On the Effectiveness of Curriculums based on Cognitive-Behavioral Therapy in the Increase of Self-Efficacy and Resilience among the Addicts under Methadone Maintenance Treatment

Mohammad Akbari-Boorang, Mohammad Hassan Dalakeh, Reza Saberi, Bahman Yasbolaghi

Mohammad Akbari-Boorang
Assistant Professor, Curriculum Development, Faculty Educational Sciences and Psychology, University of Birjand, Birjand, Iran,
Email: Akbaryborng2003@birjand.ac.ir

Mohammad Hassan Dalakeh
M.A. in clinical Psychology, Birjand, Iran

Reza Saberi
Assistant Professor, Department of Educational Sciences, Farhangian University, Tehran, Iran

Bahman Yasbolaghi
Assistant Professor, Department of Educational Sciences, University of Arak, Arak, Iran

Research on Addiction Quarterly Journal of Drug Abuse

Presidency of the I. R. of Iran
Drug Control Headquarters
Department for Research and Education

Vol. 10, No. 38, Summer 2016
http://www.etiadpajohi.ir/

Abstract

Objective: The present study aimed to investigate the effectiveness of the curriculums based on cognitive-behavioral therapy in the increase of self-efficacy and resilience among the addicts under methadone maintenance treatment. **Method:** For this purpose, 60 patients under methadone treatment whose records were available at the private addiction treatment center, named Zirkouh Tavakol at Zirkouh city were selected using random sampling. Then, they were assigned to two groups, i.e. experimental group (30 patients) and control group (30 patients). The experimental group received 12 sessions of Carroll's cognitive-behavioral therapy while the control group only received methadone treatment. Self-efficacy and resilience scales were administered to both groups before and after the treatment. **Results:** The results showed that cognitive-behavioral therapy had a positive effect on self-efficacy in patients under methadone treatment ($P < 0.05$). In addition, the results showed that cognitive-behavioral therapy had no significant effect on resiliency. **Conclusion:** The results of this research have clinical and applied implications.

Keywords: cognitive-behavioral therapy, patients under methadone treatment, self-efficacy, and resilience

Introduction

Drug addiction is one of the most significant psychological injuries that inflicts tens of thousands of victims every year and imposes hundreds of billions of dollars and irreparable damage on individuals, families, and the entire global community and leads to the incidence of individual, familial, and social issues. The incidence and persistence of addiction may be influenced by the interaction of various genetic, psychosocial, and environmental factors that have an interactive effect on each other. This indicates that addiction or substance abuse is a multidimensional phenomenon. Thus, if only one of the factors is taken into account in the fight against drug addiction and other factors are overlooked, other factors will reduce the influence of this factor (Vojoodi, Abdolpour, Bakhshipour Roodsari & Atarod, 2014). In a recent report, the United Nations Office on Drugs and Crime has declared that Iran has the highest number of drug dependent people among the countries of the world. In support of this claim, the National Welfare Organization has also announced that the annual growth of drug abuse in the country is approximately 8%. However, the annual population of the country grows around 2.6%. Accordingly, the number of drug-dependent people grows more than 3 times of the population annually (Sarrami, Ghorbani & Minooei, 2012). The problem of drug use abstinence is one of the issues that has always been put on agenda by the authorities as well as the drug abusers and their families. The physical withdrawal of narcotics is not that much problematic; however, the major problem in the treatment of addicts even with prolonged periods of purity is the high rate of relapse (Doostian, Shafi Abadi, Koosheh & Masah, 2013). Amini, Amini, Afshar & Azar (2003) have mentioned the rate of drug use relapse about 75%.

Resiliency and self-efficacy are among the factors that can affect relapse into drug use. Resilience is one of the most important strategies for health promotion approach that has become the focus of addiction prevention experts' attention in recent years. Resiliency is referred to as the process of tolerating bitter experiences (Masten, 2001, Luthar & Cicchetti, 2000). Resiliency is defined as the ability to withstand stress and return to the natural balance after experiencing stressors (Werner, 2004). The term self-efficacy is founded upon Bandura's social cognitive theory and refers to one's personal beliefs on how well s/he can be effective in changing him/herself. According to Bandura's social learning theory, drug use arises from taking model of the individuals with positive expectations of drug use. In other words, the existing models and patterns in the life environment encourage and reinforce the person to turn to drug use. Many of treatment seekers with substance abuse have particular patterns of thought that cause the continuity of the disorder and may prevent the creation of any change (Beck, Writhing, Newman & Liese, 1993). These patterns of thought include the person's beliefs associated with expectations, beliefs associated with the permissibility of drug use, and the beliefs on drug use. These beliefs also

entail ideas about pleasure-seeking, problem-solving, dominance, and escape that are likely to have been formed in childhood (Beck et al., 1993). Evidence shows that self-efficacy is a variable that can be involved in relapse prevention (Shariati, Izadikhah, Molavi & Salehi, 2013). The individuals who demonstrate a higher level of self-efficacy to stop smoking are more likely to stop it (Gray, Watson & Carpenter, 2011). For this reason, experts have proposed that relevant entities and authorities should lay emphasis on positive affects and emotions, such as self-esteem, feelings of competence, and personal effectiveness in relation to addiction. The underlying assumption is that people get inclined towards addiction due to low self-esteem and lack of self-efficacy (Shariati, Izadikhah, Molavi & Salehi, 2013). One of the approaches used for the prevention of relapse and promotion of behavioral change is the method of increasing self-efficacy. The strategic self-efficacy is designed to increase one's sense of mastery and ability to gain success in difficult situations without lapsing. A large number of studies have shown that self-efficacy is effective in the addiction prevention, addiction treatment, and relapse prevention; and cognitive-behavioral therapy also increases self-efficacy (Kamarzarin, Zare & Brooki Milan, 2011; Khalatbari, Ghorbat Shiroodi & Shokrgozar, 2011; Oraki, 2008; and McHugh, Hearon & Otto, 2010).

Cognitive-behavioral therapy is a psycho-social training program whose main activity is learning new skills and the application of these skills in therapy sessions and at home in doing homework tasks and in real life. It involves the cognitive techniques, drug-related beliefs, and automatic thoughts that are involved in desires. Behavioral techniques focus on the actions and behaviors that are in causal interaction with cognitive processes (Beck et al., 1993; cited in Ghorbani, Mohammadkhani & Sarrami, 2012).

In cognitive-behavioral therapy, the therapist helps the patient use his/her experiences in assessing the correctness or incorrectness of his/her own beliefs. The aim of this therapy is to identify and rebuild irrational beliefs and the schema related to the self, others, and the world that have a fundamental role in the production of emotional disturbance and maladaptive behaviors. This approach is inherently participatory and increases the patient's self-efficacy. In addition, the reinforcement of coping skills, the training of interpersonal and intrapersonal skills, and strengthening of control over painful emotions, such as anxiety and anger constitute the main tasks in this treatment. In this perspective, the clients' acquaintance with problem-solving skills helps them think of all aspects of the situations and keep it in mind that the steps leading to response are more based on their instincts, feelings, and emotions. When clients experience success in problem-solving, their self-efficacy will also increase (Shariati et al., 2013). In recent years, this type of treatment has been improved and the methods have been developed as its byproducts that are widely in the treatment of depression, anxiety, phobia, pain, and addiction.

In a study on four clinical cases of male addicts, Nik (2006) reported the cognitive-behavioral therapy to be effective. The findings clearly show that the cognitive-behavioral approach is useful in solving the problems pertaining to addiction and can be used in addiction treatment.

Research supports the effectiveness of cognitive-behavioral therapy in the improvement of substance abuse disorders (McHugh et al., 2010; Kamarzarin et al., 2011), reduced substance abuse (Ahmadkhaniha, Gharaeapour & Panaghi, 2006; Denis, Lavie, Fatseas. & Auriacombe, 2006), reduced rate of relapse (Ashori & Mollazade, 2008), and improvement of quality of life (Momeni, Moshtagh Beidokhti, & Poorshahbaz, 2010). Oraki & Matboo'ea (2010) carried out a research to assess the effectiveness of cognitive-behavioral in the improvement and prevention of substance abuse and came to the conclusion that the cognitive-behavioral therapy is effective in reducing the rate of relapse, increasing the length of stay in treatment, reducing drug use, and improving social performance. Alavi Langroodi & Nikzad Moghadam (2015) assessed the effectiveness of cognitive-behavioral therapy in reducing the degree of relapse into drug addiction in university students. Their findings indicated that cognitive-behavioral therapy has been effective in reducing addiction relapse rates of addicted students and has acted successfully in refraining them from relapse into drug use. McHugh et al. (2010) provided some pieces of evidence for the use of cognitive-behavioral therapy to improve substance abuse disorders. They emphasized the application of learning, cognitive, motivational, and coping strategies as supportive elements throughout the treatment process. Ghorbani, Mohammadkhani & Sarrami (2011) compared the effectiveness of group-based cognitive-behavioral therapy based on coping skills and methadone maintenance therapy in the improvement of cognitive and behavioral factors associated with substance use and substance use abstention. Based on their results, cognitive-behavioral therapy led to the significant reduction of drugs beliefs and tempting opinions as well as the significant increase of self-efficacy and emotion regulation compared to methadone maintenance treatment. In this area, Fierro (2009) also showed that the cognitive-behavioral method has been the most effective method from among a variety of different treatment models in terms of recovery from drug addiction.

Given the role of self-efficacy and resiliency in addiction abstinence and withdrawal and the impact of the cognitive-behavioral approaches on self-efficacy and resiliency, this study attempted to investigate the effect of cognitive-behavioral approach on self-efficacy and resiliency among the addicts under methadone maintenance treatment.

Method

Population, sample, and sampling method

This study was carried out to investigate the effectiveness of cognitive-behavioral therapy in the increase of self-efficacy and resiliency among the addicts under methadone maintenance treatment at Zirkouh city. A quasi-experimental design along with pretest and posttest and control group was employed for the conduct of this study. The statistical population of this study included the addicts who had presented to the treatment center in Zirkouh city for at least three months in order to receive methadone maintenance treatment. The number of 60 patients undergoing methadone maintenance treatment was selected as the sample units of the study via purposive sampling. The participants were selected according to the criterion of length of methadone maintenance treatment (at least 3 months), aged from 20 to 50 years, and the lack of serious psychiatric illnesses. Then, the 60 selected participants were randomly assigned to experimental and control groups (30 in each group). The experimental group received 12 cognitive-behavioral therapy sessions and, then, these participants were evaluated according to Carroll's treatment protocol.

Instruments

1. Sherer's General Self-efficacy Scale: This questionnaire was developed by Sherer et al. and contains 17 items. Sherer & Maddux (1982) did not specify the factors and expressions of the questionnaire and believed that this scale encompasses three dimensions of behavior, including the desire to boot the behavior, the desire to expand the effort to complete a task in the face of adversity, and different measures. The questionnaire items are scored based on a 5-point Likert scale (strongly disagree = 1 to strongly agree = 5). The items numbered 3, 8, 9, 13, and 15 are scored in reverse. The higher score reflects higher levels of self-efficacy. The descriptive statistics and alpha coefficients are presented in the table below for each component.

Table 1: Descriptive statistics and Cronbach's alpha coefficients for each component

Component	*Number of items*	*Number of samples*	*Mean*	*SD*	*Cronbach's alpha*
Total self-efficacy	16	344	62	8.73	0.83
First factor	7	344	25.79	4.44	0.76
Second factor	6	344	21.65	3.58	0.68
Third factor	3	344	11	2.06	0.56

In terms of criterion validity, the correlation of the questionnaire score with Rotter's Locus of Control Scale score was calculated, which was significant at the level of 0.01. In addition, the correlation of the questionnaire score was

calculated with Rotter's Internal Locus of Control, which was revealed to be equal to 0.33 9significant at the level of 0.01).

2. Connor – Davidson Resilience Scale (CD – RISC): The scale was developed by Connor & Davidson's (2003) review of the research resources in the field of resiliency from 1979 to 1991. The psychometric properties of this scale have been assessed in six groups, i.e. general population, patients presenting to the primary care ward, psychiatric outpatients, patients with generalized anxiety disorder, and two groups of patients with post-traumatic stress. The scale designers believe that it is capable of making distinction between resilient and non-resilient individuals in clinical groups and it can be used in research and clinical situations. This scale consists of 25 items that are scored based on a Likert scale from zero (not at all true) to four (nearly always true). Factor analysis results yielded five factors, including personal competence, trust in one's instincts, tolerance of negative affect, positive acceptance of change and secure relationships, and control and spiritual influences. Connor & Davidson have reported the Cronbach's alpha coefficient of 0.89 for Resilience Scale. In addition, the test-retest reliability coefficient of the scale has been reported to be equal to 0.78 within a 4-week interval. The questions numbered 10, 11, 12, 16, 17, 23, 24, and 25 measure the component of personal competence. The items numbered 6, 7, 8, 14, 15, 19, and 20 measure the component of trust in one's instincts; the items numbered 1, 2, 4, 5, and 9 assess the component of positive acceptance of change; the items numbered 13, 21, and 22 measure the component of control; and, finally, items numbered 3 and 9 evaluate the component of spiritual influences. In Iran, this scale has been validated by Mohamadi (2005) and the Cronbach's alpha coefficient of 0.89 has been obtained for this scale. In terms of validity, the correlation of each of the items was first calculated with the total score and, then, factor analysis was conducted. Except for the item numbered 3, the correlation of each of the items with the total score yielded values from 0.41 to 0.64. Afterwards, the scale items were factor analyzed using principal component method.

Procedure

After sample selection (60 participants) via purposive sampling method based on the inclusion and exclusion criteria, they were randomly assigned to two experimental and control groups. The experimental group received 12 one-hour cognitive-behavioral therapy sessions while each session had been divided into three 20-minute parts. The first 20 minutes were focused on gaining a clear understanding of the patients' current concerns, their total performance, and the degree of substance use and the desire for substance use during the previous week. In the second 20 minutes, participants introduced themselves and discussed a particular skill. In the final 20 minutes, the therapist and patients reached a consensus on the patients' practical assignments for the next week and

the possible problems that patients were likely to encounter before the following session were predicted and relevant planning was made (in cognitive-behavioral therapy, this is called 20/20/20 Rule) (Carroll, 2008). The treatment was performed individually and each patient received 12 sessions alone (one session per week).

Results

The descriptive statistics of the research variables are presented in the table below for each group and test stage.

Table 2. Descriptive statistics of the variables for each group and test stage

Variable	*Group*	*Test type*	*N*	*Mean*	*SD*
Self-efficacy	Experimental	Pre-test	30	32.38	8.93
		Post-test	30	64.36	11.55
	Control	Pre-test	30	41.44	4.74
		Post-test	30	43.10	9.34
Resiliency	Experimental	Pre-test	30	42.19	4.26
		Post-test	30	77.46	7.02
	Control	Pre-test	30	56.06	12.75
		Post-test	30	71.30	16.68

Analysis of covariance was used to investigate the effect of cognitive behavioral therapy on self-efficacy in patients under methadone maintenance treatment. The results of covariance analysis are presented in the table below.

Table 3: ANCOVA results on the effectiveness of the treatment on self-efficacy

Source	*Mean Square*	*F*	*Sig.*
Pre-test	163.71	1.494	0.28
Group	5772.97	52.700	0.0005
Error	109.54	-	-

As it is observed in the above table, cognitive-behavioral therapy has been effective in increasing self-efficacy scores ($P < 0.001$; $F = 52.700$).

MANCOVA was used to evaluate the effect of the treatment on the components of resiliency. The results showed that there is a significant difference between the two groups in terms of the components of resiliency ($P < 0.01$; $F = 11.92$; Pillai's Trace = 0.55). Univariate analysis of covariance was used to examine the patterns of difference as follows.

Table 4: Results of ANCOVA for examining the patterns of difference

Component	*Mean Square*	*F*	*Sig.*
Personal Competence	293.30	25.850	0.0005
Tolerance of negative affect	59.49	5.920	0.018
Secure relationships	86.07	11.670	0.001
Control	73.88	19.900	0.0005
Spiritual influences	44.36	19.510	0.0005

As it is observed in the above table, cognitive-behavioral therapy has led to the improvement of all components of resiliency in addicts.

Discussion and Conclusion

The current findings indicated that cognitive-behavioral therapy has had a significant effect on the increase of self-efficacy in patients undergoing methadone treatment. This research findings is consistent with those of the studies conducted by Kamarzarin et al. (2011); Carroll, Ball, Martino, Nich, Babuscio & Rounsaville (2009); Jafari, Shahidi & Abedin (2009); Khalatbari et al. (2011), and Fisher & Scot (1996). It is also consistent with other research findings as follows. For example, Tavoosi et al. (2011, cited in Doostian et al., 2013) supported the effect of increased self-efficacy on drug use prevention. Larimer & Palmer (1999) also showed that cognitive-behavioral programs lead to the growth of coping skills and the increase of self-efficacy in treatment seekers and also significantly prevent drug use relapse. Hyun, Chung & Lee (2005) argued that cognitive-behavioral therapy significantly reduced depression and increased self-efficacy in the experimental group. Tate, McQuaid, Cummins, Shriver & Krenec (2008) reached the conclusion that cognitive-behavioral therapy increases the self-efficacy of abstinence in drug-dependent people. In the same way, Doostian et al. (2013) conducted a study on the effectiveness of group cognitive therapy based on mindfulness and spiritual schema activation in the prevention of opioid abuse relapse and concluded that cognitive-behavioral approach is effective in the increase of self-efficacy in opioid-dependent patients. Moreover, this finding is also consistent with those of the studies carried out by Mollazadeh & Ashoori (2009); Khodayarifard et al. (2008); Marques & Formigoni (2001); Naar-king, Wright, Parsons, Frey, Templin & Ondersma (2006); and Fisher & Scott (1996); Yen, Wu, Yen & Ko (2004) where it was shown that cognitive-behavioral therapy has been effective in the increase of self-efficacy and the improvement of drug addiction symptoms in addicted patients.

In addition, a meta-analysis was done to review the interventions aimed at increasing self-efficacy in changing addictive behaviors in addicted groups, and the results showed that self-efficacy can be increased using various interventional methods, one of which is cognitive-behavioral therapy for addicts that has been used in numerous clinical studies and has had positive impacts on self-efficacy (Hyde, Hankins, Deale & Marteau, 2008; French, Roebuck, Dennis, Godley, Liddle & Tims, 2003). Therefore, cognitive-behavioral therapy has a considerable impact on self-efficacy and resilience among the addicts under methadone treatment. Several factors are effective in the etiology of substance abuse that lead to the start of drug use and the incidence of addiction. Self-efficacy and resilience are two of these important factors. The concept of self-efficacy is synonymous with the "I can" approach in life, and, in fact, the "I

can" belief constitutes the basic concept of self-efficacy. Thus, an increase in one's self-efficacy can immunize the individual against environmental pressures (Badr & Moody, 2005; Naar-king et al., 2006). Studies have also shown that substance abuse is associated with mental health and resilience. Mark & Brown (2001; cited in Buckner, Mezzacappa & Beardslee, 2003) showed that there is a significant overlap between resilience and substance abuse prevention. Cognitive-behavioral addiction makes the patient acquire coping skills necessary to manage the high-risk situations in addition to enjoying an efficient and resilient conception. It also leads the patient to believe that s/he can control drug use. The key to the success of cognitive-behavioral therapy is that the treatment emphasizes the identification of patients' cognitive errors and their consciousness. In fact, this process of the identification and consciousness of thoughts can never be done by drug therapy and, thereby, it is necessary to put a great emphasis on cognitive-behavioral therapies.

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