine themselves as victimized and are not able to achieve safe and secure solutions using problem-focused coping techniques (Bagheri Yazdi, 2005). Resilient people benefit from such skills as problem-solving, efficiency explanatory style, self-efficacy, and social support. Such skills help them to self-adapt and keep their mental health when experiencing negative emotions in adverse conditions. Adolescents and young people can learn these from teaching environments. Thus, intervention is absolutely essential to increase the resilience.
of students. It seems that attention to protective factors is one of the effective approaches in tendency of people to drug use.

Another finding of this study was the availability of a significant negative relationship between subjective vitality and addiction potential. In other words, people with higher levels of subjective vitality have lower levels of addiction potential and people with lower levels of subjective vitality have higher levels of addiction potential. This finding is consistent with those of the studies carried out by Ryan & Deci (2008), Nix (1999), Sylvester (2011), Moraven, & Rosman (2008), and Baard (2004). These researchers examined some components of subjective well-being which are directly or indirectly associated with high-risk behaviors, including addiction potential. To interpret the finding suggesting the existence of the relationship between subjective vitality and addiction potential, one may assert that people with less subjective vitality benefit from lower degrees of self-esteem and self-concept due to the inability to control events and gain passion and liveliness, therefore, they suffer from lack of self-assertion and cannot reject the unreasonable requests of others. For the promotion of their poor self-concept, they may even approach and join addicts to gain pleasure and vitality so that they may be accepted by addicts. Such factors may increase addiction potential.

As per the findings of the present study, related authorities are suggested to hold training courses on reducing addiction potential among students to increase resiliency and mental vitality of the students. In addition, the identification of educational interventions on the students with low mental resilience and vitality and high addiction potential should take priority in the plans and policies of university authorities. Lordegan Payame Noor University students constituted the participants of this study; therefore, such a similar study should be replicated on other academic groups and universities to generalize these findings to other student populations. Similarly, attention to other psychological constructs and methods of data collection, including interviews of different groups can provide more precise information for the discovery of addiction potential. To prevent people from drug abuse, authorities are recommended to seriously include the promotion and improvement of resilience and mental vitality in the plans of educational institutions such as family, education center, universities, and the media.

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Abstract

Objective: This study was an attempt to compare cognitive functioning in substance abusers and addicts under methadone treatment with normal individuals. Method: The current study was a causal-comparative one. The statistical population of this research consisted of all male substance abusers who had referred to addiction treatment centers of Khoy city in 2013. The total of 40 addicts under methadone treatment, 40 active drug users, and 40 non-addicts were selected as the participants of this study via convenience sampling method. Wisconsin Card Sorting Test and Wechsler Memory Scale were administered to the three groups for data collection purposes. Results: The results showed that the substance abusers’ scores in Wisconsin card sorting test and Wechsler memory scale were significantly different from those of addicts under methadone treatment and normal individuals. In the same way, there was a significant difference between addicts under methadone treatment and normal individuals in terms of cognitive function; however, there was no significant difference between these two groups in terms of perseveration error. Conclusion: It can be concluded that chronic use of psychoactive substances causes damage to multiple brain regions such as prefrontal cortex and hippocampus and, thereby, it leads to cognitive malfunctioning in these areas.

Keywords: Cognitive Function, Executive Functions, Memory, Substance Abuse

On the Comparison of Cognitive Function in Substance Abusers and Addicts under Methadone Treatment with Normal Individuals

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Introduction

Drug addiction is a mental, relapsing, and chronic illness that is followed by intense motivational disorders and loss of behavioral control (Dallas, David & Julie, 2010). Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-V, 2013) regards the existence of one of the cognitive, behavioral and physiological symptoms as the important feature of substance abuse disorder that people still persist in taking drugs despite the significant problems related to drug abuse. DSM-V also suggests that substance abuse disorder creates a fundamental change in brain circuits (especially in people with severe disorders) that may remain after detoxification (Diagnostic and Statistical Manual of Mental Disorders, 2013). Thus, clinical observations, common sense, and theoretical mechanisms suggest that acute and chronic use of psychoactive drugs impairs one’s cognitive function (Lundqvist, 2005). In this regard, executive function is considered one of the most effective cognitive function whose significant role in addiction to substance abuse has been emphasized (Lyvers, Leggio, Abenavoli & Gasbarini, 2005). Executive functions refer to a set of organized and integrated superior capabilities that are neuro-anatomically connected with different paths of neural interactions such as prefrontal cortex (Robert, Robbins & Weiskrantz, 1998) and include forecast and goal establishment, planning, self-regulation and goal monitoring, effective feedback of programs, and working memory (Lezak, 1995). Long-term use of drugs succeeds high levels of neuro-psychological defects (Grant, Adams, Carlin & Rennick, 1977). Darke, Sims, Mcdonald & Wicks (2000) compared cognitive deficits between addicts under methadone treatment and normal people. They reported that people treated with methadone showed weaker performance in Wisconsin Card Sorting Test and Wechsler Memory Scale. Omstesin et al (2000) found that both stimulant abusers and opioid abusers had lower performance in Wisconsin Card Sorting Test compared to normal individuals. In consistency with this finding, several studies have shown that the use of stimulants (amphetamines) can affect cognitive function. In this regard Von Geusau, Stalenhoef, Huizing, Snel & Ridderinkhof (2004) and Reneman, et al. (2001) have shown that cognitive flexibility gets impaired in drug abusers and brings about increased preservative behavior in them. Thus, it has been assumed that preservation results from failure to control one’s attention to the inhibition of irrelevant information (Salo, et al., 2005). Kalechstein, Newton & Green (2003) and Lundqvist (2005) compared morphine-abstinent people, patients under methadone maintenance treatment, and normal individuals and found that methadone receiving group significantly suffered from cognitive function disorder and the first and third groups were placed in the next ranks, respectively. In this regard, memory is one of the important cognitive functions in one’s activities in addition to executive function deficits in individuals with substance abuse (Eysenck, 2000). In general, memory is a mechanism for encoding, storage, and recall of the stored information (Millner, Squire & Kandel, 1998).
Memory is divided into short-term and long-term memory based on the duration of data storage. Short-term memory can hold data for a short time, but long-term memory is concerned with the data that are maintained in memory from several minutes to the whole lifetime and can have different types such as explicit, semantic, event, implicit, etc. memory (Hergenhan & Olson, 2001; translated by Seif, 1995). In this area, various studies have reported defect and reduction in memory, verbal learning, response control, concentration, attention, and recall among drug-taking patients (Mccann & Ricaurte, 2004; Dark, et al., 2000). Yan et al. (2013) suggested that addicts dependent on heroin showed low performance on working memory tasks compared with the control group. Mcketin & Marric (1997) also found that there is a significant relationship between the severity of dependence on amphetamines and poor performance in tasks of Wechsler Memory Scale. In this regard, Miller (1985) conducted a study and compared chronic morphine and heroin users with ordinary people in terms of functional memory, spatial memory, planning, and production sequences and found that both groups of morphine and heroin users are significantly different from the normal group in various aspects, although the type of disorder varied in the two groups of patients. In the same way, several studies have provided support for the incidence of abnormal cognitive function after heavy and prolonged use of cannabis. This abnormal function is reflected in cognitive-motor malfunctions, particularly memory and learning (Curran, Brignell, Fletcher, Middleton & Henry, 2002; O’leary, et al., 2002). In line with the aforementioned points, several studies have indicated the effectiveness of addictive drugs on the brain and cognitive abilities. On the other hand, attention to physical and psychological effects of drug use is necessary particularly to the cognitive domains that are useful for healthy performance in appropriate interpersonal relationships and social behavior. Thus, motivated by the above findings and in line with the development of harm reduction approaches, the present study compares cognitive function (executive function and types of memory) between substance abusers, addicts treated with methadone, and normal individuals.

Method

Population, sample, and sampling method

This was a causal-comparative study. The statistical population of this research consisted of all male substance abusers who had referred to addiction treatment centers of Khoy city in 2013. Among this population, a total of 40 addicts under methadone treatment who were ready to cooperate in this research project were selected via convenience sampling method. In addition, among those who had referred to addiction treatment centers for the first time, the number of 40 participants was selected after being interviewed and announcing their consensus for participating in this study. It is noteworthy that this group had not
received any kind of treatment in rehab centers before referring to these centers. Finally, among the individuals without any history of drug abuse, the number of 40 participants who was similar to the other two groups in terms of demographic characteristics was selected via purposive sampling. It is worth mentioning that the three groups were matched together in terms of age (P>.05, F=2.357), education (P>.05, $x^2=.867$), and marital status (P>.05, $x^2=.808$). The criteria for the inclusion of the participants in this study were as follows: male, aged from 25 to 40 years, suffering from no acute and chronic psychological disorders other than addiction, suffering from no significant physical illness, treatment with methadone and no drug-use in the methadone group, no dependence on non-opioids (such as crystal or other narcotic substances) in drug user group, and no history of drug use for the normal group. Moreover the exclusion criteria also included: being female and outside the age range 25 to 40 years, the presence of clinically significant acute and chronic psychological disorders other than addiction, suffering a significant physical illness, drug use in the group treated with methadone, consumption of non-opiate drugs in the drug using group, and a history of substance use for the normal group.

Instrument

1- Wisconsin Card Sorting Test (WCST): This test was constructed by Grant & Berg (1948) and evaluates the ability to abstract and change cognitive strategies in response to the stimuli from the environment (Cavallaro, et al., 2003). This test consists of 64 dissimilar cards with different shapes (triangles, stars, crosses and circles) and different colors. For the administration of the test, 4 cards are first placed in front of participants. The tester considers color as the sorting principle without notifying this to the participants and wants them to place the rest of the cards one by one under the four cards. After each attempt, the participants will be announced about the correctness of their placement. If the participant is able to correctly place 10 consecutive categories, the principle sorting changes. Then, shape is considered as the sorting criterion. The norm change is only allowed by changing the yes/no pattern of feedback. In this way, the previous correct answers will be regarded false based on the new norm. The next norm will be Number and these three norms will be repeated. When the participant correctly sorts six categories, the test will be stopped. Sorting Test Wisconsin can be scored in several ways. The most common method is to record the number of categories and preservative error. An obtained category refers to the correct responses or 10 consecutive correct placements. The number of these categories is placed in the range of zero to six wherein the test naturally stops. This test will be one of the main indicators of frontal lobe function when the participants continue the sorting according to the previous successful classification norm and/or when the participants insist on one wrong guess in the first series of categorizing and there is preservative error (Nyhus & Barcel, 2009). The reliability of this test for cognitive deficits after brain injuries has
been reported above .86 (Lezak, 1995). Moreover, the reliability of this test based on the agreed-upon coefficient of assessors has been reported .83 (Spreen & Strauss, 1991).

2- Wechsler Clinical Memory Scale Form-I: This test was developed in 1945 by David Wechsler (Ryan, Morris, Yaffa & Peterson, 1981). This test is the result of 10 years of research in the field of memory and provides some information about the separation of organic and functional disorders of memory. Fast administration of this test in 15 minutes, satisfactory standardization of the test, and attention to the differences in memory at different ages are among the advantages of this scale. The scale consists of 7 subscales, including: personal information, orientation, mental control, logical memory, digit span, visual memory, and associate learning. The total score of the scale is obtained from the sum of the subscales’ scores. According to the original form of this test, the constant modified score presented in the table pertaining to different age groups can be added to the sum of these raw scores. Then, the total score of memory score is obtained by adding up these two scores. Looking at the table, one can obtain memory quotient which is presented besides the weighted scores (Orangi, 2002). The test retest reliability of the total scale was obtained .89 while this coefficient has been reported equal to .75, .67, .80, .62, .68, .80, and .68 for the subscales personal information, orientation, mental control, logical memory, digit span, visual memory, and associate learning, respectively (Ryan et al., 1981).

Results

Descriptive statistics of the variables under study are presented in the table below for each group.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Drug users</th>
<th>Under methadone treatment</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preservative error</td>
<td>7.15</td>
<td>4.42</td>
<td>4.40</td>
</tr>
<tr>
<td>Total error</td>
<td>12.33</td>
<td>5.93</td>
<td>8.87</td>
</tr>
<tr>
<td>Personal information</td>
<td>4.10</td>
<td>1.31</td>
<td>5.62</td>
</tr>
<tr>
<td>Orientation</td>
<td>3.48</td>
<td>1.84</td>
<td>4.85</td>
</tr>
<tr>
<td>Mental control</td>
<td>4.60</td>
<td>1.89</td>
<td>6.53</td>
</tr>
<tr>
<td>Logical memory</td>
<td>8.43</td>
<td>3.15</td>
<td>14.08</td>
</tr>
<tr>
<td>Digit span</td>
<td>3.55</td>
<td>1.51</td>
<td>5.68</td>
</tr>
<tr>
<td>Visual memory</td>
<td>5.78</td>
<td>1.73</td>
<td>8.77</td>
</tr>
<tr>
<td>Associate learning</td>
<td>7.07</td>
<td>2.60</td>
<td>9.45</td>
</tr>
<tr>
<td>Total memory quotient</td>
<td>67.60</td>
<td>7.67</td>
<td>96.37</td>
</tr>
</tbody>
</table>
Multivariate analysis of variance should be used to examine the difference between the three groups. The normal distribution of variables is one of the assumptions of using this analysis. Kolmogorov-Smirnov test results are provided in the table below.

Table 2: Kolmogorov-Smirnov test results for Wisconsin Card Test and Wechsler Memory Scale

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Drug users</th>
<th>Under methadone treatment</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>z</td>
<td>Sig.</td>
<td>z</td>
<td>Sig.</td>
</tr>
<tr>
<td>Preservative error</td>
<td>.124</td>
<td>.200</td>
<td>.130</td>
<td>.158</td>
</tr>
<tr>
<td>Total error</td>
<td>.127</td>
<td>.154</td>
<td>.138</td>
<td>.08</td>
</tr>
<tr>
<td>Total memory quotient</td>
<td>.129</td>
<td>.163</td>
<td>.132</td>
<td>.166</td>
</tr>
</tbody>
</table>

The equality of error variances is another assumption for using this test which is investigated by Leven’s test. The results of this test are representative of the presence of this assumption for the total error of Wisconsin test (P>.05, F=.832) and memory quotient (P>.05, F=2.114) and its components in the three groups. Then, MANOVA was conducted and the results indicated the existence of a significant difference (P<.001, F=32.004, Wilks’ Lambda=.064). Univariate analysis of variance was used to examine differences in patterns as follows.

Table 3: Univariate analysis of variance representing differences in patterns

<table>
<thead>
<tr>
<th>Eta squared</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preservative error</td>
<td>250.83</td>
<td>16.980</td>
<td>.0005</td>
</tr>
<tr>
<td>Total error</td>
<td>442.43</td>
<td>19.400</td>
<td>.0005</td>
</tr>
<tr>
<td>Personal information</td>
<td>68.27</td>
<td>16.660</td>
<td>.0005</td>
</tr>
<tr>
<td>Orientation</td>
<td>160.82</td>
<td>33.190</td>
<td>.0005</td>
</tr>
<tr>
<td>Mental control</td>
<td>183.35</td>
<td>49.660</td>
<td>.0005</td>
</tr>
<tr>
<td>Logical memory</td>
<td>350.23</td>
<td>26.810</td>
<td>.0005</td>
</tr>
<tr>
<td>Digit span</td>
<td>216.75</td>
<td>34.129</td>
<td>.0005</td>
</tr>
<tr>
<td>Visual memory</td>
<td>222.30</td>
<td>65.390</td>
<td>.0005</td>
</tr>
<tr>
<td>Associate learning</td>
<td>189.75</td>
<td>17.840</td>
<td>.0005</td>
</tr>
<tr>
<td>Total memory quotient</td>
<td>24765.35</td>
<td>509.760</td>
<td>.0005</td>
</tr>
</tbody>
</table>

As it is observed in the above table, there is a significant difference between the groups in all the components. Post-hoc Tukey test was used to investigate the difference between the three groups. The results indicated that drug users were significantly different from the other two groups in terms of preservative error and logical memory; however, no significant difference was between the normal group and patients under methadone treatment in the mentioned components. In terms of total error, there was no significant difference between drug users and the other two groups. In addition, there was a significant difference between the normal group and patients under methadone treatment in total error. Moreover, there was a significant difference between the drug users and the other two groups (the normal group and patients under methadone
treatment) in terms of the components personal information, orientation, mental control, digit span, visual memory, associate learning, and total memory quotient. In the same way, there was a significant difference between the normal group and patients under methadone treatment in these components.

**Discussion and Conclusion**

The present study was conducted to compare cognitive function (memory and executive functions) between substance abusers, addicts treated with methadone, and normal subjects. The results of executive function assessment by Wisconsin test showed that substance abusers compared to the group treated with methadone and normal subjects had lower performance in total error of Wisconsin test and the same happened to the group under methadone treatment in comparison with the normal group. This finding is consistent with those of the studies done by Darke, et al. (2000), Omstesin, et al. (2000), Von Geusa, et al. (2004), Reneman, et al. (2001), and Lundqvist, et al. (2005). People with substance abuse disorders showed higher perseverative errors in changing the sets of Wisconsin Card Sorting Test compared with normal individuals (Goldstein et al., 2004; Salo, et al., 2005). Existing deficits in executive functions of substance abusers result from damage in frontal cortex of the brain. For example, animal and human studies have shown some defects in ventrolateral prefrontal cortex of the brain (Hampshire & Owen, 2006). Some studies have suggested that the inferior frontal gyrus and its connections with basal ganglia are associated with the relocation of tasks of Wisconsin test (Aron, Monsell, Sahakian & Robbins, 2004; Duncan & Owen, 2000). Therefore, these areas have been generally proposed for better performance on Wisconsin Card Sorting Test and dopamine has been suggested as a regulator of the connections in these areas (Nagano – Saito, et al., 2008). In this regard, Joyce & Meador-Woodruff (1997) suggest that cortical distribution of Dopaminergic and neural receptors may lead to different patterns of cognitive disorders among substance abusers.

For example, the dopamine D1 receptor is mainly present in anterior neocortex, particularly in the prefrontal cortex. Although addictive drugs have distinct effects on brain areas, these effects are common in some activities, such as increasing the metabolism of dopamine system (Koob & Lemoal, 1997; Wise & Bozarth, 1984). In this study, preservative error of Wisconsin test was not significantly different between the group treated with methadone and normal group. To justify this finding, one may assert that withdrawal of psychoactive drugs and regular use of methadone along with other therapies may effectively improve preservative behaviors and reduce them among the patients treated with methadone.

Another finding of this study suggested that drug abusers performed more weakly in Wechsler memory tasks compared to the other two groups. This finding is consistent with the findings of other studies conducted by Mccann, et al. (2004), Darke, et al. (2000), Yan, et al. (2013), Mcketin & Mattick (1997),
and Miller (1985). In justification of this finding, it is possible to mention that the chronic use of drugs affects the brain regions involved in memory and learning, including frontal cortex (Yang, et al., 2009) and hippocampus (Lu, et al., 2010). This means that narcotic drugs may increase apoptosis process (programmed cell death) and inhibition of neurogenesis (formation of neural tissue) considering the cognitive processes that are impaired by drug use and its effects on hippocampus and prefrontal cortex (Nyberg, 2012). In this regard, the weakening of the neurogenesis resulting from drug use has already been seen in the hippocampus of the rats exposed to morphine (Eisch, Barrot, Schad & Self & Nestler, 2000). It seems that opioids (e.g. morphine) reduce the process of neurogenesis in sub-granular zone (part of the dentate gyrus) and this neurogenesis inhibition contributes to the defects in cognitive functions such as memory tasks as a result of substance abuse (Arguello, et al., 2008). The process of apoptosis is associated with morphine-induced tolerance and apoptotic effect of morphine is blocked by naloxone (opioid receptor antagonist) (Hu, Sheng, Lokensgard & Peterson, 2002). No comparison of neuropsychological indices in different types of drugs, ignorance of gender differences, limitation of participants to males, and convenience sampling were among the limitations of this study. Further research is recommended to be conducted on different groups of drug users in future.

Reference


Abstract

Objective: This study aimed to investigate the role of family function, generation gap and socioeconomic status in addictability of young people.

Method: The number of 400 male students from State, Azad and Payam Noor universities was selected through voluntary sampling. Then, they filled out Addiction Susceptibility Questionnaire, Family Assessment Device, and Generation Gap Scale.

Results: The results showed that there was a significant correlation between most factors of predictor variables and addictability. The proposed model has a desired goodness of fit with data and it is possible to use family function, generation gap and socioeconomic status to account for addictability of young people.

Conclusion: Family function and generation gap can explain addiction susceptibility and, thereby, attention to this matter can lead to the proposal of some recommendations for addiction prevention and treatment.

Keywords: Family Function, Generation Gap, Socioeconomic Status, Addictability, Young People
Introduction

Drug use is one of the most important problems of the present age. Today, addiction is considered as a social crisis with a global scope that causes adverse social, cultural and political consequences. Addiction is a physical, mental, and social illness where various pre-addiction items play a fundamental role in its development (Galanter, 2006). Before a person starts using drugs, the context for tendency to it is provided during the growth period and in parallel with the development of behavior, thoughts, beliefs, lifestyle, and personality traits. In other words, before the person turns to drug use, the conditions and preparedness for drug use are created that are referred to as vulnerability to addiction (Agatsuma & Hiroi, 2004). Although substance abuse is considered as an individual problem, it affects the entire family since most of the drug abusers (men and women) live in the family environment or at least meet their parents on weekends. Therefore, it seems necessary to consider the role of the family and the relationship between family members in the incidence of addiction phenomenon (Gruber & Taylor, 2006). Evidence suggests that parental education has an impact on the level of maladaptive behaviors such as addiction (Andersson & Eisemann, 2003).

Family is one of the most important institutions related to the phenomenon of drug addiction. The role of family is considered to be of such importance that it is considered as the independent variable in some studies (Di Pietro et al., 2007). Family is regarded as one of the most fundamental determinants of health and disease of its members in which parents play the major role. Parenting styles are among the most important factors in children's psychosocial growth (Gallarin & Alonso, 2012). Family is the most important entity for development that can create potential and readiness for addiction. In families where humiliation and blame are dominant, there will be the following consequent features available: there is not a reliable relationship of trust between members, there are no clear boundaries between family members, the roles and duties of members are not in accordance with their developmental level, problem-solving does not occur properly, there is no emotional support, and conflicts cannot be resolved properly. All of these can be a good platform for the development of addiction (Ghamari, 2011).

The decision to use or not use drugs is mostly dependent upon one’s communication with family members, mechanisms of coping with family, and drug abuse of other family members. In families wherein drug or alcohol consumption is not confirmed, family members are less likely to abuse them. It is clear that family members play the primary role in the trajectory of alcohol consumption or drug use. Poor communication, poor problem-solving skills, dispute, stressful financial drives, and fuss have often been reported as antecedents of drug use (Gruber & Taylo, 2006). Miller, McDermut, Gordon, Keitner & Ryan (2004) pointed out that the families of alcohol dependent people have reported more impaired family functioning than other families. Agha & Zia
(2008) showed that psychological problems and family functioning are among the risk factors in people’s tendency to addiction. Roles, tasks and responsibilities should be systematically organized among all family members to achieve optimal performance in the family system. DePaul (2006) introduced some features of families with optimal performance as: open communicative interaction, effective control and containment of psychological pressures, empathy, leadership, expression of love and interest, and personal responsibility. McMaster model of family functioning considers six dimensions and assesses family performance in the conduct of duties. The dimensions of this model are as follows. Problem-solving: the ability of the family to identify the problem, review and take action to solve it, evaluate the results, and make necessary adjustments. Communication: direct, effective and clear exchange of information, which is more reflected in verbal behaviors. Roles: patterns of behavior existing in interactive activities that are necessary to establish a healthy and effective system. Affective responsiveness: it is referred to as the conditions in which the family meets the emotional needs of all the family members. This means that different situations with varying emotions are responded. Affective involvement: it is a manifestation of affective responsiveness and refers to the expressed satisfaction with the degree and quality of interest and concern of the family members to each other. Behavior control: this dimension results from the interactive effects of family members on each other and includes rules and degrees of freedom for behaviors (Epstein, Ryan, Bishop, Miller & Keitner, 2003).

Friedman & Glassman (2000) conducted a study on the number of 2750 addicted people and came to the conclusion that there is a mutual relationship between family conflicts and addiction problems in children. Considering the gap between the generations regarding the change of habits, Smart, Reginald, Fejer & Dianne (2012) examined the role of parental addiction in adolescents’ substance abuse. Research findings show that teenagers learn drug abuse patterns from their parents and parents should enter treatment processes to reduce adolescents’ drug abuse. The concept of generation gap is associated with the persistence of a society's culture from one generation to another one. If the adolescents and youth’s socialization process faces some problems for any reason, transition is done partially, and the culture is not desirably transferred to the next generation; then, a heavy gap is engendered between the new and old generations which amounts to 5 to 10 percent (Panahi, 2003). Generation gap is manifested as intergenerational value gap and intergenerational normative gap. Values are abstract ideals and norms represent the dos and dont's of social life that have been accepted by the public (Panahi, 2003). On the other hand, the socio-economic status of individuals affects children's normal development and well-being of families. People with low socio-economic level are vulnerable in the formation of maladaptive coping mechanisms, such as drug use (Jones, Eidelman & Yudron, 2011). Due to the sensitivity of the issue of addiction and
the need for the conduct of further studies on it, the questions here remain unanswered: to what extent does the family environment as the most important institution in society cause the vulnerability of people in terms of addiction? Can the value and normative gaps between the new and old generations put a person at risk of addiction? The present study is an attempt to answer these questions and it is hoped that the results of it can provide some constructive suggestions for prevention and intervention in the field of addiction.

Method

Population, sample, and sampling method

According to the data collection procedure of this study, this research falls within the correlation type studies and is categorized in basic research in terms of objective. This study is considered a quantitative one based on theoretical basis. The statistical population of the study consisted of the male students of state, Azad, and Payam Noor universities of Tabriz in the first semester of 2013-2014. Given the methods of determining sample size for non-experimental research, the required sample size was obtained using the following formula:

\[ n = \frac{z^2 pq}{d^2} \]

In this formula, \( z \), \( pq \), and \( d \) represent the value corresponding to the significance level of .05, the variance of the variable under study, and the allowable value of measurement error, respectively. In this study, \( z=1.96 \), \( pq=.25 \), and \( d=.05 \) and the sample size was estimated 385 participants. Therefore, the number of 400 students was voluntarily selected from among the mentioned universities.

Instrument

1-Addiction Susceptibility Questionnaire: This questionnaire was designed by Anisi in Behavioral Sciences Research Center at University of Medical Sciences (2013). This scale contains 75 items and four factors, namely depression and helplessness, positive attitude to drugs, anxiety and fear of others, and sensation seeking. Reliability of the scale was calculated through Cronbach’s Alpha which equaled .97. For the validity of the scale, it was correlated with Depression, Anxiety and Stress Scale and Zuckerman’s Sensation Seeking Scale. This correlation was reported to be appropriate.

2- Family Assessment Device: This scale has been developed to describe structural features of families and measure family performance based on McMaster model (Epstein & Bishop, 1983). It consists of 53 items and measures family functioning by seven factors, entitled problem-solving, communication, roles, affective responsiveness, affective involvement, behavior control, and general functioning (Epstein et al., 1983). The reliability and validity measures of the scale have been examined in Iran and satisfactory results have been
reported. Cronbach’s alpha coefficients for the subscales of this scale have been reported from .72 to .92 which are indicative of the desired internal consistency of the scale (Mirenayat, 1999).

3- Generation Gap Scale: The degree of intergenerational gap was measured by means of a researcher-made questionnaire constructed based on the indicators existing in the related literature. This scale measures seven subscales, namely value religious and social intergenerational gap, value economic gap, value political gap, normative political gap, normative social gap, normative economic gap, and normative religious intergenerational gap. The results of confirmatory factor analysis for the questionnaire were satisfactory and Cronbach’s alpha coefficients for the seven subscales were averaged about .86.

4- Socio-economic status questionnaire: This questionnaire is a researcher-made instrument which evaluates the socio-economic status of participants based on three questions according to the existing literature. The economic status was coded in five classes (from very bad to very good) and education of parents was also coded in five categories (from illiterate to doctorate). In this questionnaire, one question is asked about the economic status of a family and two questions have been raised in relation to the education of parents.

Results

Table 1: Descriptive statistics of the variables under study

<table>
<thead>
<tr>
<th>Variable</th>
<th>N=400</th>
<th></th>
<th>Variable</th>
<th>N=400</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Depression</td>
<td>57.72</td>
<td>16.92</td>
<td>Total function</td>
<td>47.44</td>
<td>8.76</td>
</tr>
<tr>
<td>Positive attitudes to drugs</td>
<td>29.28</td>
<td>11.33</td>
<td>Value- social religious</td>
<td>14.25</td>
<td>4.75</td>
</tr>
<tr>
<td>Anxiety</td>
<td>36.79</td>
<td>10.24</td>
<td>Value- economic</td>
<td>6.71</td>
<td>2.65</td>
</tr>
<tr>
<td>Sensation seeking</td>
<td>25.83</td>
<td>5.88</td>
<td>Value- political</td>
<td>5.02</td>
<td>2.02</td>
</tr>
<tr>
<td>Total vulnerability to addiction</td>
<td>149.6</td>
<td>38.36</td>
<td>Total value</td>
<td>25.97</td>
<td>7.19</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td>intergenerational gap</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem-solving</td>
<td>21.28</td>
<td>4.58</td>
<td>Normative political</td>
<td>7.02</td>
<td>2.76</td>
</tr>
<tr>
<td>Communication</td>
<td>24.55</td>
<td>4.09</td>
<td>Normative social</td>
<td>7.71</td>
<td>2.53</td>
</tr>
<tr>
<td>Roles</td>
<td>30.85</td>
<td>4.97</td>
<td>Normative economic</td>
<td>5.31</td>
<td>2.07</td>
</tr>
<tr>
<td>Affective</td>
<td>24.20</td>
<td>4.31</td>
<td>Normative religious</td>
<td>6.72</td>
<td>3.37</td>
</tr>
<tr>
<td>responsiveness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affective involvement</td>
<td>24.85</td>
<td>4.37</td>
<td>Total normative</td>
<td>26.77</td>
<td>6.59</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>intergenerational gap</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behaviour control</td>
<td>35.45</td>
<td>5.44</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

The descriptive data pertaining to parental education were obtained as follows: illiterate (9.3% father and 19.3% mother), primary school (18.9% father and 17.2% mother), secondary school (11.9% father and 13.4% mother), diploma (27.2% father and 27.9% mother), associate’s degree (5.0% father and 5.0% mother), bachelor’s degree (14.3% father and 8.8% mother), master’s degree (4.1% father and 5.0% mother), and doctoral (1.8% father and .7% mother). In addition, the economic status of the participants’ families is classified into five
groups as follows: very bad (1%), bad (5.7%), average (55.1%), good (30%), and very good (2.4%). The age range of participants was from 18 to 26 years, with an average of 23.45 years old and the standard deviation of 8.1 years.

The correlation matrix pertaining to the components of family functioning and dimensions of vulnerability to addiction is presented in the table below.

Table 2: Correlation matrix pertaining to the components of family functioning and dimensions of vulnerability to addiction

<table>
<thead>
<tr>
<th>Variable</th>
<th>Depression</th>
<th>Positive attitude to drugs</th>
<th>Anxiety</th>
<th>Sensation seeking</th>
<th>Total addictability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem-solving</td>
<td>.52**</td>
<td>.43**</td>
<td>.42**</td>
<td>.29**</td>
<td>.51**</td>
</tr>
<tr>
<td>Communication</td>
<td>.49**</td>
<td>.41**</td>
<td>.41**</td>
<td>.27**</td>
<td>.49**</td>
</tr>
<tr>
<td>Roles</td>
<td>.52**</td>
<td>.44**</td>
<td>.47**</td>
<td>.35**</td>
<td>.54**</td>
</tr>
<tr>
<td>Affective</td>
<td>.41**</td>
<td>.32**</td>
<td>.35**</td>
<td>.27**</td>
<td>.41**</td>
</tr>
<tr>
<td>responsiveness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affective</td>
<td>.47**</td>
<td>.42**</td>
<td>.42**</td>
<td>.28**</td>
<td>.49**</td>
</tr>
<tr>
<td>involvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavior control</td>
<td>.42**</td>
<td>.47**</td>
<td>.36**</td>
<td>.32**</td>
<td>.47**</td>
</tr>
<tr>
<td>Total function</td>
<td>.58**</td>
<td>.50**</td>
<td>.51**</td>
<td>.33**</td>
<td>.59**</td>
</tr>
</tbody>
</table>

** P<.01

The correlation matrix pertaining to the components of intergenerational gap and dimensions of vulnerability to addiction is presented in the table below.

Table 3: Correlation matrix pertaining to the components of intergenerational gap and dimensions of vulnerability to addiction

<table>
<thead>
<tr>
<th>Variable</th>
<th>Depression</th>
<th>Positive attitude to drugs</th>
<th>Anxiety</th>
<th>Sensation seeking</th>
<th>Total addictability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value- social religious</td>
<td>.34**</td>
<td>.33**</td>
<td>.23**</td>
<td>.33**</td>
<td>.36**</td>
</tr>
<tr>
<td>Value- economic</td>
<td>.17**</td>
<td>.12**</td>
<td>.08</td>
<td>.07</td>
<td>.14**</td>
</tr>
<tr>
<td>Value- political</td>
<td>.23**</td>
<td>.20**</td>
<td>.16**</td>
<td>.23**</td>
<td>.23**</td>
</tr>
<tr>
<td>Total value</td>
<td>-.35**</td>
<td>-.32**</td>
<td>-.21**</td>
<td>-.30**</td>
<td>-.33**</td>
</tr>
<tr>
<td>intergenerational gap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normative political</td>
<td>.22*</td>
<td>.22**</td>
<td>.19**</td>
<td>.26**</td>
<td>.26**</td>
</tr>
<tr>
<td>Normative social</td>
<td>-.008**</td>
<td>.003**</td>
<td>-.05</td>
<td>-.02</td>
<td>-.02</td>
</tr>
<tr>
<td>Normative economic</td>
<td>-.01</td>
<td>-.10*</td>
<td>-.01</td>
<td>-.11*</td>
<td>-.06</td>
</tr>
<tr>
<td>Normative religious</td>
<td>.25**</td>
<td>.21**</td>
<td>.17**</td>
<td>.24**</td>
<td>.25**</td>
</tr>
<tr>
<td>Total normative</td>
<td>-.27**</td>
<td>-.22**</td>
<td>-.17**</td>
<td>-.22**</td>
<td>-.17**</td>
</tr>
<tr>
<td>intergenerational gap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** P<.01 * P<.05

Maximum likelihood was used for model estimation and the following indexes were used to evaluate the model fitness: chi square (X2), ratio of chi square to degree of freedom (X2/df), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), comparative fit index (CFI), root mean square error of approximation (RMSEA), and root mean square residual (RMSR). If chi-square is not statistically significant, this suggests a very good fit index, but this is not considered a proper index to measure model fitness because this index is often significant in sample sizes larger than 100. If ratio of chi square to degree of
freedom is smaller than 3, it indicates a good fit. If the indices GFI, AGFI, and GFI are greater than .90 and the indices RMSEA and RMSR are smaller than .05, this represents a very proper fit index. If SEA and RMSR are smaller than .08, it shows a good fit.

Table 4: Fit indexes presented in the study

<table>
<thead>
<tr>
<th>Index values</th>
<th>$X^2$</th>
<th>$X^2/df$</th>
<th>GFI</th>
<th>AGFI</th>
<th>CFI</th>
<th>RMSEA</th>
<th>RMSR</th>
<th>Standardized RMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index values</td>
<td>352.03</td>
<td>2.09</td>
<td>.92</td>
<td>.89</td>
<td>.98</td>
<td>.051</td>
<td>2.84</td>
<td>.055</td>
</tr>
</tbody>
</table>

As it can be seen in the above table, the presented fitness model is very desirable.

The model is presented in the following graph.

Figure 1: Standardized loads of the path model
Discussion and Conclusion

Drug addiction, as a social ill in the context of social pathology, has targeted the young generation in many countries and, thereby, it imposes heavy social, economic and individual harms. Addiction leads to depersonalization and undermines physical ability in young people and distances them from the active and lively group of the community (Huang, Grant, Dawson, Stinson & Chou, 2006). In this regard, the identification of the young individuals at risk of substance abuse and other risky behaviors should be one of the major concerns of the education authorities. The investigation of the background and effective factors in the emergence of a phenomenon is the building block and starting point of the next steps and measures. This study aimed at identifying the people at risk of addiction and modeling the role of three factors of family functioning, intergenerational gap, and socio-economic status towards determining vulnerability to drug addiction. In the present study, the hypothetical designed model fitted the experimental data and is in line with the findings of other studies. Family function is inversely correlated with vulnerability to addiction. Hosseinpoor, Bakhshani & Shakiba (2012) compared family functioning between addicts and non-addicts. The results showed that drug dependent people hold more negative thoughts about their family compared to other people and the families of drug-dependent individuals were inefficient in the areas of problem-solving, communication, affective responsiveness, affective involvement, behavior control, and finding the right solution to solve problems. Afkari, Ghasemi, Shojaeizadeh, Foroshani, & Taghdisi (2013) also indicated that there was a significant difference between amphetamine addicts and non-addicts in terms of family function dimensions and quality of life and the high degree of family malfunctions was related to the group of addicts. Families of addicted individuals were limited in expressing their thoughts and feelings and trusted others to a lesser extent. Research and clinical findings indicate that drug abuse is dominant among members of those families wherein no intimate parent-child relationships are found and children have not experienced secure family attachment. Warm, intimate and supportive family relationships, if not interventionist, will protect children from falling into the trap of drug abuse. Di Pietro, et al. (2007) argue that life with intimate parents acts as a protective factor against substance abuse. Cottrell, et al. (2007) found that parental supervision negatively predicts adolescents’ engagement in risky behaviors such as drug use. Based on these results, warm relations between parents and children can act as a protective factor against involvement in risk behaviors such as addiction. Warm and supportive relations between parents and children improve children's mental health indicators and lead to the healthy growth of their personality. Finally, it would help prevent substance abuse in children. Salimi, et al. (2006) showed that lack of love and affection in the family and strict styles practiced by parents are among the main causes of smoking and drug use. Forootani & Rezaeian (2006)
indicated that 78.1 percent of students view parental neglect and lack of control as the causes of addiction among students. Matejevic, Jovanovic & Lazarevic (2014) found that family functioning and parenting styles are correlated with children’s addiction. This result shows the importance of the family as an institution that can engender addiction potential in its members. In families with teenaged drug abusers, family members are not interested in being together and going through shared decision-making and, thereby, the family environment will not be a safe place for children’s growth. As a result, teenagers in such families will be oriented towards peers and possibly substance abusers to gain a degree of independence in front of the parents who do not understand their needs. When the warm and friendly ties between family members fade away, children will undergo mental decline. The individuals who are treated with parental injustice and neglect will heavily lose their self-esteem and are faced with various phobias. In fact, tendency to drug use is an alternative to the restoration of self-confidence, which creates a false confidence (Ra’easi, Anisi, Yazdi, Zamani & Rashidi, 2008). Desirable relations between parents and children meet the physical and psychological needs of children in the family. Then, substance abusers are not appealing to children at all.

In the present study, total functioning was the only component of family functioning that was significantly associated with the components of vulnerability to addiction. The overall family functioning relates to the way family members are in connection with each other, interact with each other, maintain their relationships, make decisions, and solve problems. In fact, what happens within the family and how the family functions play a key role in building resilience and reducing the current and future risks associated with adverse conditions. Family malfunction can lead to academic failure and orientation to alcohol and drug use among children (Silburn, et al., 2006). Family as an influential source of childhood and adolescence plays a crucial role in individuals’ decisions to turn to risky behaviors. Successful function in the future life is influenced by family functioning and requires flexibility in the structure, roles and responsibilities in new growth-based needs. Poor family functioning disturbs the members’ affective relations, engenders insufficiency in overcoming difficulties and finding a reasonable and appropriate solution to problems, and leads to failure to meet the affective needs of children; therefore, children may tend to addiction more than ever (Springer, Parcel, Baumler & Ross, 2006).

The present study showed that the relationship between the generation gap and vulnerability to addiction holds a significant direction. Generation gap refers to the difference in knowledge, attitudes, and behavior between the two generations despite the large-scale integrations influenced by social, cultural, and historical structures. Compared with the elderly and middle-aged people, children possess different information, attitudes and behaviors even though they live in a cultural space. The survival of each society over time is contingent on the rule-based and
nonstop transfer of institutions and values from one generation to another. In fact, the continuity and survival of any society depends on cultural transmission. Some regard the presence of conflicts and discrepancies between parents and teenagers as the generation gap and believe that this conflict is an integral part of generational transition (Chitsaz, 2007). From among the components of intergenerational gap, value-religious and social component was strongly associated with vulnerability to addiction. In fact, values are means of social cohesion and transfer of values brings cultural association. Since values shape standards of behavior, the difference in the intergenerational values creates some distance between the previous generation and the new one (Chitsaz, 2007).

As per the results of the present study, a substantial action is recommended to be made for the start of addiction prevention from families. Training of suitable communication methods in families, problem-solving strategies, conflict resolution, accountability, understanding of emotions and affects, and proper parenting styles can be effective. Families should be invited to have partnership and cooperation in treatment processes so that the necessary transformative change can occur in the whole family system.

References


Abstract

Objective: This study was an attempt to predict addiction potential based on family process and content model in high school students. Method: The research method in this study was a descriptive-correlative one. All the high school students of Karaj city in the academic year 2012-2013 constituted the statistical population of the study. From this population, the number of 410 participants was selected through random cluster sampling. The research instruments here included Addiction Potential Scale (Zargar, 2006), Family Process Scale (Samani, 2007) and Family Content Scale (Samani, 2007). Results: The results showed that there was a significant negative correlation between the predictor variables and criterion variable. In addition, the results of regression analysis showed that the family process and content model can predict addiction potential. Conclusion: The research results have several applied implications. Keywords: Addiction Potential, Family Process, Family Content

On the Prediction of Addiction Potential Based on Family Process and Content Model in High School Students

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Introduction

Addiction and substance abuse have been among the most serious human problems and the most complex human phenomena in the recent years. As a maladaptive pattern, substance use leads to frequent social, legal, and job-related problems (Barati, Verdipour & Jalilian, 2011). Due to the young population of the country, drug addiction is one of the issues that threatens the younger generation, especially students. Nowadays, narcotic drugs have become a business product. To gain high profits, drug dealers and traffickers provide young people with these substances and this has greatly reduced the age of drug use (Rafipour, 1999). Newcomb (1995) stated that adolescence is an important developmental period in which the young people seek identity and some part of this period entails risk-taking which is manifested in the form of unsafe sexual behaviors, alcohol use, cigarette smoking, and use of other drugs. Tendency to cigarette smoking, alcoholic drinks, and other drugs among adolescents in different countries in recent decades is on the rise (Ferrence, Lothian & Cape, 2000). In social psychology, tendency is divided into two types: cognitive tendencies and non-cognitive and affective tendencies. Cognitive tendencies include some thinking variables such as intelligence, divergent thinking, verbal perception, etc. while non-cognitive tendencies are dealt with such personality variables as attitudes, preferences, interests and needs (Getzles, 1999). Pourafkari (1997) defined tendency as an internal orientation in which there is a high probability of the incidence of some behaviors, or some behaviors are easily taught. People’s beliefs and attitudes about the negative and positive consequences of addiction are defined as tendency to drug use (Adrom & Nikmanesh, 2011). Hiroi & Agatsuma (2005) reached the conclusion that it is not true that everybody tends to drug use and becomes addicted if s/he is exposed to drugs. Therefore, long-term exposure to drugs is not the sufficient condition for addiction. Indeed, the individuals who are prone to addiction will tend to it. Addict prone theory asserts that some people are intrinsically prone to addiction and will become addicted if exposed to drugs. However, some people are not potentially prone to addiction; therefore, they will not become addicted that much easily (Gendreau & Gendreau, 1970). The manifestation of addiction may peak at the early adolescence (Zeinali & Vahdat, 2009). There are different reasons for addiction to the variety of narcotics. Some turn to addictive drugs to gain acceptance in the society and some others try to demonstrate themselves as highly developed and grown-up people, and some people turn to drug use since they seek solace in it (Jessor, 1984; cited in Hajhassani, Shafi Abadi, Pirsaghi & Bashirpour, 2011). Sociologists, experts, and other thinkers held some ideas and beliefs about addiction tendency that are briefly subdivided into three categories. The first group believe that people tend to drugs since they have easy access to drugs. The second group views mental preparations and personality traits as the main cause of addiction tendency whereas the third group believe that
individuals may be entangled in social crises and unrests and then they turn to drug use to sedate such pains (Faridkian, 2010). However, family is one of the most important factors in the emergence of addiction tendency, addiction prevention, and addiction abstinence. Family and peers are among the most important determinants of socialization, respect, or neglect of social norms (Brook, Brook & Richter, 2001). Family is an environment that is in connection with a wide range of social and emotional behaviors of children (Meunier, et al., 2011). Communications and conflicts in families are effective in children’s developmental growth (Fiese & Winter, 2008). Abundant research findings are indicative of the fact that several deviant behaviors of children and adolescents are rooted in family (Naghdi, 2003). Hence, psychologists and family therapists have tried to touch upon family problems and issues by the development of theories and models about family function so that healthy people, families, national communities, and global communities can emerge. Among these theoretical models and frames, it is possible to refer to systemic theory, exchange theory, conflict theory, structural – functionalism theory, and symbolic theory (Samani, 2008). Family process and content model is one of the national models which can demonstrate psychological family profile (Samani, 2005). Samani regards a collection of family functions as effective factors in control and/or the intensification of family conflicts and crises. These factors are outlined into three dimensions, namely family process, family content, and social context.

In this model, family processes include a series of functions that are used by each family to adapt to new conditions (Samani & Sadeghzadeh, 2007) and also contain items such as styles and communication skills, coping strategies, decision-making and problem-solving skills, solidarity and flexibility, and religious orientation (Samani, 2011, cited in Zargar, Mohammadi Bahramabadi & Besaknejad, 2012). The second dimension (family content) includes all the items that constitute the perfectly objective and tangible reality of family members and refers to family possessions in terms of physical and mental health, occupation and education, financial sources, educational facilities, location of living, time for being together, and physical appearance and social prestige. The third dimension of this model is social context, which refers to a set of beliefs and values prevailing a society in which families are located (Samani & Asadmanesh, 2011).

It is possible to identify such conditions that bring about addiction tendency among family members and children by using this model and to take actions in eliminating and moderating these factors. In one family, functions and communications among family members are in a way that the family environment is prepared to meet the basic needs of children, whether physical or mental needs. One of the family functions is basically the education and socialization of children; and any failure and deficiency in family functioning imposes adverse effects on rearing normal children (Navabakhshi & Sabeti, 2008). In terms of the role of family in addiction tendency, research findings
have shown that some components pertaining to family, especially parental control and support are associated with the probability of substance abuse in adolescents (Karol, Kumpfer & Fowler, 2007; cited in Seifi Gandomani, Saffarinia & Kalantari Meibodi, 2012). Moreover, some studies have also reported the availability of a significant relationship between the possibility of drug abuse and parental intimacy (Therese, Janet & Christopher, 2011). Stanger, et al. (2002) showed that some items from family processes such as family relationships and problem-solving methods are strong predictors for communication problems and drug addiction in adolescents. Given the vulnerability of adolescents and the devastation of all aspects of their individual and social life in case of drug addiction, any attempts at the identification of the factors contributing to addiction tendency, prevention, and treatment are valuable. Examination of the family environment as one of the most important factors in tendency and orientation to addiction is of paramount importance; for this reason, the present study attempts to clarify whether family process and content can predict the tendency to addiction in adolescents.

**Method**

**Population, sample, and sampling method**

The research method in this study was a descriptive-correlational one. All the male and female high school students of Karaj city in the academic year 2012-2013 constituted the statistical population of the study. From this population, a 410-participant sample size was selected through random cluster sampling due to the unavailability of the detailed list of the population and considering previous studies (Bayanati, 2011).

**Instrument**

1- Addiction Potential Scale (Iranian Version): This questionnaire was constructed by Zargar (2006) considering the psychosocial context of Iranian community and contains two factors, 36 items plus 5 other items measuring lying. The items are scored based on a Likert scale from zero (strongly disagree) to 3 (strongly agree). In terms of criterion validity, the scale discriminates addicts and non-addicts from each other. The construct validity of the questionnaire has been calculated by correlating it with SCL-25 which has been reported to be significant. The reliability of the scale was calculated via Cronbach's alpha which equaled .90 (Zargar, Najarian & Na’ami, 2008).

2- Self-report Family Process Scale: This 43-item scale was developed by Samani (2008) based on the theoretical model of the process and content of family. The scoring of this scale was done based on a 5-point Likert scale (strongly agree = 5 to strongly disagree = 1). Samani (2008) assessed the reliability of the scale via Cronbach's alpha and test-retest reliability. Cronbach's alpha coefficients were obtained equal to .86, .88, .76, .79, and .79 for decision-
making and problem solving, coping skills, solidarity and respect, communication skills, and religious beliefs, respectively. The test-retest reliability of these factors was equal to .83, .77, .78, .72, and .79, respectively. In addition, Jafari (2009) reported Cronbach's alpha for the scale equal to .87, .62, .86, .91, .90, and .94.

3- Self-report Family Content Scale: This 38-item scale was designed based on context-based model of family process and content (Samani, 2008). Samani & Sadeghzadeh (2010) evaluated this scale which is scored based on a five-point Likert scale (strongly agree = 5 to strongly disagree = 1). This scale measures seven factors, namely occupation and education, time for being together, financial sources, physical and mental health, location of living, physical appearance and social prestige, and educational facilities. Samani (2008) assessed the reliability of the scale via Cronbach's alpha and test-retest method. Cronbach's alpha coefficients were equal to .86, .88, .76, .79, .79, .82, and .85 and test-retest reliability of the factors were obtained equal to .83, .77, .78, .72, .79, .82, and .82, respectively as mentioned above. Samani (2008) and Samani & Sadeghzadeh (2010) explored the validity of this scale through factor analysis. The results of these two studies suggested the adequate psychometric properties of this scale. In addition, Jafari (2009) reported that the Cronbach's alpha coefficients of this scale and its factors range from .65 to .86.

Results

The descriptive statistics of the variables under study are presented in the following table.

Table 1: Descriptive statistics of the variables under study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total</th>
<th></th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
<th>Male</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Mean</td>
<td>SD</td>
<td>Frequency</td>
<td>Mean</td>
<td>SD</td>
<td>Frequency</td>
<td>Mean</td>
</tr>
<tr>
<td>Addiction potential</td>
<td></td>
<td>410</td>
<td>38.62</td>
<td>13.40</td>
<td>210</td>
<td>37.86</td>
<td>12.34</td>
<td>200</td>
</tr>
<tr>
<td>Family content</td>
<td></td>
<td>410</td>
<td>133.80</td>
<td>17.93</td>
<td>210</td>
<td>136.8</td>
<td>17.15</td>
<td>200</td>
</tr>
<tr>
<td>Family process</td>
<td></td>
<td>410</td>
<td>158.76</td>
<td>19.71</td>
<td>210</td>
<td>160.44</td>
<td>18.95</td>
<td>200</td>
</tr>
</tbody>
</table>

The correlation matrix of the variables of the study is shown in the table 2.
Table 2: Correlation matrix of the variables of the study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Addiction potential</th>
<th>Family content</th>
<th>Family process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addiction potential</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Family content</td>
<td>- .255**</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Family process</td>
<td>- .572**</td>
<td>.408**</td>
<td>1</td>
</tr>
</tbody>
</table>

**P<.01

Simultaneous regression analysis was used to study the role of predictive variables in predicting addiction potential as follows.

Table 3: Results of regression analysis of addiction potential based on family process and content

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SD</th>
<th>β</th>
<th>t</th>
<th>R</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family content</td>
<td>-.02</td>
<td>.033</td>
<td>-.027</td>
<td>.596</td>
<td>.573</td>
<td>.328</td>
</tr>
<tr>
<td>Family process</td>
<td>-.382</td>
<td>.03</td>
<td>-.561</td>
<td>-12.61</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Constant value</td>
<td>101.85</td>
<td>5.07</td>
<td>-</td>
<td>20.07</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

As it is observed in the above table, family process is a significant predictor of addiction potential which has a negative role in addiction potential. This means that as a person obtains higher scores in family process, s/he will be far less prone to addiction. In contrast, family content is not a significant predictor.

Discussion and Conclusion

The present study was conducted to predict addiction potential based on family process and content in senior high school students. The results showed that the model of family process and content can predict addiction potential. In support of these research findings, Mathern & Tomas (2001), White (2000), Samadi Rad (2002), and Behmanesh (2009) showed that there is a significant relationship between the instability of the family environment as a component of family process and tendency to addiction. Undoubtedly, family is one of the most effective factors in addiction susceptibility and also addiction prevention and withdrawal. Interactions of couples and members together in an affective and friendly environment along with mutual respect can act as a strong barrier against tendency to addiction among family members. In this regard, the study conducted by Asgari, Safarzadeh & Ghasemi Mofrad (2011) is a strong reason to accept this assumption. Stanger, et al. (2002) have found that such family processes as family communications and problem-solving methods are strong predictors for communication problems and drug addiction in adolescents. Some studies have also found a significant relationship between problem-solving skills and addiction tendency (Mott & Haurin, 1988; Kakia, 2010). In a study conducted on Yasouj students, researchers concluded that family processes can predict students’ behavioral problems (Zargar, et al., 2012). As one of the dimensions of family process, religious orientation is a strong predictor of addiction susceptibility in that the families and people who have stronger religious orientation are less likely to be prone to addiction (Haj Husseini &
Akhavan Tafti, 2003; Zargar, et al., 2008; Asghari, Kordmirza & Ahmadi, 2012). When a person turns to addiction to achieve mental relief and relaxation due to the problems arising from family and other areas, this indicates that family cannot act as a strong comforting force. However, when solidarity, unity, and commitment prevail among family members, one can take advantage of these members to prevent and solve problems and also take advantage of them as mental permanent solace rather than use drugs as a short-term sedative (Olson, 2000). In families with drug dependent children, personal growth and development are not encouraged and rational discussions and cultural activities in these families do not take priority. Religious beliefs, which are considered a protective family process fade away in such families. In these families, there is no coherent organization and, thereby, such families do not have a disciplined routine in activities and responsibilities and the likelihood of drug use in family members rises (Najaflavi & Navabinejad, 2004). In general, family processes are defined as actions and skills in the family environment and different life situations and issues. When family is weak in skills and in applying proper behaviors and decisions, this will create a source of deviance and perversion of its members. Majidpour, Hamidzadeh, Gholizdeh & Salehi (2005) showed that mental and affective problems, lack of fun, frustration at occupational future, and educational stress are among the most important reasons for smoking. In the same way, the research findings of the studies done by Siam (2007), Besharat, Mirzamani & Pourhosseini (2001), and Faridkian (2010) suggested a significant relationship between the components of family content and addiction tendency. Family content refers to the possessions and palpable factors that a family enjoys. Low levels of physical and mental health as one of the family contents can provide family members with the conditions for addiction tendency. When a person suffers a mental or physical problem, s/he turns to addiction to reduce the pain. Location of living is another component of family content that may play a fundamental role in tendency to addiction. Families who live in places where there are a great number of people suffering from addiction in the neighborhood are more likely to be familiar with drugs and drug users and to be more inclined to drugs by imitating drug users. Furthermore, other family contents such as poor education facilities, low levels of parental presence, and poor control can lead to the emergence of addiction tendency among family members.

In general, the findings of this study indicate that family process and content can predict tendency to addiction. When these factors are weakened, the possibility of addiction tendency rises. Family is the source of comfort; therefore, whenever this position is deviated from its main function for any reason, family members may be inclined to addiction in order to relieve the suffering. The limited statistical population of this study and participants’ biases in responding to the research instruments were among the limitations of the current study. In line with the findings of the current study, it is suggested that
experts and policy planners in the field of family health and fight against addiction pay considerable attention to the family. Researchers are also recommended to study the impact of each of these components on addiction in different societies more rigorously and attentively.

Reference


Abstract

Objective: This study aimed to examine the effectiveness of self-encouragement training in mental health of Tehran women with addicted husbands. Method: A quasi-experimental method along with pre-test/post-test and control group was used for this study. The sample consisted of 20 women with drug-dependent spouses (in Pak Andishan Rehab Clinic of Tehran) who were selected on a voluntary basis and, then, were randomly assigned to two 10-person experimental and control groups. The experimental group participated in 10 self-encouragement training sessions and, then, both groups were assessed by general health questionnaire. Results: The results of this study showed that training sessions had a significant impact on mental health. Conclusion: Self-encouragement training sessions can result in an increase in mental health. Keywords: Self-Encouragement, Mental Health, Women with Addicted Spouses
Introduction

Addiction is one of the factors that leads to destruction of the family foundation and occasions family disputes and conflicts. The situation becomes more pathogenic when the wives of addicts become informed of their husbands’ addiction. In such circumstances, addicts’ spouses lose their life expectancy, their mental health is affected by disturbances, their social relationships are impaired, and grief, sadness, loneliness, shame, and psychological insecurity will prevail over their lives (Halford, 2001, cited in Tarkhan, 2011). Ofarel (1995) found that addicted men’s wives experience sad situations about selves, their life, and the future of their families. Their anxiety is the outcome of their preoccupation with the futility disintegration of life. They are anxious and depressed due to the pressure of household chores, economic problems resulting from their husbands’ unemployment, life monotony, and unfriendly relationship with their husbands (cited in Mahboobimanesh, 2003). Larousse’s Psychology Dictionary defines mental health as flexibility, the ability to keep balance, and mental aptitude for organization, happiness, and effective practice in difficult situations (Hossaini, 2008). Adler regards a person enjoying mental health as having the strength and courage to achieve his/her goals and accepting his/her own weak areas and problems and trying to tackle them (Stein & Edwards, 2008, cited in Salimi, Shaifi Abadi & Etemadi, 2012). When family-based educational intervention is used, the addicted individual’s recovery accelerates, normal behaviors increase, and family functioning is improved (Liddle, Dakof, Parker, Diamond, Barrett & Tejeda, 2001). Schoenaker’s self-encouragement training is one of the family training programs that has been based on individual psychology and is planned to provide the conditions for excitement, encouragement, hopefulness, and motivation (Bahlmann & Dinter, 2001). Adler, the founder of individual psychology, suggests four main needs, including the need to value, sense of capability, sense of belonging, and need for encouragement. Encouragement is a process that focuses on personal resources and the potential to increase self-esteem and self-acceptance. This encouragement is extremely correlated with an optimistic philosophy on life (Carlson, Watts & Maniacci, 2006). Encouragement is what makes a person own a sense of belonging and feel satisfied with his/her dedication to the welfare of society. Encouragement is employed to inspire morale, foster hope, incite a sense of motivation, support or instill gradual courage and confidence. Encouragement is a necessary component that helps to overcome the situations filled with distress which inevitably arise in the complexities of modern life (Dreikurs & Ferguson, 2006). When considering the psychological aspects of encouragement, it refers to the process of strengthening an individual’s psychological power. From the pragmatic point of view, encouragement is an attitude that can be used to strengthen trust, success, and support (Yang, Milliren & Blagen, 2010). Encouragement is not only a phenomenon that is simply
achieved by individuals, but the individuals can be encouraged as well. As the encouragement of others is important, self-encouragement is also of special importance. Self-encouragement includes learning how to energize the self towards improvement and perfection and also self-valuing efforts. It also refers to belief in one’s ability and understanding of the fact that self-faith and self-confidence are the sources of change and can foster self-esteem (Maybell & Maybell, 2004, cited in Alizadeh & Fathi, 2012). It also fosters hope, confidence, health, and satisfaction in others (Eckstein & Cooke, 2005). Self-encouragement entails both personal and social goals. The important point is to hold positive views towards the surrounding issues. However, many people do not hold such views and lead an inadequate and inferior life (Bahlmann & Dinter, 2001). Encouragement is strongly correlated with the optimistic philosophy of life, but discouragement that is often synonymous with pessimism, is based on the lack of belief in one’s ability to find solutions and create positive action (Eckstein & Cooke, 2005). Discouragement may be regarded as a family problem that troubles people. Discouragement often arises from erroneous beliefs and wrong thinking that emanate from primary childhood experiences (Milliren, Yang, Wingett & Boender, 2008). Adlerians do not seek treatment; rather, they view treatment as a process of encouragement (Watts & Garza, 2008). Thus, discouragement should be eliminated in order to increase courage, mental health, and satisfaction and to meet life needs. One of the treatment methods in dealing with these people is Schoenaker’s self-encouragement training (Bahlmann & Dinter, 2001). The more people become encouraged, the more they will experience a sense of belonging and the more they will benefit from inner tolerance against life challenges (Evans, 2005). Encouragement does not only refer to verbal responses, but it can also be regarded as a silent, receptive and sensitive mode or method (Eckstein, Belongia & Elliott-Applegate, 2000). Encouragement simply refers to risk-taking tendency and desire to tolerate hardships (Yang et al., 2010). As per Adlerians, encouragement plays an important role in reducing negativism and conflicts among family members, making progress in normally social behavior, and overcoming irrational thinking models (Carns & Carns, 1998). Bahlmann & Dinter (2001) concluded that individuals are reported to be more courageous and tolerant than ever after participating in Schoenaker’s self-encouragement training program. Adlerian therapy is a psycho-educational short-term present-future-oriented therapeutic approach. This therapy obviously integrates cognitive and systemic perceptions although it is theoretically consistent, integrated and eclectic (Corey, 2013). In addition, Adlerian psychological features and assumptions are consistent with the cultural values of many ethnic groups and are dedicated to the use of diverse populations (Watts & Piterzak, 2000). Encouragement along with social interest in people leads to psychological hardiness. Psychological hardiness reduces stress and allows one to act appropriately and deals with the challenges of life in a way that meaning and purpose in life are produced (Kobasa, 1979; cited in
Nasiri Fard, 2009). Alizadeh, Nasiri Fard & Karimi (2010) reached the conclusion that encouragement training can increase self-efficacy and self-esteem in adolescent girls. Abolqasemi, Fallahi, Babai & Hojat (2012) showed that self-encouragement training increases self-efficacy among addicted men’s wives while it has made no changes in marital satisfaction. Alimohammadi, Sohrabi & Karami (2011) also showed that encouragement training in groups significantly reduces symptoms of depression. It is possible to provide the addicted men’s wives with correct communication patterns by training interventions so that the incidence of negative behaviors and communications can be prevented. Alizadeh & Fathi (2012) administered Schoenaker’s self-encouragement training to the parents with children suffering mental retardation educationally and came to the conclusion that the parents’ marital satisfaction, mental health, anxiety problems, sleep problems, social functions, and physical symptoms were improved; however, no improvement was observed in depressive symptoms. Therefore, the present study is mainly focused on the issue to know whether self-encouragement training can improve the mental health of addicted men’s wives.

**Method**

**Population, sample, and sampling method**

In this study, a quasi-experimental research along with pretest-posttest and control group design was used. The statistical population of the study included all the women who accompanied their addicted husbands to the addiction treatment centers in Tehran to receive treatment services (methadone and buprenorphine) in 2013. For this purpose, those who volunteered to participate in the training course were randomly assigned to two experimental and control groups. Therefore, the sample size of 20 participants was selected on a voluntary basis and was randomly divided into two 10-participant groups. The experimental group was treated with self-encouragement training sessions based on the topics and goals of Schoenaker’s encouraging training sessions (1980). This training program consisted of ten 90-minute sessions (one session per week) while the control group received no training. The criteria for inclusion in the sample were: minimum education of middle school, at least one year of marriage, and a minimum age of 20 years. Exclusion criteria were: absence of more than two sessions, dissatisfaction, and not receiving information necessary for changes up to the fifth session, inactivity and no cooperation in doing homework assignments of the sessions. The contents of self-encouragement training sessions are presented in the following table.
Table 1: The content of self-encouragement training sessions

<table>
<thead>
<tr>
<th>Session</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>First session</td>
<td>Introducing the concept of encouragement and teaching encouraging behaviors and characteristics</td>
</tr>
<tr>
<td>Second session</td>
<td>Goal-oriented training of human behavior</td>
</tr>
<tr>
<td>Third session</td>
<td>Teaching encouragement, acceptance of mistakes, and the courage to admit incompleteness</td>
</tr>
<tr>
<td>Fourth session</td>
<td>Learning affectionate thinking and encouragement</td>
</tr>
<tr>
<td>Fifth session</td>
<td>Expressing the effect of slander behind people's back and gossiping on people's relationships with each other</td>
</tr>
<tr>
<td>Sixth session</td>
<td>The methods to build positive relationships</td>
</tr>
<tr>
<td>Seventh session</td>
<td>This session was planned on the basis of the sixth session and goes on by encouraging talks</td>
</tr>
<tr>
<td>Eighth session</td>
<td>Examining the role of self in difficult situations</td>
</tr>
<tr>
<td>Ninth session</td>
<td>Examining one's idea of love and a sense of belonging to others</td>
</tr>
<tr>
<td>Tenth session</td>
<td>Overall assessment of previous meetings</td>
</tr>
</tbody>
</table>

Instrument

General Health Questionnaire: This scale was designed by Goldberg & Hillier in 1979. This questionnaire consists of 28 questions, which constitute four factors, namely somatic symptoms (items numbered 1 to 7), anxiety and insomnia (items numbered 8 to 14), social dysfunction (items numbered 15 to 21), and severe depression (items numbered 22 to 28). This scale is scored based on a 4-point Likert scale and each item is rated from zero to three. Cheung & Spear reported the test-retest reliability of the scale equal to .47. In addition, Cronbach's alpha was obtained equal to .88 for the total scale and this value equaled .66, .72, .79, and .85 for the subscales of somatic symptoms, anxiety, social dysfunction and depression, respectively. Researchers have confirmed the reliability of the scale several times and Goldberg & Hillier also reported its reliability equal to.89 (cited in Noorbala, Bagher Yazdi & Mohamad, 2008).

Results

The descriptive statistics of mental health are presented in the following table for each group and test.

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Experimental</td>
<td>41.20</td>
<td>9.31</td>
</tr>
<tr>
<td>Control</td>
<td>39.90</td>
<td>6.15</td>
</tr>
</tbody>
</table>

Analysis of covariance test should be used to evaluate the effectiveness of self-encouragement training. One of the assumptions of using this analysis is the normal distribution of scores. In this regard, the results of Kolmogorov-Smirnov test are provided in the table 3.
Table 3: Kolmogorov-Smirnov test results representing the normal distribution of the scores

<table>
<thead>
<tr>
<th>Status</th>
<th>Sig.</th>
<th>Z</th>
<th>Test type</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>.85</td>
<td>.61</td>
<td>Pretest</td>
<td>Experimental</td>
</tr>
<tr>
<td>Normal</td>
<td>.88</td>
<td>.59</td>
<td>Posttest</td>
<td>Experimental</td>
</tr>
<tr>
<td>Normal</td>
<td>.99</td>
<td>.43</td>
<td>Pretest</td>
<td>Control</td>
</tr>
<tr>
<td>Normal</td>
<td>.98</td>
<td>.46</td>
<td>Posttest</td>
<td>Control</td>
</tr>
</tbody>
</table>

In addition, another assumption of using this test is the equality of variances which is examined by Levene's test. The results of Levene's test indicate that this assumption has been met (F=.29, P>.05). The results of the following table also suggest the homogeneity of the regression slope.

Table 4: Results of equity analysis of variance for regression slope

<table>
<thead>
<tr>
<th>Sources of change</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>182.25</td>
<td>43.16</td>
<td>.007</td>
</tr>
<tr>
<td>Pretest</td>
<td>40.59</td>
<td>9.61</td>
<td>.044</td>
</tr>
<tr>
<td>Group*Pretest</td>
<td>2.25</td>
<td>.533</td>
<td>.518</td>
</tr>
</tbody>
</table>

The results of analysis of covariance are presented in the following table.

Table 5: Results of analysis of covariance representing the effectiveness of the interventions in mental health

<table>
<thead>
<tr>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1623.71</td>
<td>161.880</td>
<td>.0005</td>
<td>.90</td>
</tr>
</tbody>
</table>

Discussion and Conclusion

The present study aimed to determine the effect of self-encouragement training on the mental health of addicted men’s wives in Tehran. The results showed that encouraging training is effective in the promotion of mental health. In fact, mental health scores of the experimental group after receiving encouragement training were significantly different from the scores of this group in pretest. The results of this study suggest that self-encouragement training, with its emphasis on acceptance, especially self-acceptance, made the participants in the experimental group accept themselves more than ever and value their activities in life. Another important issue was the acceptance of others which had a strong influence on these individuals. In fact, they accepted their wives. Sharing the problems of life in group with people of similar interests, getting help from each other in the process of coping with life's problems, and receiving encouragement from each other reduced sad and depressive states and also anxiety. In line with the results of this study, Copello, Templeton & Powell (2010), Orford, Velleman, Copello, Templeton & Ibanga (2010), and Liddle, et al. (2001) showed that addiction exerts harmful effects and imposes a heavy price on families; for this reason, some interventions should also be done in such families for addiction treatment. In terms of the effectiveness of encouragement in self-efficacy, the results of this study are also consistent with those of the studies.
done by Abolqasemi et al. (2012) and Alizadeh et al. (2010), Alizadeh & Fathi (2012), and Bahlmann & Dinter (2001). In the dimension of depression, the current findings are in the same line with the results of other studies (Alimohammadi et al. 2011 and Esliami, 2013). Mohammadkhani, Asgari, Foroozan, Momeni & Delavar (2010) found that scores of women with addicted spouses in all psychiatric symptoms were significantly higher than their counterparts’ scores. To interpret these results, one can assert that addiction imposes heavy costs on families and, thereby, some interventions should be carried out for addiction treatment in families of such people. When family therapy, group therapy, and family-based training interventions are used, the addict’s recovery accelerates, normal behaviors increase, and family functioning is improved. Thus, encouragement helps people encounter problems and difficulties more actively and show friendly behaviors. Decrease of stress in social situations and improvement of social skills are among the other results of encouragement. Influenced by encouragement training, individuals behave friendlier towards selves and others, act more audaciously, foster higher tolerance and happiness, and develop higher levels of self-confidence. In addition, encouragement brings insightful views to life, sense of tenacity and robustness, leniency in situations, being more open than others, and lower inclination to seek perfection (Bahlmann & Dinter, 2001). Encouragement is used to inspire the spirit, foster hope, incite and provoke different senses such as support, and gradually instill courage and confidence. Encouragement is essential to overcome situations of distress which necessarily appear in the intricacies of life (Dreikurs Ferguson, 2006). In general, self-efficacy refers to such beliefs as "I can" or "I cannot" (Siegle & McCoach, 2007). This can be a reference to the definition of mental health that includes personal adequacy, self-control, self-accountability, self-actualization, and self-empowerment that are emphasized in encouragement training (the first principle, i.e., self-acceptance). Esliami (2013) showed that training classroom management techniques based on Adler-Dreikurs approach could significantly improve self-efficacy and mental well-being in teachers; this finding is consistent with those of the present study. Relatively accurate, balanced, and realistic understanding of the self can positively affect mental health criteria, such as the ability to take care of others, the ability to feel satisfied, the capacity to control important events in life, ability to do creative jobs, self-confidence, and optimism about the future (Taylor & Brown, 1988). Self-encouragement training aims to get a real understanding of self, as well. This reality lies in encouragement that although there are positive and negative emotions in the world, this is one’s perception of these emotions that shapes his/her approach to life (Eckstein & Cooke, 2005). One of the limitations of this study was the difficulty in obtaining the consent of addicted individuals’ wives to attend self-encouragement training sessions, which limited the sample size of the experimental group. Researchers interested in this area are recommended to conduct this training program on all members of the families.
with one addicted member and measure the effect of this program on other family members (parents, siblings, children) and other components (parent-child relationships, depression, social acceptance, and other personality traits). In addition, self-encouragement training program is preventive in essence; therefore, it is a good idea to administer it to the parents in schools. This program can be fully taught to parents from the beginning of their children’s primary school.

Reference


Abstract

Objective: This study aimed to examine the effect of dialectic behavior therapy on the reduction of impulsivity in women with comorbidity of borderline personality disorders and substance abuse.

Method: An experimental single system research design using multiple baselines was employed for this study. Based on the structured diagnostic interview and entry criteria, four participants among female patients with borderline personality disorders and substance abuse were selected via purposive sampling method. All four subjects received twelve dialectic behavior therapy sessions. Then, Impulsivity Bart Scale (IBS) was used to measure impulsivity.

Results: Dialectic behavior therapy led to the significant reduction of impulsivity scores in women with borderline personality disorders and substance abuse. Graphs pertaining to the effectiveness and effect size indicate a significant decrease in participants’ impulsivity.

Conclusion: Dialectic behavior therapy interventions can contribute to the decrease of impulsivity and bring about desired practical implications in the treatment and prevention of substance abuse.

Keywords: Dialectic Behavior Therapy, Substance Abuse, Impulsivity

The Impact of Dialectic Behavior Therapy on the Reduction of Impulsivity in Women with Comorbidity of Borderline Personality Disorder and Substance Abuse

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Introduction

Impulsivity is referred to as a set of behaviors, hurry, incontinence, impatience, and lack of attention to the consequences of an action. Heinz, Bui, Thomas & Blonigen (2015) introduced four personality dimensions in relation to different aspects of impulsive behaviors: 1) Lack of planning: the tendency to engage in urgent actions rather than to act with careful thought and planning. 2) Urgency: the difficulty in resisting strong impulses and a tendency to act out of indiscretion when experiencing positive or negative emotions. 3) Sensation-seeking: the tendency to search for adventure and excitement 4) Lack of stability: the difficulty in maintaining attention on task performance and failure in tolerance of boredom. Research shows that executive functions and the ability to control impulses are significantly weak in impulsive individuals due to damage to the prefrontal lobe. For this reason, such people are widely in trouble in purposeful behaviors and self-regulation (Bickel, Jarmolowicz, Mueller, Gatchalian & McClure, 2012). On the other hand, it seems that different aspects of impulsivity are associated with different aspects of risk behaviors (Coskunpinar, Dir & Cyders, 2013 Dick et al., 2010) and poor treatment outcomes in substance abusers (Loree, Lundahl & Ledgerwood, 2014; Stevens et al., 2014; Streeter et al., 2008). For example, lack of planning rather than urgency is associated with alcohol drinking in non-clinical samples of university students (Anestis, Selby & Joiner, 2007; Lynam & Miller, 2004). In addition, negative emotions are related to severe problems and involvement in a variety of risky behaviors such as alcohol consumption, gambling, and abnormal overeating (Coskunpinar et al., 2013). Finally, negative emotional impulses (rather than lack of planning) is a strong predictor of mental health, social, and family problems and high dose of drug and alcohol consumption in substance abusers (Verdejo-García, Bechara, Recknor & Pérez-García, 2007). Moreover, impulsivity is an important feature of some mental disorders including substance abuse and borderline personality disorder (Dawe & Loxton, 2004). Many studies have investigated the relationship of impulsivity with stimulants and cocaine abuse (Moeller & Dougherty, 2002; Butler & Montgomery, 2004). Evidence suggests that impulsivity is both a cause and a consequence of substance abuse disorders (Crews & Boettiger, 2009; De Wit, 2009). Similarly, secondary problems arising from impulsivity, including poor pregnancy, decision-making, and planning can be a major obstacle in the way of treating substance abusers, especially in the initiation, follow-up, and continuity of treatment. In clinical samples, impulsivity is correlated with the factors contributing to relapse, such as temptation for drug use and intensity of drug use. This is a potential mediating factor in the responsiveness and effectiveness of treatment methods (Loree et al., 2014). Accordingly, impulsivity is a very important research area for the conduct of experimental studies and clinical research on those seeking treatment for substance abuse disorders (Stevens et al., 2014). In this regard, recent research
on non-clinical samples has shown that the possibility of substance abuse and related problems declines when one’s impulsivity is reduced over a period of time (King, Fleming, Monahan & Catalano, 2011; Littlefield et al., 2009).

Borderline personality disorder is characterized by pervasive problems in regulating emotions and impulsive behaviors. Suicidal self-harm behaviors and impulsive behaviors are indicative of these features which can be due to these people’s problems in emotion regulation. Impulsive or self-harm behaviors are observed in 70 to 80% of people with borderline personality disorder. However, it is noteworthy that not all people with severe personality disorder show self-harm behavior in response to severe negative emotions (Brown, Comtois & Linehan, 2002; Kleindienst et al., 2008). People participating in substance abuse treatment programs experience a decline in impulsivity (Blonigen, Timkco, Moos & Moos, 2009). Impulsivity moderates the relationship between treatment process and reduction of alcohol-related problems (especially among young people) (Blonigen, Timko & Moos, 2013). Therefore, potential mechanisms of change in successful treatment of substance abuse disorders may reduce the level of impulsivity (Blonigen et al., 2013). Despite this, little research has examined the role of impulsivity and its impact on access to treatment of substance abuse disorders or comorbidity of substance abuse and borderline personality disorders. Since different aspects of impulsivity affect the treatment process of substance abuse, it is necessary that clinicians pay attention to the effects of these important factors. Therefore, the current study is aimed at examining the impact of dialectical behavior therapy on reducing impulsivity in women with comorbidity of borderline personality disorder and substance abuse.

**Method**

**Population, sample, and sampling method**

An experimental single system research design using multiple baselines was employed for the conduct of this study. Based on the structured diagnostic interview and entry criteria, four participants among female patients with borderline personality disorders and methamphetamine abuse (from the population who had referred to one of the rehab centers of Najafabad city) were selected via purposive sampling method. The criteria for the inclusion of participants were: in the age group of 28 to 35 years, minimum high school education, history of maximum one year crystal consumption, and not suffering any physical ailments. In the selection of participants, organized diagnostic interviews were also used in addition to the Psychiatrist’s diagnosis.

The first participant was a 34-year-old married woman who had been addicted to heroin since she was 20. She had started using crystal for three months. She received borderline personality disorder diagnosis in addition to drug addiction disorder diagnosis. It is also noteworthy that she had experienced addiction abstinence 7 times where the longest time was a 6-week abstinence attempt. The
second participant was a 29-year-old married woman who had become dependent on heroin use and used crystal for six months. She received both borderline personality disorder diagnosis and drug addiction disorder diagnosis. In addition she had the history of 10 attempts at addiction withdrawal where the lengthiest one had taken two weeks. The third participant was a 31-year-old married woman who had become dependent on heroin use at the age of 16 and used crystal for one year. She suffered borderline personality disorder and drug addiction disorder at the same time and had attempted to stop addiction six times where the lengthiest attempt had taken 4 months. The fourth participant was a 28-year-old married woman who had become dependent on heroin use and used crystal for one year. She suffered both borderline personality disorder and drug addiction disorder and had attempted to stop addiction 14 times where the lengthiest attempt had taken 6 months.

Instrument

Barrat Impulsivity Scale: This scale measures three factors, namely cognitive impulsivity, motor impulsivity, and non-planning (Barratt, Stanford, Kent & Felthous, 1997). Reliability of the questionnaire was measured via test-retest and Cronbach’s alpha methods which were equal to .77 and .81, respectively. Overall, the results of this study provided sufficient empirical support for the use of this scale in clinical and research situation in Iran (cited in Javid, Muhammadi & Rahimi, 2012). Naderi & Haghshenas (2009) conducted a study and explored the validation of this scale in Iran. They used Zuckerman’s Sensation Seeking Scale to evaluate the convergent validity of the scale and reported the existence of a significant relationship between the scores of the two scales. In the same way, the half reliability and internal consistency of the scale were reported equal to .60 and .42, respectively.

This scale is scored based on a 4-point Likert scale from rarely to almost always. The items numbered 1, 7, 8, 9, 10, 12, 13, 15, 20, 29, and 30 are reversely scored. It should be mentioned that the items numbered 7, 10, 12, 13, 14, 15, 18, 27, 29, and 30 are related to non-planning sub-scale; items numbered 2, 3, 4, 8, 16, 17, 19, 21, 22, 23, and 25 are related to motor impulsivity subscale; and items numbered 5, 6, 9, 11, 20, 24, 26, and 28 belong to cognitive impulsivity subscale.

Procedure

Participants attended twelve 60-minute sessions of dialectical behavior therapy with the content mentioned in the table below and some tasks and assignments were given to them in each training session.
### Table 1: Content of dialectical behavior therapy sessions

<table>
<thead>
<tr>
<th>Session</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>First session</td>
<td>Why should these skills be learnt? Start of self-awareness stages</td>
</tr>
<tr>
<td>Second and third sessions</td>
<td>Training of self-recognition skills, training of self-recognition skills (emotional self-awareness)</td>
</tr>
<tr>
<td>Fourth session</td>
<td>Naming of emotions, identification of myths (discussing the interpretations that the person may have about emotions)</td>
</tr>
<tr>
<td>Fifth session</td>
<td>Attention to the rational, emotional and logical mind about the interpretation about and response to emotions, observation and description of them (self-observation)</td>
</tr>
<tr>
<td>Sixth session</td>
<td>The role of positive self-talk and problem-solving skills in controlling emotions</td>
</tr>
<tr>
<td>Seventh session</td>
<td>Training of harm reduction skills (planning on sleep, exercise, proper nutrition, decrease of drug use, and filling of leisure time)</td>
</tr>
<tr>
<td>Eighth session</td>
<td>Training of the skill for staying away from emotional mind</td>
</tr>
<tr>
<td>Ninth session</td>
<td>Domination of one's world: training how to plan to increase positive experiences, providing a list of enjoyable activities</td>
</tr>
<tr>
<td>Tenth session</td>
<td>Emotional awareness and act in an appropriate manner against negative emotions (anger, fear, depression, stress and guilty feeling)</td>
</tr>
<tr>
<td>Eleventh session</td>
<td>Use of problem-solving skills and opposite practice against negative emotions</td>
</tr>
<tr>
<td>Twelfth session</td>
<td>Review of sessions and the given assignments</td>
</tr>
</tbody>
</table>

After the completion of therapy sessions, the follow-up was conducted three times, i.e. one, three and six months after treatment.

### Results

In this study, visual analysis, trending index, stability, percentage of non-overlapping data, and percentage of overlapping data were used for data analysis (Farahani, Abedi, Aghamohammadi & Kazemi, 2011). The raw scores were repeatedly measured during the baseline sessions intervention and follow-up and these scores are presented in Table 2.

### Table 2: Differentiation scores at baseline, intervention and follow-up states for the four participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>Baseline</th>
<th>Intervention</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Session 1</td>
<td>Session 2</td>
<td>Session 3</td>
</tr>
<tr>
<td>1</td>
<td>81</td>
<td>82</td>
<td>82</td>
</tr>
<tr>
<td>2</td>
<td>79</td>
<td>79</td>
<td>77</td>
</tr>
<tr>
<td>3</td>
<td>68</td>
<td>66</td>
<td>68</td>
</tr>
<tr>
<td>4</td>
<td>74</td>
<td>74</td>
<td>75</td>
</tr>
</tbody>
</table>
The graph pertaining to the baseline, intervention, and follow-up states is presented below.

**Figure 1: Impulsivity scores in baseline, intervention, and follow-up states for four participants**

For visual analysis of data charts, the chart specific to each participant was first drawn. Then, the median line was drawn parallel with the x-axis using the median of baseline and intervention data. Next, a stability envelope was covered on the median line. Stability envelope refers to a state in which two parallel lines, one below and one above the median line should be drawn. The distance and range between the two lines show the drop-out or variability of the data series. According to the 20-80% standard, the data are believed to hold stability (Farahani et al., 2011). Then, split-middle method was used to evaluate the data trend and the stability envelope of the trending line was drawn on the basis of 20-80% standard.

After drawing the median line and the trending line and their stability envelopes, indexes of descriptive statistics such as mean, indexes of within-condition and between-condition visual analysis such as level change, trending, and percentage of non-overlapping data (representing percentage of non-overlapping of baseline and intervention lines) were calculated. The experimental control in single-subject research depends on level change from one position to another one and percentage of non-overlapping data. This means that slight changes in the values of the dependent variable during the intervention lying in the baseline after the path of variable data hold lower experimental control than the slight changes in the intervention in which there is stability in the path of baseline data. Moreover, as the percentage of non-overlapping data between two adjacent positions is higher (or lower percentage of overlapping data), it is possible to regard the intervention effective with higher certainty (Farahani et al., 2011). Table 3 shows the results of within- and between-condition visual analysis of participant No. 1 as per the visual analysis form (Farahani et al., 2011).
Table 3: The variables of within- and between-condition visual analysis for participant No. 1

<table>
<thead>
<tr>
<th></th>
<th>Within-condition</th>
<th>Between-condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sequence of situations</strong></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td><strong>Length of situations</strong></td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>82</td>
<td>68</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>81.6</td>
<td>67.8</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>81-82</td>
<td>63-76</td>
</tr>
<tr>
<td><strong>Variation range of stability envelope</strong></td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td><strong>20% from the median of each situation</strong></td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td><strong>Level change</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Relative change</strong></td>
<td>81-82</td>
<td>63-69</td>
</tr>
<tr>
<td><strong>Absolute change</strong></td>
<td>81-82</td>
<td>69-76</td>
</tr>
<tr>
<td><strong>Trending</strong></td>
<td>Ascending</td>
<td>Descending</td>
</tr>
<tr>
<td><strong>Direction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stability</strong></td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td><strong>Multiple paths</strong></td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Based on visual analysis of the data pertaining to participant No. 1, the median line and stability envelope were obtained as follows.

Figure 2: Median line and stability envelope for participant No. 1 in the baseline and intervention situations
Median line and stability envelope for participant No. 1 in the follow-up situation has been presented as follows.

Figure 3: Median line and stability envelope for participant No. 1 in follow-up situation

The within- and between-condition visual analysis for participant No. 2 is presented in the following table.

Table 4: The variables of within- and between-condition visual analysis for participant No. 2

<table>
<thead>
<tr>
<th>Within-condition</th>
<th>Between-condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sequence of situations</strong></td>
<td>Comparison of situations</td>
</tr>
<tr>
<td>Length of situations A</td>
<td>B/A</td>
</tr>
<tr>
<td>Level 3</td>
<td>6</td>
</tr>
<tr>
<td><strong>Median</strong> 79</td>
<td>55.5</td>
</tr>
<tr>
<td><strong>Mean</strong> 78.3</td>
<td>54.6</td>
</tr>
<tr>
<td><strong>Range</strong> 77-79</td>
<td>39-71</td>
</tr>
<tr>
<td><strong>Variation range of stability envelope 20% from the median of each situation</strong> Stable</td>
<td>Unstable</td>
</tr>
<tr>
<td><strong>Level change</strong></td>
<td>Absolute change</td>
</tr>
<tr>
<td>77-79</td>
<td>43-66</td>
</tr>
<tr>
<td>77-79</td>
<td>39-71</td>
</tr>
<tr>
<td><strong>Relative change</strong></td>
<td>Absolute change</td>
</tr>
<tr>
<td>77-79</td>
<td>43-66</td>
</tr>
<tr>
<td>77-79</td>
<td>39-71</td>
</tr>
<tr>
<td><strong>Absolute change</strong></td>
<td>Median change 55.5 to 79</td>
</tr>
<tr>
<td>77-79</td>
<td>43-66</td>
</tr>
<tr>
<td>77-79</td>
<td>39-71</td>
</tr>
<tr>
<td><strong>Trending</strong></td>
<td>Mean change 54.6 to 78.3</td>
</tr>
<tr>
<td><strong>Direction</strong></td>
<td>Data coverage</td>
</tr>
<tr>
<td>Ascending</td>
<td>PND 100%</td>
</tr>
<tr>
<td><strong>Stability</strong></td>
<td>POD 0%</td>
</tr>
<tr>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Multiple paths</strong></td>
<td></td>
</tr>
</tbody>
</table>
Median line and stability envelope for participant No. 2 in the follow-up situation has been presented as follows.

**Figure 4: Median line and stability envelope for participant No. 2 in the baseline and intervention situations**

Median line and stability envelope for participant No. 2 in the baseline and intervention situations has been presented as follows.

**Figure 5: Median line and stability envelope for participant No. 2 in follow-up situation**

The within- and between-condition visual analysis for participant No. 3 is presented in the following table.
Table 5: The variables of within- and between-condition visual analysis for participant No. 3

<table>
<thead>
<tr>
<th>Within-condition</th>
<th>Between-condition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequence of situations</td>
<td>A</td>
<td>B/A</td>
</tr>
<tr>
<td>Length of situations</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Level</td>
<td>Comparison of situations</td>
<td>Trend changes</td>
</tr>
<tr>
<td>Median</td>
<td>68</td>
<td>49</td>
</tr>
<tr>
<td>Mean</td>
<td>67.3</td>
<td>48</td>
</tr>
<tr>
<td>Range</td>
<td>66-68</td>
<td>33-60</td>
</tr>
<tr>
<td>Variation range of stability envelope</td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td>20% from the median of each situation</td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td>Level change</td>
<td>66-68</td>
<td>39-58</td>
</tr>
<tr>
<td>Relative change</td>
<td>68-68</td>
<td>33-60</td>
</tr>
<tr>
<td>Absolute change</td>
<td>Zero</td>
<td>Descending</td>
</tr>
<tr>
<td>Trending</td>
<td>Stable</td>
<td>Stable</td>
</tr>
<tr>
<td>Direction</td>
<td>Stable</td>
<td>Stability to stability</td>
</tr>
<tr>
<td>Stability</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
| Multiple paths                    | Median line and stability envelope for participant No. 3 in the baseline and intervention situations has been presented as follows.

Median line and stability envelope for participant No. 3 in the baseline and intervention situations has been presented as follows.

Figure 6: Median line and stability envelope for participant No. 3 in the baseline and intervention situations
Median line and stability envelope for participant No. 3 in the follow-up situation has been presented as follows.

![Figure 7: Median line and stability envelope for participant No. 3 in follow-up situation](image)

The within- and between-condition visual analysis for participant No. 4 is presented in the following table.

**Table 6: The variables of within- and between-condition visual analysis for participant No. 4**

<table>
<thead>
<tr>
<th>Within-condition</th>
<th>Between-condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequence of situations</td>
<td>Comparison of situations</td>
</tr>
<tr>
<td>Length of situations</td>
<td>Trend changes</td>
</tr>
<tr>
<td>Level</td>
<td>Direction change</td>
</tr>
<tr>
<td>Median</td>
<td>Goal-dependent effect</td>
</tr>
<tr>
<td>Mean</td>
<td>Stability change</td>
</tr>
<tr>
<td>Range</td>
<td>Level change</td>
</tr>
<tr>
<td>Variation range of stability envelope</td>
<td>Relative change</td>
</tr>
<tr>
<td>20% from the median of each situation</td>
<td></td>
</tr>
<tr>
<td>Level change</td>
<td></td>
</tr>
<tr>
<td>Relative change</td>
<td></td>
</tr>
<tr>
<td>Absolute change</td>
<td></td>
</tr>
<tr>
<td>Trending</td>
<td></td>
</tr>
<tr>
<td>Direction</td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td></td>
</tr>
<tr>
<td>Multiple paths</td>
<td></td>
</tr>
<tr>
<td>Data coverage</td>
<td></td>
</tr>
<tr>
<td>PND</td>
<td></td>
</tr>
<tr>
<td>POD</td>
<td></td>
</tr>
</tbody>
</table>
Median line and stability envelope for participant No. 4 in the baseline and intervention situations has been presented as follows.

**Figure 8: Median line and stability envelope for participant No. 4 in the baseline and intervention situations**

Median line and stability envelope for participant No. 4 in the follow-up situation has been presented as follows.

**Figure 9: Median line and stability envelope for participant No. 4 in follow-up situation**

**Discussion and Conclusion**

This study examined the impact of dialectical behavior therapy on reducing impulsivity in women with comorbidity of borderline personality disorder and substance abuse. The obtained results pertaining to all the four participants showed a descending trend both after the intervention and in the follow-up stage in terms of the research goals. The first participant showed a stable and an ascending trend within three points of the baseline. With the initiation of the training, some change was made in the level and trend of the scores (as per level
change and trending change indexes) and the score trending changed from an ascending order to a descending one. This was indicative of the effectiveness of the training. Reduction in baseline scores from 81.6 to 67.8 reflects an improvement in the performance of the subjects. In addition, PND index shows that the intervention was effective with 100% confidence. In terms of participant No. 2, some changes have occurred to the scores after the start of the intervention and mean scores in the baseline has reached 54.6 from 78.3. The percentage of overlapping data was zero. This means that the NPD index of the treatment has been effective with 100% confidence. For participant No. 3, there was also a stable trend in the baseline. Here, the level of scores has changed with the continuity of the intervention. The mean score has changed from 67.3 in the baseline to 48 in the intervention situation which is an acceptable change. Moreover, it can be claimed that the intervention has been effective according to the PND index with 100% confidence. For participant No. 4, the baseline scores indicate that some change has occurred to the scores after the start of the intervention. Generally, the mean score has shifted from 74.6 in the baseline situation to 52.3 in the intervention situation. The percentage of overlapping data was also zero. This means that PND index has been effective with 100% confidence. The findings of the current study suggest that dialectical behavior therapy reduces impulsivity in patients with comorbidity of borderline personality disorders and substance abuse. This finding is consistent with that of the study done by Fleischhaker, et al. (2011), Perepletchikova, et al. (2011), and Saffarinia, Nikoogoftar & Damavandian (2004). These researchers showed that dialectical behavior therapy is effective in reducing self-harm and dialectical behaviors of people with borderline personality disorder. Moreover, these results are in line with the findings of the study undertaken by Littlefield, et al. (2009) in that dialectical behavior therapy is effective in reducing self-harm behaviors and impulsivity in drug abusers. Suymoto (1998, cited in Saffarinia, et al. 2004) believed that one should know why a particular behavior is oozed by one person in a specific time under a certain outcome if s/he wants to perceive the origins of self-harm behavior. This refers to the functional role of self-harm behaviors whose important aspect is the interpersonal functioning that can act as automatic negative reinforcement and automatic positive reinforcement (Lloyd-Richardson, et al., 2007; cited in Saffarinia et al., 2004). They believe that self-harm behaviors may act in the form of automatic negative reinforcement with the aim of halting or removing adverse emotional and cognitive states (freedom from failure, reduction of emotional pain, anger expression towards others, and stress reduction) and/or automatic positive reinforcement, which refers to the use of self-harm behavior to create some internal modes. The social functions of self-harm behaviors are regulated by one’s external environment. Social positive reinforcement refers to the point that the use of self-harm behaviors is to attract attention and/or to access some specific social resources. Similarly, automatic negative reinforcement refers to the use of self-harm behaviors media to escape
from some personal duties or tasks. School avoidance, isolation, and hatred towards parents’ conflicts represent the performance of social automatic negative reinforcement of self-harm behavior (Lloyd-Richardson, et al., 2007; cited in Saffarinia et al., 2004).

According to the results of this study, one can assert that dialectical behavior therapy skills such as mindfulness skills and emotion regulation reduce self-harm behaviors and impulsivity among the women with the comorbidity of substance abuse and borderline personality disorders. As a result, the teaching of these skills can help to take a step towards reducing these behaviors and substance abuse since research has shown that there is a bi-directional relationship between substance abuse and impulsivity (Fillmore & Weafer, 2013; King, Patock-Peckham, Dager, Thimm & Gates, 2014). These studies have shown that certain personality traits such as impulsivity affect the decrease of drug use and risky behaviors among substance abusers and people with borderline personality. Therefore, the treatment process of these patients can be improved.

Reference


Abstract

Objective: The current study was aimed at examining the effectiveness of metacognitive group therapy in substance withdrawal and its stability. Method: Pre-test and post-test along with control group were employed for the conduct of this study. The population of the study consisted of all addicts who had referred to rehab centers in Tabriz in the second half of 2013 and the first half of 2014. Then, the number of 50 participants was selected via random sampling method, 25 participants received metacognitive intervention and 25 participants constituted the control group. McMullin Addiction Thought Scale, Change Readiness and Treatment Eagerness Scale, and Attitude to Addiction Scale were administered to the participants. In addition, metacognitive group therapy was carried out in eight 60-minute sessions. Results: The results showed that metacognitive group therapy decreased attitude towards addiction and increased tendency to change and addiction treatment. Conclusion: Metacognitive group therapy is one of the treatment methods effective in attitudes toward addiction and tendency to change and treatment. Keywords: Metacognitive Group Therapy, Addiction Treatment, Rehab Centers, Stability

The Effectiveness of Metacognitive Group Therapy in Substance Withdrawal and its Stability

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Introduction

Today, addiction is considered a bio-socio-psychosocial disease and many factors affect susceptibility to substance abuse. These factors interact with each other and lead to substance abuse and drug dependence since they are entangled with each other and, accordingly, are effective in the emergence of addiction. Addiction is a personal disorder that involves body, mind, emotions, values, and personal, familial, social, spiritual and psychological relationships (Rostami, 2009). Official statistics show the increasing prevalence of drug addiction in the past two decades. According to recent research done by the Ministry of Health and Medical Education in cooperation with international institutions, there are about three million consumers of opiates, opium, heroin, morphine, and opium syrup in the country. The rapid assessment of drug abuse in recent years in Iran has shown the average annual growth of 8 per cent abuse in the country (Aghayi, 2012). In addition, the change in consumption pattern from opiates, such as opium and its derivatives towards cheaper industrial substances such as crack and crystal has made this situation far more difficult. Nowadays, the production of traditional drugs has been reduced and cheaper synthetic drugs are produced in more quantities. Thus, drug dependence disorder requires more serious control since it brings high-risk health problems, such as shared injection, use of contaminated syringes, and increased risk of catching infectious and contagious diseases such as AIDS and hepatitis in addition to individual, family and economic problems arising from drug dependence. Therefore, the necessity of doing similar research projects assumes importance towards identifying the causes and treatment of this disorder. Any substance that creates dependency and brings about some socially unacceptable changes in an individual will be illicit substances and the person who consumes such substances is referred to as addict (Saduk & Saduk, 2007; translated by Reza’ea & Faghami Jadidi, 2010). Addiction leads to many problems for individuals, families and society. Fortunately, a number of addicts have arrived at the conclusion that they must be treated and, thereby, they come over to seek treatment and refer to rehab centers. Unfortunately, some of these addicts become discouraged and give up the treatment process. Some also actively try to change themselves; however, they break their determined goal after a while and resume drug use (Aghayi, 2012). Hence, a psychological intervention effective in changing people's attitudes and opinions, can be influential in adherence to treatment and abstinence from repeated substance abuse. Meta-cognitive therapy is one of the psychological therapies that today has attracted the attention of many researchers (Wells, 2004). Welles defined meta-cognition as cognition about cognition (Wells, 2004; translated Ghalandari, 2004). In fact, metacognition refers to a cognitive and conscious process, which is concentrated on the review or control of cognition. Metacognition is a multidimensional concept and includes beliefs, processes, and strategies that are responsible for monitoring cognition and
cognitive control. Most meta-cognitive activities are contingent on cognitive factors (Wells, 2004; translated by Ahooghalandari, 2004). Metacognitive therapy has been proposed in recent years and is important from different aspects, such as a regular structure, a limited number of therapeutic sessions, emphasis on process of cognition rather than its content, and development of specific skills like attention training. Metacognitive therapy removes maladaptive thinking styles (as a barrier to natural cognitive and emotional processing) through attention modification and boosts flexibility in cognitive controlling.

Moreover, detached mindfulness is one of the main techniques of this therapy which leads to super-consciousness by making one aware of internal events without giving any response to them (Wells, 2008, translated by Mohammadkhani, 2009). It is believed that the beliefs associated with substances can act as an inconsistent coping behavior arising from the cognitive interactions between meta-cognitive deficits and substance use. In metacognitive therapy, some techniques are employed to correct meta-cognitive deficits and the drug-related beliefs and, thereby, to undermine drug use coping behaviors (Haji Alizadeh, Bahrainian, Naziri & Modares Ghorori, 2009). Yaghoubi Asgarabad, Basak Nejad, Mehrabizadeh Honarmand & Zamiri Nejad (2013) showed that metacognitive therapy had a significant effect on reducing symptoms in addicts treated with methadone in the post-test. In general, findings demonstrate the efficacy of motivational interviewing and cognitive treatment in addiction treatment and its continuation. Setorg, Kazemi & Ra’easi (2013) also reported that meta-cognitive therapy had a significant effect on the revision of tempting ideas and beliefs associated with substances among crack, heroin, and crystal dependent groups. In addition, the effectiveness of this therapy enjoyed stability after two months. In another study, Steven & Ondersma (2010) showed that meta-cognitive therapy has a significant effect on opioid withdrawal and relapse prevention. According to the above-mentioned points, the current study aims to evaluate the effectiveness of group meta-cognitive therapy on addiction withdrawal in rehab centers and to measure its stability.

Method

Population, sample, and sampling method

In this study, an experimental research design along with pretest/ posttest and control group was used. The addicts referring to rehab centers of Tabriz City in 2013-2014 constituted the population of the study and the number of 50 participants (metacognitive intervention group=25, and control group=25participants) was randomly selected as the sample of the study. The criteria for the inclusion of the addicts in the sample group were: male, placement in 20-to-50-year age group, addiction features, no severe mental disorders with medical and psychiatric evaluation, and lack of physical disease.
In addition, the exclusion criteria were as follows: lack of interest in participating in therapy sessions, more than two sessions absenteeism, and cessation of therapy under the supervision of addiction treatment centers.

**Instrument**

1- McMullin Addiction Thought Scale (MAT): This scale was developed by McMullin in 1990 to assess irrational beliefs of chemically dependent people. This test can be both applied for assessing the situation of referents to rehab centers and for assessing the progress of the treatment program. This scale consists of 42 items and measures five irrational belief. Its subscales are: not my fault; I am powerful enough to control it; drinking is good, pleasant, and fun; I am not an alcoholic (alcohol dependent) / don’t have a problem; I need to drink. This is a self-report 42-item and a very useful measure for identifying changes over time, especially the changes arising from cognitive-behavioral treatment in different addiction cases. McMullin (1990) reported the parallel form reliability and internal consistency of this scale equal to .78 and .80, respectively. In the same way, Cronbach's alpha coefficient of the scale was calculated .89. This coefficient was reported by Najafi Abhari equal to .83.

2- Scale of Stage of Readiness for Change and the Desire to Treat Addiction: This scale was constructed by Miller & Tonigan in 1996. Today, this instrument is used to evaluate people addicted to drugs other than alcohol. This scale contains several versions, including individual drug/ alcohol use questionnaire (the current questionnaire), which contains 19 items; the 32-item scale of drug/ alcohol use related to the men’s partners; the 32-item scale of drug/ alcohol use related to the women’s partners; and the 32-item scale of alcohol use related to the women’s partners. This scale consists of 3 sub-scales, namely recognition, ambivalence, and taking steps. Recognition indicates the participant’s awareness of the existence of the problem and his/her desire to change. Subscale ambivalence suggests doubt and uncertainty about the existence of problems. Subscale taking steps includes the activities that a person has done to make a change. Parallel form reliability and internal consistency of the scale were reported to equal .78 and .80, respectively. Moreover, Cronbach's alpha coefficient of the scale was obtained equal to .89. Thus, the psychometric characteristics of the scale are approved (Miller & Tonigan, 1996).

3- Attitude to Addiction Scale: This self-report questionnaire was developed by Nazari (2000) and is scored based on a Likert scale. In terms of the items pertaining to positive attitude to addiction, each of the alternatives strongly agree, agree, no idea, disagree, and strongly disagree is assigned 5, 4, 3, 2, and 1 points, respectively. However, the items pertaining to negative attitude to addiction are scored in reverse. Thus, the range of one’s score will fluctuate from 32 to 160 and higher scores represent favorable attitude towards drug use and addiction. Parallel form reliability and internal consistency of the scale were reported to equal .79 and .81, respectively (Nazari, 2000). Moreover, Cronbach's
alpha coefficient of the scale was obtained equal to .89. Thus, the psychometric characteristics of the scale are approved (Nunnally & Bernstein, 1996).

**Procedure**

Group meta-cognitive therapy is based on Well’s MCT (1994-1997) in groups and in 8 one-hour sessions based on Wells' metacognitive model as follows (Wells, 2004; translated by Ahooghalandari, 2004).

<table>
<thead>
<tr>
<th>Session</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>First session</td>
<td>Development of specific conceptualization, providing therapeutic logic, preparing patients for treatment, conducting test of attention technique, homework: Practice of attention technique, reception of patients</td>
</tr>
<tr>
<td>Second session</td>
<td>Review of homework (practice of attention technique), resuming preparation of patients if needed, conducting test of detached mindfulness and repression-no repression test, homework: Practice of detached mindfulness testing and repression- no repression test, reception of patients</td>
</tr>
<tr>
<td>Third session</td>
<td>Review of homework, practice of detached mindfulness and repression-no repression test, conducting the test of delaying concentrated attention with uncontrollable beliefs, homework: Practice of delaying concentrated attention with uncontrollable beliefs</td>
</tr>
<tr>
<td>Fourth session</td>
<td>Review of homework especially focused attention on uncontrollability, challenging the beliefs pertaining to uncontrollability, conducting the tests of refocusing attention to safety signs, homework: Practice of refocusing attention to safety signs, reception of patients</td>
</tr>
<tr>
<td>Fifth session</td>
<td>Review of homework (practicing attention to safety signs), challenging the belief pertaining to attention to safety signs, conducting the test related to the use of confrontation technique and preventing focused response on assurance beliefs, homework: confrontation practice and prevention of focused response on assurance beliefs</td>
</tr>
<tr>
<td>Sixth session</td>
<td>Review of homework (practice, especially beliefs related to assurance, challenging the beliefs about assurance, conducting the test pertaining to bringing changes in monitoring focused threat on self-mindfulness beliefs, homework: practice of monitoring focused threat on self-mindfulness beliefs</td>
</tr>
<tr>
<td>Seventh session</td>
<td>Review of homework (practice, especially beliefs about self-mindfulness), challenging beliefs about self-mindfulness, conducting the test pertaining to the use of behaviors focused on risk beliefs, homework: practice of behaviors focused on risk beliefs</td>
</tr>
<tr>
<td>Eighth session</td>
<td>Review of homework, especially behaviors focused on risk beliefs, challenging beliefs about risk, conducting the test about technique of checking different opposing evidence and preparing members to identify existing barriers to the use of techniques, conclusion</td>
</tr>
</tbody>
</table>
## Results

The results of the study showed that the control and experimental groups were placed in 32.24 and 30.96 year-old age groups. In terms of education, bachelor holders took up the lowest frequency with 8% in the control group and 56% with degrees below diploma constituted the highest frequency of this group. In the experimental group, bachelor holders took up the lowest frequency with 9% while 60% of this group with degrees below diploma constituted the highest frequency of this group. In addition, in the control group, 49.33% of the participants were married, 17.27% were separated, and 33.40% were unmarried while in the experimental group 50.18% were married, 13.48% were separated, and 36.34% were unmarried.

The descriptive statistics of the variables of the study are presented in the following table for each group and each type of test.

### Table 2: Descriptive statistics of the variables of the study for each group and each type of test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Test type</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude to addiction</td>
<td>Control</td>
<td>Pretest</td>
<td>145.80</td>
<td>5.71548</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>136.80</td>
<td>6.65833</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Follow-up</td>
<td>131.00</td>
<td>2.04124</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pretest</td>
<td>142.00</td>
<td>6.95222</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>Pretest</td>
<td>120.40</td>
<td>6.81990</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>88.00</td>
<td>8.26640</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Follow-up</td>
<td>24.20</td>
<td>.76376</td>
</tr>
<tr>
<td>Tendency to change and treatment</td>
<td>Control</td>
<td>Pretest</td>
<td>26.40</td>
<td>1.70783</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>28.80</td>
<td>.76376</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Follow-up</td>
<td>22.55</td>
<td>1.88675</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pretest</td>
<td>48.20</td>
<td>1.44338</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>Posttest</td>
<td>78.60</td>
<td>1.32737</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Follow-up</td>
<td>116.7200</td>
<td>9.30734</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pretest</td>
<td>136.2800</td>
<td>10.91833</td>
</tr>
<tr>
<td>Addictive thoughts</td>
<td>Control</td>
<td>Pretest</td>
<td>139.5200</td>
<td>9.57479</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posttest</td>
<td>119.9600</td>
<td>25.02579</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>Pretest</td>
<td>124.7600</td>
<td>12.09902</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Follow-up</td>
<td>123.0800</td>
<td>26.97826</td>
</tr>
</tbody>
</table>

Multivariate analysis of variance was used to examine the effect of metacognitive therapy. The results proved the effectiveness of the intervention (P<.01, F = 3.003, Wilks Lambda = .542). Univariate analysis of variance was used to examine differences in patterns as follows.
Table 3: Univariate analysis of variance representing differences in patterns

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude to addiction</td>
<td>29400.00</td>
<td>377.461</td>
<td>.0005</td>
<td>.724</td>
</tr>
<tr>
<td>Tendency to change and</td>
<td>7004.17</td>
<td>4066.935</td>
<td>.0005</td>
<td>.966</td>
</tr>
<tr>
<td>treatment</td>
<td>63860.17</td>
<td>666.077</td>
<td>.0005</td>
<td>.822</td>
</tr>
</tbody>
</table>

As it can be observed in the above table, metacognitive therapy has been effective in the three variables. To investigate the stability of the effectiveness, repeated measures test was used as below.

Table 4: Results of repeated measures test representing the stability of the effectiveness of metacognitive therapy

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Effect size</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude to addiction</td>
<td>34152.84</td>
<td>279.710</td>
<td>.0005</td>
<td>.91</td>
<td>1</td>
</tr>
<tr>
<td>Tendency to change</td>
<td>30152.48</td>
<td>3283.880</td>
<td>.0005</td>
<td>.99</td>
<td>1</td>
</tr>
<tr>
<td>Addictive thoughts</td>
<td>66.00</td>
<td>1.660</td>
<td>.197</td>
<td>.008</td>
<td>.07</td>
</tr>
</tbody>
</table>

Discussion and Conclusion

The present study was an attempt to examine the effectiveness of group metacognitive therapy in addiction withdrawal and to measure the stability of this effectiveness. The results showed that group metacognitive therapy had a significant impact on attitudes toward addiction, tendency to change and treatment, and stability of the effectiveness. In other words, group metacognitive therapy decreased attitudes toward addiction and increased tendency to change and treatment among drug addicts in addiction centers. Moreover, some other part of the results showed that group meta-cognitive therapy had no effect on addictive thoughts and the stability of its effectiveness in the addicts of addiction treatment centers. These results are consistent with the research findings obtained by Spada, Zandvoort & Wells (2008), Steven & Ondersma (2010), Harrison & Brien (2010, cited in Yaghoubi Sgrabad et al., 2013), Akbari, Rezaei, Darake & Aghabeighi (2012), Kashefi, Aghamohammadian & Samari (2012), Yaghoubi Sgrabad et al. (2013), and Setorg, Kazemi & Ra’easi (2013). In another study, Harrison & Brien (2010, cited in Yaghoubi et al., 2013) showed that meta-cognitive therapy had a significant impact on reducing the tendency to substance use. Expectations about the rewarding effects of substances, beliefs and attitudes about responsible behavior, and received reinforcement are among the factors which lead to drug use tendency and reuse of drugs despite the incidence of problems. Drug users employ a high level of cognitive distortions and dysfunctional thinking. In the meantime, meta-cognitive control strategies are the responses that people provide in controlling activities of their cognitive system. These strategies may intensify or suppress thinking strategies and may increase them towards review processes. These review processes may include avoiding and reducing drug use. Moreover, strategies of metacognitive therapy are known as behavioral responses and thought control strategies. The dynamics
of thought control strategies employed by the people intensifies the process of rigorous scrutiny and the consequences of anxiety and worry. Coping behaviors include avoidance, information seeking, distraction, alcohol use, drug use, and so on. These behaviors lead to the persistence of negative assessment and beliefs about worry because the dominance of external factors disrupts the process of self-determination (Wells, 2004; translated by Ahooghalandari, 2005). In this regard the fundamental principle of metacognitive therapy that disorders (tendency to addiction, relapse, etc.) are associated with the activation of some maladaptive thinking style is called cognitive attentional syndrome. Cognitive attentional syndrome involves some type of perseverative thinking style in the form of worriedness or rumination based on threat and maladaptive coping behaviors (such as thought suppression, drug use, avoidance). This style leads to some consequences that maintain emotions and reinforce negative thoughts (Wells, 2008, translated by Mohammadkhani, 2009). An important process in metacognitive therapy is one’s inability in not engaging in the process of worriedness when it is activated. This inability is reflected by consistent thinking about the concerns of substance use in order to deal with it or attempt to reassure oneself through self-talk (Wells, 2004; translated by Ahooghalandari, 2005).

Metacognitive therapy leads to changes in the attitude of people by applying attention training techniques and detached mindfulness. The purpose of designing attention techniques is to develop a way to influence various aspects of cognitive attentional syndrome and its provocative metacognitions. Detached mindfulness techniques refer to a state of internal events that attempt to control or suppress the events by giving behavioral response to them rather than responding to them through continuous assessment. An obvious example of this decision-making situation includes the employment of such strategies as holding no worries in response to an idea (such as fear of returning to drug use) and instead letting the idea occupy a specific mental space without doing any interpretation or other measures (Wells, 2005). The concept of detached mindfulness contrasts cognitive attentional syndrome and assists people cope with worries of resuming drug use, but it has no effect on control of addictive thoughts. In fact, the application of detached mindfulness and attention training techniques leads to some change in the attitudes of the individuals, but it does not influence addiction thoughts. Lack of control over the type of substance and duration of use and also the limitation of the sample to the addicts of addiction treatment centers in the city constitute the limitations of the current study. Therefore, it is recommended to control the type and duration of drug use in future research. This research is also recommended to be replicated in other locations. With regard to the impact of group metacognitive therapy on the reduction of attitudes toward addiction and addiction thoughts and also on the increase of tendency to change and treatment, it is recommended that this therapy be widely used in addiction treatment centers and residential recovery centers (camps).
Reference


Abstract

Objective: The current study aimed to investigate the effectiveness of psychodrama therapy in relapse prevention (RP) and the reduction of depression among opiate-dependent male patients. Method: A quasi-experimental research design along with pre-post tests and follow-up and control group was employed for this study. Using convenience sampling method, the number of 20 opiate-dependent men who had referred to addiction treatment clinics in Kermanshah (Iran) and successfully passed detoxification program was randomly selected as the participants of the study. The experimental group participated in a twelve-session therapy plan during six weeks. Beck Depression Inventory (BDI) was used for data collection purposes. Results: The results of ANCOVA revealed the existence of a significant difference between the two groups in the post-test and follow-up scores. Conclusion: According to the findings, it can be argued that psychodrama intervention can be used as an effective program in the reduction of depression and relapse prevention among opiate-dependent men.

Keywords: Psychodrama, Depression, Substance Dependency, Relapse Prevention

The Effectiveness of Psychodrama in Relapse Prevention and Reducing Depression among Opiate-Dependent Men

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Introduction

Nowadays, addiction is categorized among the most pervasive social, cultural, and health crises and its destructive wave influences all the social, political, cultural, economic, psychological, and health aspects. Physical conditions, such as infectious diseases like hepatitis and AIDS, psychiatric disorders such as anxiety and depression, social problems such as an increase in drug-related crimes like robbery, murder, suicide, unemployment, domestic violence, child abuse, spouse abuse, increase of divorce rates, and increase of educational failure among the children with addicted parents can be regarded as the negative consequences of addiction (West, 2006). The problem of addiction withdrawal is one of the issues that has been always regarded by the authorities as well as sufferers of substance abuse and their families. The physical withdrawal of drug addiction is not a big problem; rather, the major problem in the treatment of addicts, even with prolonged periods of purity, is high relapse rates (Yan & Nabeshima, 2009). In a study, the relapse has been reported to be 75 percent (in Iran 50 percent) (Amini, Amini, Afshar & Azar, 2003). On the other hand, opiate addiction is a chronic disease that is often associated with another psychiatric illness. Mood disorders, especially depression are among the most common psychiatric disorders associated with addiction. The prevalence of major depressive disorder in individuals with mood disorders has been reported to be approximately 50-60 percent while the prevalence of minor depressive disorder has been reported to be nearly 10 percent (Ilegn, Jain & Trafton, 2008). Depression with the production of symptoms such as distress and inability is considered a barrier to deal with addiction withdrawal and to take advantage of available coping resources. This is mentioned as a research finding while some studies show that the treatment of mood disorders associated with addiction may reduce addiction initiation and relapse (Quello, Brady & Sonne, 2005; Sara, Rosemarie, Martin & Rohsenow, 2008; Fitzsimons, Tuten, Vaidya & Jones, 2007).

Group therapy is the preferred treatment for many psychological disorders and benefits from advantages such as saving time and energy, training of social skills, and improvement of interpersonal relationships. Such benefits have led to extensive use of this method as the preferred treatment method for drug-dependent patients (Brink & Hassen, 2006). Depending on the goals, group therapy has different approaches. Psychodrama is one of the common approaches in group therapy, which is used on a wide range of human problems. Psychodrama is a branch of art therapy that is viewed as a different perspective in the field of psychotherapy. This method was proposed as a therapeutic tool in the early 1920s by Moreno that was derived from some discoveries in connection with the existing conflicts in persons so that the person could release of his/her repressed feelings (Somov, 2008). Psychodrama is a collective method for the modification of behaviors and a relation-based approach that helps patients to
discover the psychological aspects of their problems. In this way, patients reconsider their problems not only through negotiations, but also through the display of their problems (Blanter, 2007). The patient during psychodrama finds how to act when dealing with the peripheral environment and making social and interpersonal relationships and this helps him/her explore the psychological aspects of his/her problem (Blanter, 2007). In psychodrama, as a dynamic and experimental therapy, the present time and "here and now" are strongly emphasized, even when the person places roles for his/her distant pasts. In this therapy, therapist, not only through dialogue but via "action and practice" and "active observation" tries to investigate and recognize the structure of personality, interpersonal communications, internal conflicts, and the patient's emotional issues and provides the conditions for insight, character development, and treatment (Chesner, 1994). Previous studies have shown that psychodrama is effective for the treatment of moderate depression (Hamamci, 2006), the treatment of addicted girls at risk of sexual abuse for coping with trauma (Somov, 2008), and the treatment of major depressive disorder (Bahari, Baniasad, Khedmatgozar & Eshaghi, 2011).

Psychodrama is widely used in the treatment of addicted patients. Moreno treated alcoholics with psychodrama (Rustin & Olsson, 1993). The effect of this treatment on control of spatial variability and relapse prevention (Hadian, Noori & Malekpour, 2010), treatment of alcohol and drug dependence (Greve, Stickle, Bianchini & Stanford, 2005), production of a negative attitude to addiction and its withdrawal (Eiser, Staphan & Mallary, 1978), as well as relapse prevention (Somov, 2008) has been confirmed. Few studies have been undertaken on the effects of psychodrama on the treatment of addictive disorders such as anxiety and depression. Considering the important role of psychological aspects in addiction treatment, reduction of relapse, loss of patients from treatment, increased levels of tolerance for addiction withdrawal, this study aimed to examine the effectiveness of psychodrama in the reduction of depression and prevention of relapse in opioid-dependent men.

**Method**

**Population, sample, and sampling method**

A quasi-experimental research design along with pre-post tests and follow-up and control group was employed for the conduct of this study. All the opiate-dependent men who had referred to addiction treatment clinics in Kermanshah constituted the statistical population of the study. The number of 20 opioid addicts admitted to treatment centers of Kermanshah was selected through convenience sampling method as the participants of the study and they were randomly assigned to control and experimental groups. The criteria for the inclusion of participants in this study were as follows: Opioid dependence based on Diagnostic and Statistical Manual of Mental Disorders criteria (the fifth
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edition), absence of signs of psychosis and severe mental disorders based on Diagnostic and Statistical Manual of Mental Disorders criteria (the fifth edition), the minimum education of primary school, completion of detoxification program in opioid-dependent subjects, negative urine tests for opiates, aged between 20 and 50 years, being male. On the other hand, the exclusion criteria were as follows: being absent more than 3 sessions during the period, simultaneous participation in other treatment programs, suffering severe psychiatric disorders or severe physical illnesses that prevent participation in therapeutic sessions.

After the announcement of written consents, the participants in the experimental group were administered to an intervention, including 12 two-hour sessions during six weeks based on the principles of psychodrama. It should be noted that one week after the completion of sessions, the experimental and control groups were given posttest and the follow-up was conducted two months later. The conduct of psychodrama in each session consists of three phases: preparation, execution, participation and termination. In this study, the performance of director has been based on four roles of analyst, producer, therapist, and leader of the group.

A protagonist or an individual who raised his/her issue in the group was selected by the director or on a voluntary basis in the initial phase (Kellerman, 1992). Audience in this study were the participating patients. In the first session, some explanations were given about psychodrama, its techniques, rules and structure of the sessions in addition to familiarization of members with each other. In the second session, confidence-building and expression-raising were practiced and it was attempted to put the group in the path of dialogue and question. From the third to sixth sessions, the emphasis was placed on concentration practices, the use of non-verbal approach to make the clients aware of feelings, familiarity with body language, effort to develop mental abilities in a creative way and consciousness of one’s and others’ emotions, reinforcement of happy and sad feelings, and speech and behavioral training. From the seventh to eleventh sessions, the main focus was on the encouragement of members to recount their problems in the form of role playing and use of psychodrama techniques; and members’ participation in the implementation process and behavioral exercises was also focused. During these sessions, additional techniques, role reversal, mirror technique, projection technique in the future, monologues, and self-actualization techniques were used. Moreover, considering the characteristics of the members of the group, communication skills, skills in expressing emotions verbally and non-verbally, and identification of feelings and control of them were practiced. In the twelfth session, the sessions were reviewed and summed up and achievements of members of the group were described, and the members discussed their plans to survive.
**Instrument**

1- Beck Depression Inventory (BDI): This self-report questionnaire is widely used to measure depression and contains 21 items resulting from the symptoms of depressed patients. These items are each scored based on the reported severity of the patient’s status from 0 to 3. Ghasemzadeh et al (2002), translated the scale and administered it to 125 Iranian students and reported Cronbach’s alpha coefficient and test-retest coefficient of the scale equal to .78 and .73, respectively (cited in Rajabi, 2007).

2- Urine test: It was used to check any possible relapse.

**Results**

The mean (standard deviation) pertaining to the age of the experimental and control groups was 29.80 years (4.51) and 27.30 years (4.05), respectively. Descriptive statistics of depression are presented in the table below for each test and group.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>Experimental</td>
<td>29.90</td>
<td>4.88</td>
<td>25</td>
<td>42</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>31.80</td>
<td>8.5</td>
<td>25</td>
<td>48</td>
<td>10</td>
</tr>
<tr>
<td>Posttest</td>
<td>Experimental</td>
<td>7.90</td>
<td>3.47</td>
<td>2</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>31</td>
<td>9.05</td>
<td>22</td>
<td>48</td>
<td>10</td>
</tr>
</tbody>
</table>

The figure pertinent to depression scores is presented below for each group and test stage.

**Figure. 1: Pretest and posttest scores of depression in two groups**

Analysis of covariance was used to evaluate the effectiveness of treatment. One of the assumptions of using this test is the equality of the slope of regression lines. The results suggest that this assumption has been met (P>.05, F = .058). Another assumption is equality of variances. This assumption was also satisfied (P>.05, F = 2.984).
The results of analysis of covariance for depression variable are shown in the table below.

Table 2: Results of analysis of covariance representing the effectiveness of psychodrama in depression

<table>
<thead>
<tr>
<th>Sig.</th>
<th>F</th>
<th>Mean Square</th>
<th>df</th>
<th>Sum of squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>.150</td>
<td>2.271</td>
<td>99.82</td>
<td>1</td>
<td>99.82</td>
</tr>
<tr>
<td>.0005</td>
<td>62.84</td>
<td>2761.57</td>
<td>1</td>
<td>2761.57</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>43.95</td>
<td>17</td>
<td>747.00</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>19</td>
<td>11081.00</td>
</tr>
</tbody>
</table>

As it is observed in the above table, psychodrama therapy is effective in depression (P>.001, F = 62.840). In other words, the intervention has reduced depression scores in the experimental group.

In the follow-up stage, the members of the experimental and control groups were studied in terms of relapse or lack of relapse. The results of the follow-up revealed that only two people in the experimental group and 7 participants in the control group experienced relapse. Fisher z-transformation was used to examine the difference in ratios and the results showed the presence of a statistically significance difference. This means that the treatment has been effective in reducing relapse (P < .01, Z = 2.25).

Discussion and Conclusion

The aim of this study was to evaluate the effectiveness of psychodrama in the level of depression in the men dependent on opiates. The results showed that the psychodrama intervention reduced depression. This finding is consistent with findings of previous research done by (Hamamci, 2006; Somov, 2008; Hadian et al., 2010) which asserts that psychodrama is effective in psychological improvement of drug abusers. In addition, Bahari, et al. (2011) demonstrated the effectiveness of psychodrama in treatment of depression in patients with major depression. To account for the above finding, one can claim that psychodrama is a group activity and an opportunity to share the motivations, analyses, and repressed emotions and receive good feedback. In psychodrama sessions, individuals learn to take the initiative and communicate with others in a motivated fashion. In depression disorder, the existence of some problems in establishing social relationships is reported by sufferers. Participation in psychodrama activities and experience of positive human relations lead to the reduction of social isolation in people with this disorder. In addition, psychodrama provides these people with an opportunity to experience situations and the realities of life. Therefore, symptoms of depression after participating in psychodrama sessions recover. In order to explain the findings of this study, one can argue that psychodrama has a social direction and people think about solutions and deal with the discovery of the final solution at the scene because they demonstrate their problems at the scene. Moreover, since practicality is the
most important aspect of psychodrama therapy compared to other methods, individuals review their problems and find solutions for them by visualizing the problem rather than by talking about problems. Psychodrama is used to increase the exchanges between people in direct confrontation with emotions of the involved parties and to show their emotional struggles in everyday life (Blanter, 2007). Murano said: "The patient is a human with sick relationships; therefore, what should be corrected and treated is the patient’s relationship with others". Psychodrama is a group method of behavior correction and a relationship-based approach, which is considered as the best treatment for depression (Blanter, 2007).

In general, it can be argued that psychodrama leads to the reduction of depression symptoms due to the use of techniques such as mirrors technique, additional technique, role reversal, empty chair, and monologue and also due to the increase of social between-group interactions and expansion of interpersonal experiences. It seems that changes in cognitive insight, awareness level, indirect training of social skills, expansion of individual experiences, understanding of strengths and weaknesses, production of emotional and cognitive integrity, and psychological refinement are among the reasons for the improvement in the symptoms of disorders and treatment.

The small number of participants in this study was one of the limitations of this study which makes it difficult to generalize the results to some extent. Furthermore, the small number of subjects decreases the statistical power and makes the analysis results of the results difficult. The impossibility of long-term follow-up, use of self-report methods for data collection, and the few number of treatment sessions were among other limitations of the current study. It is suggested that future studies be done with larger samples. It is also suggested that long-term follow-up be done to examine the effectiveness of the therapy. In order to generalize the results to larger communities, it is necessary to conduct similar studies on different age groups as well as women.

References


Effectiveness of Group Psychotherapy of Transactional Analysis in Craving Beliefs, Attachment Styles and Cognitive Emotion Regulation in Addicts under Treatment

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Abstract

Objective: This study was an attempt to investigate the effectiveness of group psychotherapy of transactional analysis in the reduction of craving beliefs, cognitive emotion regulation, and adjustment of attachment styles. Method: This was an experimental study along with pre-test and post-test and control group. The population of the study consisted of all male drug addicts who had referred to Tehran rehab clinics in 2015. A total of 30 drug-dependent persons were selected as the participants of the study using convenience sampling method and, then, were randomly assigned to experimental and control groups. For data collection purposes, Craving Beliefs Questionnaire, Adult Attachment Scale, and Cognitive Emotion Regulation Questionnaire were used. Group psychotherapy of transactional analysis was carried out during ten 90-minute sessions. Results: The results of analysis of covariance showed that therapy of transactional analysis can reduce craving beliefs, self-blame, rumination, catastrophizing, other-blame, and insecure attachment styles; and increase positive refocusing, refocusing on planning, positive reappraisal, perspective taking, acceptance, and secure attachment styles. Conclusion: Considering that drug-dependent individuals are more exposed to negative emotions, they are likely to act haphazardly and impulsively in such situations. Therefore, teaching transactional analysis to these people can increase the control rate in stressful situations.

Keywords: Craving Beliefs, Cognitive Emotion Regulation, Attachment Styles, Transactional Analysis, Addiction

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Introduction

Substance abuse is a chronic relapsing disorder that is followed by many issues in medical, psychiatric, family, professional, legal, financial and spiritual domains. This disorder not only affects individual lives, but also produces a lot of flaws and problems for the family and the community and imposes a large burden on the family and society. Like any other chronic disease, addiction requires time management over time (Daley et al., 2005). This disorder results from an interaction of genetic and environmental factors such as growth abnormalities and psychosocial disadvantages and can be caused by the use of alcohol, opium, hashish, and cocaine and show itself in the form of intoxication, dependence, and abuse (Abou–Saleh, 2006). Many theorists in the field of substance abuse believe that emotional components are effective in the tendency of people to drug use and people’s desire to substance abuse. Craving is one of the important features that is experienced in substance abuse disorder. World Health Organization defines craving as a foundation for drug dependency, loss of control, and relapse (Drummond, 2000). In many modern definitions of drug dependency, craving has been regarded tantamount to the central phenomenon and the main cause of continued abuse and also return to substance abuse after a period of treatment (Ekhtiari, Behzadi, Oghabian, Edalati & Mokri, 2006). The word desire or craving is crucial in explaining many addictive behavior. This term is used to explain the high levels of drug use in relapse to substances. Craving has an important role in relapse after treatment, preservation of drug use situation, and drug dependence (Reese & Veilleux, 2015) and is among the most important factors in returning to drug use after discontinuation (Abrams, 2000). Craving is a strong desire for drug use which, if not met, results in psychological and physical pains, such as weakness, anorexia, anxiety, insomnia, aggression, and depression (Addolorato, Leggio, Abeavoli & Gasbarrini, 2005). In addition, a wide range of negative experiences such as sadness, boredom, anxiety, and feelings of isolation are substantial signs of substance abuse (Chaney, Roszell & Cummings, 1982). Many studies pertaining to people dependent on cocaine indicate the relationship between craving and drug use relapse (Bordnick & Schmitz, 1998), craving and treatment outcomes in tobacco consumers (Piasecki, 2006), craving and attentional bias to drug-related stimuli (Ehrman et al., 2002), and the role of emotional schemas in craving for drug use (Masoumi Nowmandan, Hassani & Hatami, 2014). It is assumed that people with substance abuse take drugs in order to manage adverse emotional states. One of the most common strategies for the management and regulation of emotional experiences and emotionally motivating information is the employment of cognitive processes. Cognitive emotion regulation strategies emphasize the cognitive aspects of coping. How to evaluate one’s cognitive system in the face of negative events is very important and the mental health of people is the result of the interaction of cognitive emotion regulation strategies of emotional experiences
and proper evaluation of stressful situations. Emotion regulation is a process through which people regulate their emotions to achieve a favorable outcome (Garnefski, Kraaij & Spinhoven, 2002). Previous studies have shown that maladaptive emotion regulation strategies are involved in the development and persistence of pathological states due to their conflict with self-regulation goals during periods of emotional turmoil (Garnefski et al., 2001). People at high risk for substance use disorders show fewer emotionally stable and regulated behaviors compared to the individuals at lower risk of addiction (Shedler & Block, 1990). Accordingly, poor emotion regulation is considered as a very important background for substance use disorders (Mezzich et al., 2007) and predicts poor emotional regulation skills and high level of alcohol consumption in the period after treatment (Berkling et al., 2011). Research findings have shown the fundamental role of many variables related to family functioning and behavior in the field of prevention and emergence of substance use disorders (Bagheri, Azad Falah & Fathi-Ashtiani, 2013; Newcomb, 1992). The scope and depth of the influence of family variables have been studied in terms of their importance from different angles. These variables influence children’s readiness for drug use and drug abuse through the processes of socialization and parental discipline (Newcomb & Richardson, 2000; Johnson & Pandina, 1991). Clinical findings confirm consumption of most of the substances among the family members that lack intimate parent-child relationships and have not experienced safe bonds (Kandel, 1980). Mother-infant attachment formation process showed that the formation of such a link and experience of safety within such a link are the cornerstone of development and functioning in non-affected individuals. On the other hand, the experience of insecurity in attachment relationships is correlated with mistrust, vulnerability, sensitivity, and communication problems (Ainsworth, Blehar, Waters & Wall, 1978; Kobak & Sceery, 1988). Attachment styles affect methods of dealing with stressful situations (James & Jongeward, 2005). Numerous studies have examined the relationship between attachment and psychopathology in childhood, adolescence, and adulthood. The results of these studies generally show the undeniable importance of attachment as a major factor in mental health (Cassidy & Shaver, 1999; Ozturk & Mutlu, 2010; Liu, Nagata, Shono & Kitamura, 2009; Korver, Meijer & Haan, 2010). Attachment styles are associated with several variables such as self-esteem and impaired interpersonal relationships (Morley & Moran, 2011), anger and hostility (Horowitz, Rosenberg & Bartholomew, 1993), anxiety (Muris, Meesters, Morren & Moorman, 2004), depression (Liu et al., 2009), and personality disorders and attachment (Fossati et al., 2003). Transactional analysis theory is about the social dynamics and character and can be effective as a psychological treatment. Transactional analysis is a therapy system that is applied for the treatment of psychiatric disorders, ranging from daily problems to very deep psychosis about personality towards growth and personal change. This theory offers individual, group, couple, and family therapeutic methods and is also used
outside treatment domain in transactional analysis in training centers (Johnsson, 2011). Psychotherapy is a form of interpersonal relationship. All therapists firmly believe in the need for nurturing a strong therapeutic relationship. The effectiveness of group therapy of transactional analysis in people with depression and anxiety (Widdowson, 2014), inlovemaking styles of couples (Sadeghi, Ahmadi, Bahrami, Etemadi & Pourseyed, 2013), in bringing positive changes in people referring to psychological clinics (Nejadnaderi, Darehkordia & Divosalar, 2013), and increased performance of discordant couples (Sudani, Mehrabizadeh & Soltani, 2012) has been confirmed. Group therapy of transactional analysis is also effective in the increase of self-esteem of the soldiers (Ibrahim Sani, Hashemian & Dowkaneh’ea, 2012), in the increase of marital satisfaction and happiness (Allameh, Aghayi, Atashpour & Moshtaghi, 2014), in the increase of marital satisfaction in couples (Honari, 2014), in the improvement of parent-child relationship and conflict resolution skills (Ghanbari Hashemabadi, Shourcheh, Vafayi Jahan & Bolganabadi, 2012). In this theory, concepts such as sensual mode pattern (parent, adult, and children), interaction, stroking, and life draft are considered and this theory aims at cognition and behavioral change.

Based on the available evidence, it can be said that the failures associated with cognitive emotion regulation, craving ideas related to drugs, family variables, attachment, and personality formation play some part in the emergence of substance use disorders. Due to the growing trend of substance abuse disorders in the society and the possible practical implications, this study is aimed at examining the effectiveness of group therapy of transactional analysis in relapse prevention among the individuals under detoxification.

Method

Population, sample, and sampling method

This was an experimental study along with pre-test and post-test and control group. The population of the study consisted of all male opiate abusers who had referred to Tehran rehab clinics from October 23, 2015 to December 22, 2015. A total of 30 persons were selected as the participants of the study using convenience sampling method and, then, were randomly assigned to experimental and control groups.

Instrument

1. Demographic questionnaire: This was a researcher-developed questionnaire which contained some items on age, education, physical health, psychiatric disorders, and the type of substance used by participants.

2. Craving Beliefs Questionnaire (CBQ): The Persian version of this scale was used to assess craving beliefs (Beck & Clark, 1993). This questionnaire is a self-report scale that measures the beliefs pertinent to craving for drug use from
mental, physical, and behavioral aspects and consists of 20 items, which are scored based on a 7-point Likert scale (from 1 = strongly disagree, to 7 = strongly agree). The total score of the scale ranges from 7 to 140. Higher scores represent more devastating and unreal beliefs about craving. The validity and reliability of the questionnaire have been reported (Beck & Clark, 1993). Pearson correlation coefficient of .028 has been reported to assess the validity of the scale by investigating the relationship between craving and attentional bias to drug-related stimuli (Ehrman et al. 2002; cited in Rahmanian, Mirjafari & Hassani, 2006). In addition, Mohamadkhani, Sadeghi & Farzad (2011) reported the reliability of this questionnaire using Cronbach's alpha (.77) once and explored the reliability of the questionnaire once more via Cronbach's alpha (.84) and split-half method (.81) (cited in Rahmanian et al., 2006).

3. Adult Attachment Inventory (AAI): This scale was constructed using the items of Hazen & Shaver’s attachment questionnaire (1987) and has been validated in student samples and general population of Iran (Besharat, 2005). This scale consists of 15 items that measure three styles, namely secure attachment, avoidant, and ambivalent styles based on a 5-point Likert scale (1 = very low, 2 = low, 3 = average, 4 = high, very high = 5). Minimum and maximum scores of participants in this scale will be 5 and 25, respectively. Cronbach’s alpha coefficients of the subscales of secure, avoidant, and ambivalent styles were calculated on a sample (n = 1480, female = 860, and male = 620) and were obtained equal to .86, .83, and .84 for the total sample, .86, .83, and .84 for females, and .84, .85, and .86 for males, respectively which show the desired internal consistency of adult attachment questionnaire (Besharat, 2005).

4. Cognitive Emotion Regulation Questionnaire (CERQ-P): This scale was developed by Garnefski (2001) in the Netherlands and contains two English and Dutch versions. This is a 36-item self-report scale which is used to detect cognitive coping strategies and consists of 9 subscales. Each item is scored based on a 5-point Likert scale (1 almost never to 5 almost always). High scores on each subscale show the greater use of strategy to cope with stress and negative events (Bordnick & Schmitz, 1998). The Persian version of cognitive emotion regulation questionnaire was standardized on the Iranian culture by Hassani where the reliability of the scale was reported to be desirable based on internal consistency (Cronbach's alpha coefficients ranged from .76 to .92) and test-retest reliability (with correlation ranging from .51 to .77). The validity of this scale was obtained through factor analysis with principal component analysis and Varimax rotation. The correlation between the subscales has been reported to range from .32 to .67. The criterion validity of the questionnaire has also been reported desirable (Hassani, 2011).

Procedure

After selecting participants from four drug rehabilitation centers of Tehran municipal district 3, the following inclusion criteria were considered in addition
to psychiatric diagnosis: diagnosis of dependence on opium, opium syrup heroin, and crack as the latest drug used according to the diagnostic and statistical manual of mental disorders fourth Edition (revised) and detoxification diagnosis of centers, being male, placement in 20-40-year age range, being at least literate, history of methadone use for less than a year, no diagnosis of other psychological disorders, and willingness to participate in therapy sessions. In addition, exclusion criteria were: unwillingness to continue to participate in therapy sessions, absence of more than two sessions, and discontinuation of treatment under supervision of addiction treatment centers. First, those interested in attending the training course were enrolled by putting up posters to inform the patients referring to the clinic. This process lasted about two months, and the number of 37 people announced readiness to participate in training sessions and the eligibility of them was examined. Then, the individuals were randomly placed in two 15-participant groups (experimental and control). Both groups were evaluated and analyzed once before and once after treatment. Then, the experimental group received transactional analysis training program, containing 10 two-hour sessions on a weekly basis. During this period, the control group received no training and were waiting. The structure of sessions of transactional analysis therapy was extracted and used based on the therapeutic model and protocol of the book, entitled a new introduction to transactional analysis (Stewart & Joines, 2009).

Table 1: Practical guide and description of group sessions of transactional analysis

<table>
<thead>
<tr>
<th>Session</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>First session</td>
<td>Introduction and familiarity with members of the group, introduction of the training therapeutic course, setting of a consulting contract with the members present at the meeting and agreement on the goals and tasks, conduct of the pre-test, use of verbal and nonverbal messages in the treatment process, simple structural analysis of sensual states (adult, parent and child). The patients were asked to give a brief description of the status and history of their life and interpersonal relationships.</td>
</tr>
<tr>
<td>Second session</td>
<td>In this session, the therapist discussed the history of transactional analysis and provided such conditions to prepare members for homework. In addition, all the individual members read one of their transactional relationship and the members were asked to express their views about the mentioned relationships. Then, the members were given homework.</td>
</tr>
<tr>
<td>Third session</td>
<td>Tasks of group members were checked and a brief description was presented about the book &quot;last state&quot; and four mental states. Treatment process in this session included the presence of communication rules about respect for self, others, friends and how to be assertive. Assignment (ego-gram drawing based on complex structural analysis).</td>
</tr>
<tr>
<td>Fourth session</td>
<td>Review of homework of the previous session; in this session, group members became familiar with the role of communication patterns in personal and social life. Stroking training, complementary and cross-sectional interaction constituted the interventions of this session.</td>
</tr>
<tr>
<td>Session</td>
<td>Content</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Fifth session</strong></td>
<td>Review of homework of the previous session; involuntary restoration of childhood (child ego) and basic living conditions were fully described. Each of the members received two pages of the book &quot;mental games&quot; (Eric Berne) by playing the game &quot;Why do not you do something? Yeah, but&quot;. The social and psychological levels were introduced and described. Then, the participants played the game &quot;Why do not you do something? Yeah, but&quot; to become familiar with the atmosphere of the game and its analysis.</td>
</tr>
<tr>
<td><strong>Sixth session</strong></td>
<td>The members were asked to express their preoccupations. These preoccupations can include shallow relationships and family disputes, lack of will and motivation, frustration and so forth. Treatment process included the restoration of the state &quot;mature ego&quot; and the members were asked to discuss and interact with others' engagements. In this session, training of hidden relationships and extra mutual behaviors, assignments along with some examples of hidden relationships with practice and role-play were explained.</td>
</tr>
<tr>
<td><strong>Seventh session</strong></td>
<td>At the beginning of the session, the assignment of the previous session was reviewed. Training of four life states and healing of the inner child constituted the therapeutic interventions. In this session, members of the group tried to analyze the modes (child-adult-parent) and to apply the best way to communicate between these modes in their everyday behavior. Homework (question &amp; answer with the dominant and non-dominant hands) was presented.</td>
</tr>
<tr>
<td><strong>Eighth session</strong></td>
<td>Homework of the previous session was reviewed, practical work (exercises and role play) was done, and communication skills were exercised. In addition, the life story of each of the members who was willing was told. Time management concepts and methods of activating &quot;adult&quot; constituted the interventions of this session. Assignment (determination of time management and use of &quot;mature ego&quot; in one's behavior) was also given.</td>
</tr>
<tr>
<td><strong>Ninth session</strong></td>
<td>Some explanations were presented about Karpmann's drama triangle and four states of life. First, a few examples of games mentioned in book &quot;Eric Berne Games&quot;, were presented and analyzed. Then, using the &quot;alcoholic&quot; game, Karpmann's drama triangle and four states of life were introduced and applied. &quot;Alcoholic&quot; game and &quot;If it were not for you,&quot; along with analysis and their relations based on the diagram of three circles and use of Karpmann's drama triangle were also presented. Finally, participants discussed the analyses conducted on the characters of the story, as well as games and their own situations.</td>
</tr>
<tr>
<td><strong>Tenth session</strong></td>
<td>First, the draft of life and its definitions was presented to the participants. Then, using the analyses of the previous session about the games, the characters, and four states of life, the draft of the main characters of the story of one of the participants was analyzed at transactional preliminary level. In this way, the story ended. Finally, a complete review of all topics presented during the 10 sessions was done and, as the final step, a memorial plaque was presented to each of the participants in addition to thanking all of them.</td>
</tr>
</tbody>
</table>
Results

The mean and standard deviation of the age of the experimental group were 28.73 and 1.6, respectively while these values for the control group were 26.33 and 1.34, respectively. In terms of education, 3 participants in the experimental group (20%) had a degree below diploma, 9 participants (60%) had diploma degrees, and 3 participants (20%) had bachelor’s degrees. In the control group, 2 participants (13.3%) had a degree below diploma, 10 participants (66.7%) had diploma degrees, and 3 participants (20%) had bachelor’s degrees. In the experimental and control groups, 9 participants (60%) and 8 participants (53.3%) were employed. Duration of drug use from the beginning of suffering had the mean and standard deviation of 3.13 and .39 in the experimental group and 3.27 and .44 years in the control group, respectively.

Descriptive statistics of the variables under study are presented in the table below for each group and test.

Table 2: Descriptive statistics of the variables under study for each group and test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Experimental Pretest</th>
<th>Experimental Posttest</th>
<th>Control Pretest</th>
<th>Control Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Craving beliefs</td>
<td>112.67 (4.79)</td>
<td>77.53 (4.10)</td>
<td>112.67 (4.79)</td>
<td>77.53 (4.10)</td>
</tr>
<tr>
<td>Secure attachment</td>
<td>10.73 (2.12)</td>
<td>16.47 (1.46)</td>
<td>10.73 (2.12)</td>
<td>16.47 (1.46)</td>
</tr>
<tr>
<td>Avoidant attachment</td>
<td>19.87 (3.44)</td>
<td>12.73 (1.98)</td>
<td>19.87 (3.44)</td>
<td>12.73 (1.98)</td>
</tr>
<tr>
<td>Ambivalent attachment</td>
<td>15.87 (3.54)</td>
<td>12.67 (1.63)</td>
<td>15.87 (3.54)</td>
<td>12.67 (1.63)</td>
</tr>
<tr>
<td>Acceptance</td>
<td>4.70 (1.03)</td>
<td>7.33 (.72)</td>
<td>4.70 (1.03)</td>
<td>7.33 (.72)</td>
</tr>
<tr>
<td>Positive refocusing</td>
<td>4.33 (1.29)</td>
<td>7.80 (1.01)</td>
<td>4.33 (1.29)</td>
<td>7.80 (1.01)</td>
</tr>
<tr>
<td>Refocus on planning</td>
<td>4.87 (.83)</td>
<td>7.47 (1.25)</td>
<td>4.87 (.83)</td>
<td>7.47 (1.25)</td>
</tr>
<tr>
<td>Positive reappraisal</td>
<td>4.53 (1.36)</td>
<td>7.40 (.99)</td>
<td>4.53 (1.36)</td>
<td>7.40 (.99)</td>
</tr>
<tr>
<td>Putting into perspective</td>
<td>4.00 (1.26)</td>
<td>7.53 (.92)</td>
<td>4.00 (1.36)</td>
<td>7.53 (.92)</td>
</tr>
<tr>
<td>Self-blame</td>
<td>7.87 (1.41)</td>
<td>2.87 (.92)</td>
<td>7.87 (1.40)</td>
<td>2.87 (.92)</td>
</tr>
<tr>
<td>Rumination</td>
<td>7.67 (1.11)</td>
<td>3.53 (1.19)</td>
<td>7.67 (1.11)</td>
<td>3.53 (1.19)</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td>7.33 (1.75)</td>
<td>3.01 (1.00)</td>
<td>7.33 (1.75)</td>
<td>3.00 (1.00)</td>
</tr>
<tr>
<td>Blaming others</td>
<td>7.73 (1.03)</td>
<td>3.40 (1.12)</td>
<td>7.73 (1.03)</td>
<td>3.40 (1.12)</td>
</tr>
</tbody>
</table>

To investigate the role of psychotherapy in craving beliefs, univariate analysis of covariance should be used. One of the assumptions of this test is the equality of variances. Levene's test results indicate that this assumption has been met (P>0.05, F = 3.740). In addition, the results of Box test representing the consistency of covariance matrix were not obtained significant. Investigation of the slope of regression line between the two groups showed no significant difference between the two groups. The results of covariance analysis are presented in the table below.

Table 3: Results of analysis of covariance representing the effectiveness of therapy in craving beliefs

<table>
<thead>
<tr>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>5013.92</td>
<td>440.33</td>
<td>.0005</td>
<td>.94</td>
</tr>
</tbody>
</table>
To investigate the effectiveness of psychotherapy in attachment styles, univariate analysis of covariance should be used. One of the assumptions of this test is the equality of variances. The results of Levene’s test indicate that this assumption has been met (P > .05). In addition, the results of Box test representing the consistency of covariance matrix were not obtained significant (M = 23.67, P > .05). Finally, the investigation of the slope of regression line showed no significant difference between the two groups.

The results of multivariate analysis of covariance indicated the presence of a significant difference (P < .001 F = 85.279, Wilks Lambda = .082). Univariate analysis of covariance was used to examine difference in patterns as follows.

Table 4: Results of univariate analysis of covariance representing pattern differences in attachment components

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure attachment</td>
<td>231.23</td>
<td>172.570</td>
<td>0.0005</td>
<td>0.87</td>
</tr>
<tr>
<td>Avoidant attachment</td>
<td>331.35</td>
<td>57.540</td>
<td>0.0005</td>
<td>0.70</td>
</tr>
<tr>
<td>Ambivalent attachment</td>
<td>91.00</td>
<td>17.230</td>
<td>0.0005</td>
<td>0.41</td>
</tr>
</tbody>
</table>

As it is observed in the above table, there is a significant difference in all attachment styles (P < .001).

To determine the effectiveness of therapy in cognitive emotion regulation, multivariate analysis of covariance (MANCOVA) should be used. One of the assumptions of this test is the equality of variances. Levene’s test results indicate that this assumption has been met (P > .05). Moreover, the results of Box test represented the equality of covariance matrix (M = 82.55, P > .05). The slope of regression line between the two groups showed no significant difference in the pretest scores. Thus, multivariate analysis of covariance was conducted and the results indicated the effectiveness of psychotherapy in cognitive emotion regulation (P < .001 F = 29.511, Wilks’ Lambda = .013). Univariate analysis of covariance was used to examine difference in patterns as follows.

Table 5: Results of univariate analysis of covariance representing pattern differences in components of cognitive emotion regulation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance</td>
<td>74.69</td>
<td>109.569</td>
<td>.0005</td>
<td>.85</td>
</tr>
<tr>
<td>Positive refocusing</td>
<td>80.34</td>
<td>83.142</td>
<td>.0005</td>
<td>.81</td>
</tr>
<tr>
<td>Refocus on planning</td>
<td>59.22</td>
<td>45.135</td>
<td>.0005</td>
<td>.70</td>
</tr>
<tr>
<td>Positive reappraisal</td>
<td>80.20</td>
<td>133.411</td>
<td>.0005</td>
<td>.87</td>
</tr>
<tr>
<td>Putting into perspective</td>
<td>71.84</td>
<td>93.14</td>
<td>.0005</td>
<td>.83</td>
</tr>
<tr>
<td>Self-blame</td>
<td>174.30</td>
<td>137.985</td>
<td>.0005</td>
<td>.88</td>
</tr>
<tr>
<td>Rumination</td>
<td>88.04</td>
<td>64.703</td>
<td>.0005</td>
<td>.77</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td>105.92</td>
<td>103.618</td>
<td>.0005</td>
<td>.84</td>
</tr>
<tr>
<td>Blaming others</td>
<td>108.80</td>
<td>81.571</td>
<td>.0005</td>
<td>.81</td>
</tr>
</tbody>
</table>

As it is observed in the above table, there is a significant difference in all the components (P < .001).
Discussion and Conclusion

The results of this study showed that changes in craving beliefs, attachment styles, and cognitive emotion regulation in the experimental group in post-test were significant compared to the changes in the control group. In other words, the application of group therapy of transactional analysis significantly reduced scores of craving beliefs, insecure attachment styles, and weak and maladaptive cognitive strategies. In the same way, the scores of secure attachment and adaptive strategies increased. Scores significantly reduced during the ten therapy sessions. These results are consistent with meta-cognitive model (Wells, 1995), compassion focused therapy (Gilbert, 2010), and the theories related to self-regulation, regulation of affects, and emotion regulation (Gross, 1998). In addition, the findings of the current study show that emotion regulation skills based on the analysis of behavior can be effective in the selection of coping strategies with desire and craving and in the emotional states that can lead to the return of addictive and compulsive behaviors in drug abuse. Negative emotions and an inability to properly manage them are among the important stimuli for the resumption of substance abuse. The substance abusers who employ more adaptive emotion regulation strategies are more successful in treatment period. On the contrary, people who are not able to control their emotions are likely to become permanent drug users (Wells, 1995). Therefore, the use of emotion regulation strategies is regarded as one of the comprehensive treatment plans in prevention of addiction relapse. On the other hand, it should be noted that the promotion of mental health entails training on how to achieve a healthy lifestyle, as well as assisting the individuals at risk of drug abuse to avoid risky behaviors (Gilbert, 2010; Gross, 1998).

The results showed that treatment based on transactional analysis can enhance affective performance and communication, behavioral model of roles, and problem-solving ability of the addicts with insecure attachment styles. This finding is consistent with the results of previous studies (Rezapour Mirsaleh, Eini, Ayinparast & Heshmati, 2014; Jahanbakhsh, Bahadori, Amiri & Asgari-Mobarake, 2014; Bögels & Brechman-Toussaint, 2006; Diamond, Reis, Diamond, Siqueland & Isac, 2002). To justify this finding, one can argue that emotional and intimate relations between addicts is of utmost importance. Such relationships are effective in physical and psychological well-being and individuals’ ability to function effectively in various individual, familial, and job-related fields. Production and maintenance of intimate relationship are reinforced by certain emotional and attachment bonds. Healthy relationships have positive outcomes and interests in life and non-satisfactory relationships endanger physical and psychological health of people (Adam, Gunnar & Tanaka, 2004). In this regard, since the change in attachment styles will affect many human relationships and attachment patterns are subject to change throughout life (Kerns, Aspelmeier, Gentzler & Grabill, 2001), it can be stated that
transactional analysis like attachment-based therapy can lead to the improvement of affective relations in the addicts with insecure attachment styles (Suchman, Decoste, Rosenberger & Thomas, 2012). In addition, the findings are consistent with previous research findings (Widdowson, 2014; Sadeghi et al., 2013; Sudani, et al., 2012; Liu et al., 2009; Honari, 2014). Emotion regulation strategies play an important role in adaptation and coping with stressful situations. The ability to properly manage emotions in the face of environmental or stressful events makes it possible for individuals to prevent the occurrence of negative emotions and maladaptive behaviors (Garnefski, Boon & Kraaij, 2003). In other words, individuals’ thoughts and cognition can bring about a considerable ability to manage and control emotions when facing stressful situations. People who employ poor cognitive strategies such as rumination, catastrophizing, and self-blame are more vulnerable than others. In contrast, those who use other desirable strategies like positive reappraisal are less vulnerable (Garnefski & Kraaij, 2006). To account for this finding, one can assert that, in transactional analysis, mature “ego” is focused on the present, here and now and is in line with the current position and thus "mature" is always self-determined and psychological development of mature "ego" is a continuous process. In decontamination method, polluted beliefs undergo accurate challenges in the process of decontamination. The identification of draft beliefs could lead to modification and adjustment (Stewart & Joines, 2009). Thus, individuals question the reliability and accuracy of the beliefs and experiences that do not enjoy supportive evidence by means of the techniques of this treatment. This explanation is consistent with the theories of cognitive emotion regulation which assert that many emotions require cognitive assessments. In addition, the effectiveness of transactional analysis assist people establish effective communication in a variety of relationships, especially complementary, cross-sectional, and hidden relationships. In other words, transactional analysis makes people be equipped with appropriate communication skills to establish a good complementary relationship by the diagnosis of their own and others’ "ego states" and others, especially with regard to verbal and nonverbal clues. Moreover, it is possible to manage the situations of potential conflict via strengthened "mature" supervision using the technique of driving "parent". In this way, conditions for constructive rather than destructive relationships are provided (Berne, 1961). Transactional analysis theory presents some lessons and approaches in the field of passion, intimacy, free self-expression and self-disclosure, avoidance of other-blaming, and other acceptance that can reduce negative interactions between individuals (Stewart & Joines, 2009).

Improvement in the moderation of craving ideas about drugs and the use of adaptive emotional cognitive strategies and secure attachment by the addicts under treatment may be attributable to the nature of self-help education in social interactions and deeper transactional analysis therapy. This is so because the ultimate goal of this therapy is to enable addicts to overcome their emotional and
affective problems and needs by the employment of drafts and healthier living conditions and appropriate communications. Behavioral analysis puts emphasis on the root of evolution, life situation, draft messages, life drama and does not attribute emotional problems to automatic thoughts (Stewart & Joines, 2009). The identification of drafts, which relate turbulent experiences of the childhood to the adolescence of addicts, helps people with substance abuse overcome the emotions, beliefs, behaviors, and destructive feelings (James & Jongeward, 2005). Training of behavior analysis in a friendly atmosphere with positive feelings causes addicts to advance from cold cognition to hot cognition and facilitates the achievement of life drafts. Thus, it brings about addicts’ desire to follow up treatment and recovery. Behavior analysis techniques include the revitalization of the inner child, mental coexistence, life draft, and Freud’s games similar to “emotional discharge”, “ventricular memories”, and Penfield’s temporal lobe phenomenon. These hot techniques cause severe emotional discharge from maladaptive schema of emotions among addicts. The therapist somehow helps addicts by supportive parents to take steps to modify their feelings and drafts (Stewart & Joines, 2009; James & Jongeward, 2005). Furthermore, empathy with the addict's lives encounters them with this reality that their life draft is not fruitful and they cannot adopt a better draft. Addicts pass through some stages in the treatment process to achieve further understanding of their problem and bring into existence positive changes and stability. In fact, the person begin to change in three states of parent, adult, and child and concentrates on problem-solving more and more, day by day without entering the draft. Then, s/he goes to social control (finds him/herself as the problem, takes the responsibility of his/her actions, and increases his/her autonomous behavior). In the next stage, s/he achieves treatment of transfer and eventually extricates him/herself from the system of destruction (James & Jongeward, 2005; Korver et al., 2010).

Group therapy of behavior analysis provides addicts with such conditions to solve their problems in the presence of others, observe the reaction of others to their behavior, and take new alternatives when their response-giving methods are not satisfactory. These individuals can gain a greater insight and understanding through interaction with each other and self-disclosure, thereby, receiving support, empathy, and feeling of shared pain about their problems (Stewart & Joines, 2009). Cognitive restructuring in adult-adult relationship allows the person under treatment to learn that changing the interpretation of events can modify emotional responses and, thereby, s/he can induce a sense of higher efficiency when experiencing an unwanted emotion. These individuals are also benefited by domination over "adult"; therefore, they can use social support, acceptance and arousal reduction, problem-solving, behavioral activation, cognitive restructuring, and adaptive behaviors in a more effective fashion. On the one hand, addicts in the group are made aware of the emotions pertaining to feeling of shame or guilt, and the effects of negative emotions and
beliefs on their current lives via reviewing life draft and parent-child messages. The ability to manage emotions with "mature ego" makes these people use proper coping strategies in situations with high risk of substance abuse. People with stronger maturities benefit from a higher ability in the anticipation of others’ demands, understand others’ unwanted pressures, and harness their emotions and cravings; therefore, they show more resistance to drugs. This possibility can be raised that insecure attachment styles, morbid personality structure, and inefficient cognitive self-regulation are associated with substance abuse. Various intervention strategies have been proposed for the treatment of drug dependence. However, most of treatment methods suffer from some deficiencies in terms of reducing the damages caused by this disorder and their effectiveness in recovery despite the relative efficacy of these methods. In consequence, alternative theoretical models are on the way and new treatments have also been applied. However, judgment on the effectiveness and efficacy of various methods of treatment associated with substance dependence disorder should not be made in haste. One of the limitations of this study was mere dependence on self-report instruments related to the outcomes of treatment and absence of follow-up. It is suggested that other treatments be used in both genders in future studies.

**Reference**


Drummond, DC. (2000). What does reactivity have to offer clinical research? *Addiction*, 95, 129-144.


Arefeh Monajem & Alireza Aghayousefi


Abstract

Objective: The present study was an attempt to examine the effectiveness of group mindfulness based cognitive therapy in reducing depression and obsessive rumination among women under methadone treatment. Method: A quasi-experimental research design along with pretest-posttest design and a control group was employed to conduct this study. Considering the inclusion criteria, a total of 24 female substance abusers who were under methadone treatment were selected from Omide Farda and Javeneh Sabz clinics in Mashhad via purposive sampling method. The experimental group received eight training sessions of mindfulness-based group cognitive therapy, while the control group did not receive any intervention. Two scales, namely obsessive rumination scale and Beck’s depression questionnaire were used for data collection purposes. Results: Results of analysis of covariance showed that group mindfulness-based cognitive therapy has reduced obsessive rumination and depression scores. Conclusion: Mindfulness-based group cognitive therapy can be included in intervention programs for substance abusers. Keywords: Mindfulness-Based Cognitive Therapy, Obsessive Rumination, Depression, Addicted Women under Methadone Treatment
Introduction

In contrast to the past decades that drug abuse was limited to men, drug addiction is one of the women’s hygienic, therapeutic and social problems in recent times. Not only do women’s addiction lead to severe and fundamental physical and mental problems, but it also causes social damages such as an increase in divorce, crime, unemployment and prostitution (As’adi, 2001). One of the areas directly influenced by addiction is the addicts’ mental health. There is at least one psychological disease in narcotics addicts in such a way that 85 percent of these people are suffering from different personality disorders and 65 percent are struggling with Axis I disorders (Narimani & Rajabi, 2013). A common syndrome of psychological pathology among addicts is depression. Depression disorder and anxiety, to some extent, play a role in addiction and affect the patients’ mental and physical dysfunction and quality of life, in a sense that many sufferers tend to use drug and alcohol in an effort to avoid these unpleasant conditions (Vernig & Orsillo, 2009). On the other hand, in etiology of drug abuse disorders, researchers have reported a defect in emotion regulation, low distress endurance, thoughtless behavior and rumination (Blume, 2005). One of the major variables in depression is obsessive rumination (Wathkin & Baracaia, 2001). Rumination is defined as recurrent and resistant thoughts over a matter. These thoughts penetrate into the consciousness involuntarily and draw the attention away from intended matters and immediate objectives (Joormann, 2006). In minor or major depression, the individual is involved in rumination on negative issues. Wathkinz & Moulds (2005) relate rumination to feelings of sorrow and refer to it as rumination on sadness. Rumination usually provides a mechanism which turns to dangerous grounds for depression and, in fact, leads to an increase in pressure and severer neurosis and decreases social support and optimism (Nolen-Hoeksema & Davis, 1999). Rumination makes the depressed patients’ mental-cognitive infrastructure dissonant and correlates with psychological incompatibility and escalation of negative feelings such as anger and mental pressure (Wenzolf and Wehner, 2000). The studies on cognitive models of depression outlined the role of rumination as risk factors of depression (Lo, Ho & Hollon, 2008; Roelof, Huiber, Peerters & Arntz, 2008). Hyde, Mezulis & Abramson (2008) refer to rumination as one of the cognitive components of depression. Donaldson, Lam & Mathews (2007) have also suggested that depression is accompanied by an intentional bias to negative information with the aim of self-assessment, which this negative bias is reinforced in patients with rumination. The response of rumination to a poignant experience extends and exacerbates the depressed mood periods. Moreover, rumination makes people’s thoughts be negatively oriented and causes a decrease in the individual’s problem-solving ability (Wisco, & Lyubomirsky, 2008). Various therapeutic methods have so far been used for the treatment of drug addicts’ depression and rumination, examples of which are
multi-systemic therapy (Stanlye, 2011), cognitive-behavioral therapy for suicide prevention (Stanlye, 2011), fan-based therapy (Donaldson et al., 2007), Supportive relation (Hyde et al., 2008), dialectical behavioral therapy (Hashemi, Aliloo & Hashemi, 2011) and metacognitive therapy (Hashemi et al., 2011). In recent years there has been a major change in treatment of these problems as new patterns like Mindfulness Based Cognitive Therapy have been formed (Finucane & Mercer, 2006). Mindfulness based cognitive therapy originates from extensive study in the area of recognition of predictive cognitive processes causing the relapse into depression (Crain, 2009). This treatment method is a promising sign in advancement of the cognitive-behavioral approach for depression treatment because mindfulness training along with metacognitive acquisitions and behavioral strategies lead to developing new thoughts, decreasing unfavorable emotions and reducing rumination and distressing responses (Carighead, 2003).

Mindfulness refers to an effortful conscious controlled processing status which is the opposite point of inattention (Bishop, Lau, Shapiro, Carlson & Carmody, 2004). Mindfulness has two basic components. The first is controlling attention so that attention is focused on the immediate and instant experience and as a result the possibility of identification of current mental events increases; the second is the adoption of curiosity orientation, openness and acceptance of current experiences of the self (Barnhofer, Crain, Hargus, Amarasingh & Williams, 2009). Mindfulness based cognitive therapy integrates the concept of mindfulness with the principles of cognitive behavioral theory. This approach embraces elements of the cognitive therapy which separates the self from one’s thoughts; for instance remarks such as “thoughts are not realities” and “I am not my thoughts”. Mindfulness based cognitive therapy has been designed to lessen the relapse into depression, so that people learn how to observe their thoughts and reflections without judgment and watch them simply as mental recurrent events which some of their aspects do not necessarily present the reality. In this approach, individuals learn how to avoid the pitfalls of their rumination patterns. (Teasdale et al., 2002; quoted in Omidi & Mohamadkhani, 2009). Some studies have demonstrated the effectiveness of mindfulness based cognitive therapy on the mental wellbeing, anxiety and depression (Grossman, Tiefenthaler-Gilmer, Raysz, & Kesper, 2006), suicide prevention (1Williams, Duggan, Crane & Fennell, 2006), pain tolerance, mental health (Kingston, Chadwick, Meron and Skinner, 2007), declining in physical and mental symptoms of patients suffering from Rheumatoid Arthritis (Pradhan, Baumgarten & Langerberg, 2008), decreasing the syndromes of mental-practical obsession (Fairfax, 2008), decreasing rumination and depression (Dimidjian et al., 2014; Mckim, 2008; Paul, Stanton., Greeson, Smoski & Wang, 2012), and reducing temptation to use drug (Edward, 2010; Khanna & Greeson, 2013).

Considering the above-mentioned points, it appears that mindfulness based cognitive therapy could contribute to a reduction in rumination and depression of female drug addicts. Therefore, the objective of the present study is the
investigation of mindfulness based cognitive therapy on decreasing rumination and depression of addicted women under methadone maintenance treatment.

**Method**

**Population, sample, and sampling method**

This study which in terms of objective falls into category of applied research, used a quasi-experimental design with pretest-posttest and a control group. The statistical population included the women who referred to Omid-e-Farda and Javane Sabz rehabilitation centers in Mashhad from September 2012 to September 2013 for addiction treatment. A sample of 30 individuals were selected by purposive sampling, considering the inclusion criteria (perception of diagnosis of major depression, failure to perceive a diagnosis of personality disorder based on a structured diagnostic clinical interview, minimum education of diploma, no history of psychosis, no use of anti-psychosis drugs, passing at least one week from their successful detoxification). Then the subjects were asked to express their consent to participate in the research in written and verbal forms and the selected sample was put in two groups by random replacement; so that in the first place there were 15 subjects in each group. In the course of intervention 3 participants left the research experimental group and were not post-tested. Also, 3 participants were out of the researcher’s reach in the post test and excluded from the study; therefore, eventually the number of members in each group was reduced to 12 and the final analysis was done on these members.

**Instrument**

1. Beck Depression Inventory: the questionnaire was first introduced by Beck in 1961, revised in 1971 and published in 1978. It generally contains 21 items concerning different symptoms and the subject is asked to rate each item on a scale of 0 to 3. The questionnaire is a self-evaluation test and takes 5-10 minutes to finish. To understand the items, primary school education suffices. The scores range from 0 to 63. The internal consistency coefficient was reported to range from 0.73 to 0.93 with the mean of 0.86, and test-retest reliability coefficient via intervals of run times and type of population is in range of 0.48 to 0.86. The result of the tests of content and concurrent validity, and discriminant factor analysis is reported to be generally favorable. The items of the questionnaire have been designed based on the clinician’s opinions about the symptoms of depression with considerations regarding the Manual of Mental Disorders-IV. In addition, this questionnaire demonstrates a moderate correlation with other scales assessing depression such as Hamilton Depression Scale (0.71), The Beck Depression Inventory (0.68) and Depression, Anxiety, Stress Scale (0.88) (Marnart, 2008). The scale reliability by internal consistency was reported 0.78
and by test-retest 0.73. (Hanasab Zade Esfahani, Yekeh Yazdan Doost, Gharaei & Asghar Nejad, 2010).

2. Rumination scale Questionnaire: the scale was developed by Nolen-Hoeksema & Morrow (1991) and assesses four different kinds of reactions to negative mood. Response Style Questionnaire is comprised of Ruminative Response Scale and Distractive Response Scale. Ruminative Response Scale includes 22 items which participants are asked to rate on a scale of 1(never) to 4(always). Based on the empirical evidence, this scale has a high internal consistency with Cronbach's alpha coefficient ranging from 0.88 to 0.92 and test-retest reliability coefficient of 0.67. The scale has been validated and translated to Farsi by Bagheri Nejad, Salehi Fadardi and Tabatabaei (2011). The coefficient of correlation between this scale and the scores of depression and anxiety in a sample of Iranian students came out 0.63 and Cronbach's alpha was 0.88.

3. Structured Clinical Interview for Disorders: this is a structured clinical interview developed by Spitzer et al. for assessment of various kinds of disorders Axis I and II. All the areas of this clinical interview are according to specific criteria of DSM for different disorders. Because of its comprehensiveness and compliance with DSM criteria, this instrument is more reliable than clinical scales and is considered as a standard comprehensive diagnostic means of assessment in research, legal and clinical contexts. The reported reliability of the instrument ranges from 0.81 to 0.84 and Sharifi et al. (2005) reported a moderate to fair diagnostic agreement for that in Iran (quoted in Imani et al, 2014).

Procedure

After preparation of intervention program, all the subjects selected as a sample were invited and informed of the start time and date. Before the implementation, the training package, which was written based on the book Mindfulness Based Cognitive Therapy by Rebecca Crane (2009), was confirmed by two professors of psychology and piloted to a group of three and limitations were eliminated. The procedure for presenting the materials in every session was first a review of the contents of the previous session followed by presentation of new contents. The content of the sessions is presented in the table below.

<table>
<thead>
<tr>
<th>session</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First session</strong></td>
<td>Before starting, the therapist and his colleagues made their acquaintance with the group members and they were informed of the research-based nature of the study. In this session all 8 sessions were explained to members in nutshell followed by an explanation of the relationship between addiction and its side effects and emotional problems, in particular depression and rumination. Then, the members’ objectives and expectations of the treatment were specified. At last, body scan meditation was taught and practiced followed by presentation of meditation assignment for home, body scan meditation, and eating with mindfulness.</td>
</tr>
<tr>
<td>Session</td>
<td>Content</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Second session</td>
<td>The second session started by reviewing the previous session assignments and obstacles to its implementation and afterwards the ways of overcoming the barriers were explained. Then body scan meditation and breathing with mindfulness were practiced and thinking about the practices followed. As an assignment, body scan meditation and 3-minute breathing space with mindfulness and directing attention to daily routine such as brushing the teeth with focus and consideration were presented.</td>
</tr>
<tr>
<td>Third session</td>
<td>The content of the third session included physical postures with mindfulness; therefore, starting with 3-minute breathing space it was followed by sitting meditation, and members came to realize the wandering mind through body scan and breathing. Then, there was a discussion of unpleasant daily experiences. And finally, the training pamphlets were handed out; and 3-minute breathing with mindfulness, and logging the pleasant daily events was assigned for the first, third and fifth days of the week.</td>
</tr>
<tr>
<td>Forth session</td>
<td>This session was to teach how to stay in the present. It started by 45-minute body scan followed by 5-minute watching or hearing with mindfulness. Then there were a discovery of unpleasant experiences, definition of chronic and severe fatigue causing from depression. The next was a practice of 3-minute breathing for the conditions that one experiences hard feelings. The home assignment were sitting meditation and walking with mindfulness.</td>
</tr>
<tr>
<td>Fifth session</td>
<td>The fifth week started by acceptance with sitting meditation. Then there was 3-minute breathing and acceptance and discovery of thoughts and feelings and creating a new relationship different from the experiences. Sitting meditation and 3-minute normal breathing was assigned for home practice.</td>
</tr>
<tr>
<td>Sixth session</td>
<td>In this week, the reflections with no true origin were considered and the subjects’ problems and their emotions they involve in while doing the assignments were reviewed. Then, there were a 45-minute body scan and review of the discussion on the unreal reflections. The assignments were 3-minute sitting meditation, bringing the daily experiences to awareness, and working on a personal relapse prevention plan.</td>
</tr>
<tr>
<td>Seventh session</td>
<td>The seventh session taught how to best take care of ourselves by sitting or 4-dimension meditation. It was followed by exploring the relation of the mood and activity, and preparing a list of favorable daily activities and those which arouse unfavorable feelings in the individual. Then, there was a discussion on how to increase the useful activities and to avoid those which cause a recurrent relapse. Finally, 3-minute breathing and a statement of a problem and exploring its effect on the mind and the body followed. The assignments were 3-minute breathing space for a pleasant event and mindfulness of a new daily routine.</td>
</tr>
<tr>
<td>Eighth session</td>
<td>This session started by a 45-minute body scan and 3-minute breathing. Then, whatever that is learned in the classes were reviewed. And finally, some questions were raised with regard to all the sessions such as whether the participants’ expectations have been fulfilled.</td>
</tr>
</tbody>
</table>
**Results**

In the experimental and control group, 66.7 percent, 16.7 percent, 8.3 percent and 8.3 percent of the members were married, single, widowers and divorced respectively. In the experimental group, 83.3 percent had diploma degrees, 8.3 percent held associate degrees, and 8.3 percent held masters/bachelor’s degrees. In the control group, all members had diploma degrees. The mean of the participants’ age in the experimental group was 30.92 and in the control group was 33.2 years. The mean of the subjects’ duration of drug abuse in the experimental group was 8.28 and in the control group was 8.66.

The descriptive statistics of the variables by the scales and groups have been presented in the table below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Number</th>
<th>Pretest Mean</th>
<th>Pretest SD</th>
<th>Posttest Mean</th>
<th>Posttest SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>Experimental</td>
<td>12</td>
<td>21.43</td>
<td>3.14</td>
<td>16.54</td>
<td>3.22</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td></td>
<td>19.87</td>
<td>3.46</td>
<td>19.03</td>
<td>3.66</td>
</tr>
<tr>
<td>Rumination</td>
<td>Experimental</td>
<td>12</td>
<td>79.13</td>
<td>6.54</td>
<td>74.12</td>
<td>7.15</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td></td>
<td>78.11</td>
<td>5.98</td>
<td>77.87</td>
<td>7.11</td>
</tr>
</tbody>
</table>

To investigate the effectiveness of group mindfulness based cognitive therapy on decreasing the participants’ rumination and depression, Multivariate analysis of covariance was used. Before running the analysis, the assumption of homogeneity of variances was tested. The result of Levene’s test shows that the data did not violated the assumption both in depression variable (F=1.396, P>0.05) and in rumination (F=3.313, P>0.05). The assumption of equality of covariance matrices was checked by Box’s test, which the result showed that the assumption has been met (F=0.78, P>0.05). The result of multivariate analysis suggest a significant difference in the linear combination of variables (Wilks’ Lambda=0.452, F=2.93, P<0.01). To investigate the difference in patterns, univariate analysis of variance was used as below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>F</th>
<th>Sig.</th>
<th>Size effect</th>
<th>Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>1</td>
<td>7.967</td>
<td>0.009</td>
<td>0.235</td>
<td>0.776</td>
</tr>
<tr>
<td>Rumination</td>
<td>1</td>
<td>8.074</td>
<td>0.009</td>
<td>0.237</td>
<td>0.781</td>
</tr>
</tbody>
</table>

As it is observed, mindfulness based cognitive therapy has caused a decrease in depression and rumination scores.

**Discussion and Conclusion**

The present study aimed at investigating the group mindfulness based cognitive therapy on the reduction of rumination and depression of female drug addicts under methadone maintenance treatment. Findings suggest that
participation in sessions of group mindfulness based cognitive therapy leads to a decrease in the addicted women’s rumination and depression. The findings are in line with Kingston et al. (2007), Williams et al. (2006), Fairfax (2008), Pradhan et al. (2007), Grossman et al. (2007), Mckim (2008), Paul et al. (2012), Dimidjian et al. (2014), Edward (2010), Khanna & Greeson (2013). The above-mentioned studies indicate to the positive effects of mindfulness based cognitive therapy on decreasing rumination, automatic thoughts underlying depression, depression symptoms and temptation to use drug. A decrease in depression symptoms along with raising the level of mindfulness proposes a relationship between mindfulness and depression and confirms those research findings that suggest a negative correlation between mindfulness and depression. In this regard, Barnhofer et al.’s (2009) study shows that mindfulness correlates with lower anxiety levels and increased wellbeing. Conscious awareness (as one dimension of mindfulness) plays a role in severity of depression. High scores of self-reported conscious awareness relates to less severe self-reported symptoms of depression (Crane, 2013). Jimenez’s (2005) study also demonstrates a negative direct correlation between mindfulness and rumination and symptoms of depression (quoted in Fairfax, 2008). The studies show mindfulness based therapy causes a decrease in depression symptoms and supports the existence of such a relationship. A plausible explanation for these findings is that mindfulness based cognitive therapy integrates the interventions related to cognitive behavioral therapies which is based on the principle of “change” with teachings and techniques of Zen’s eastern philosophies which is based on the principle of "acceptance", and on this account, it proposes effective interventional methods which could be used in group therapy. The first and one of the most important factors of change in mindfulness based cognitive therapy is the basic mindfulness. Basic mindfulness whose infrastructure is built on acceptance of unfavorable experiences and different emotional states, significantly raises the individual’s ability to control the impressibility of his thoughts and emotions, and allows the individual to experience a wide spectrum of thoughts and emotions in his mind without experiencing emotional turmoil. Moreover, while facing the automatic thoughts which in case of having emotional load turn to rumination, basic mindfulness with its high potential to reduce anxiety and stress and to raise focus, causes the individual to keep his emotional stability and not pay unnecessary attention to the annoying thought but watch the thought passing by his mind. This capability prevents the automatic thoughts to develop excessive obsession that they used to bring about, and to turn to rumination (Teasdale et al., 2009).

Mindfulness based cognitive therapy helps the individuals go beyond their patterns of rumination with the aid of variables like increased peace and inner consciousness and through mindfulness techniques, decreasing negative emotions related to unfavorable thoughts and feelings, increasing distress tolerance, training the identification and replacing of inefficient and negative
beliefs and raising people’s awareness. In addition, it helps the individual take better cognizance of the forces related to the relapse of the disease in his mental and physical processing, change his cognitive and processing system, prevent his thoughts and emotions to agitate him, realize the antecedent symptoms of his unfavorable thoughts, increase his tolerance and prepare to face them. This causes the individual to be able to lower the effect of negative thoughts on his mood and not to experience depression in the presence of negative automatic thoughts. On the other hand, along with mindfulness, the individual within himself establishes a framework with the behavior of kindness, curiosity and the satisfaction of being in the present moment. Eventually, with true understanding, one realizes that although suffering is part of our experience, there are ways we can develop new habit patterns and contemplate them (Crane, 2013). In general, the findings show that mindfulness based cognitive therapy results in a decrease in rumination and depression of addicted women under methadone maintenance treatment. The results of the present study and the previous researches support the conclusion that intervention and methods of mindfulness based cognitive therapy could improve the mental health of the female addicts who are under the methadone maintenance treatment. One limitation of the study is that the results could not be generalized to male addicts. The other is the limited access to a larger sample which caused the researcher not to compare the effectiveness of this method to another intervention. Another limitation is the lack of long-term comparison as a follow-up measure that limits the conclusions about sustainability of outcomes. It is suggested that researchers compare and contrast this method with other cognitive-behavioral strategies and investigate the effectiveness of this method in drug use temptation and decrease of the relapse into drug abuse.

Reference


