

Abstract

Objective: The aim of this study is to investigate the effectiveness of mindfulness-based group therapy in relapse prevention, prevention of substance craving, and self-control in male opiate-dependent individuals of Yasuj. **Method:** A quasi-experimental research design along with pretest-posttest and control group was employed for this study. The sample included 30 male addicted participants in Yasuj who were chosen from among the drug-dependent persons referring to treatment clinics via criterion sampling. For data collection, the short form of Tangney's self-control scale and desire for drug questionnaire were used. The experimental group received eight two-hour sessions of mindfulness training (one session per week). **Results:** The results showed that the mean score of the experimental group in desire for drug use experienced a decrease compared to the control group and this value increased in terms of self-control. In addition, the relapse rate in the experimental was lower than that in the control group. **Conclusion:** Mindfulness-based relapse prevention has practical functionality for clinical interventions towards reducing desire for drug use and relapse rate and increasing self-control among addicts.

Keywords: Relapse Prevention, Mindfulness, Self-Control, Desire for Drug Use

The Effectiveness of Mindfulness-Based Group Therapy in Relapse Prevention, Prevention of Substance Craving, and Self-Control in Opiate-Dependent Individuals

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Introduction

Today, substance use disorders and their unpleasant consequences are among the most important public health problems worldwide (Dalley & Marlatt, 2005). United Nations Office for Drug Control and Crime Prevention (2005) estimated the number of 15-to-64-year drug users to amount to 200 million people, among whom 16 million individuals of them have been estimated to be opiate users. Due to the geographical situation of Iran, its neighborhood with Afghanistan and Pakistan, and its young population, addiction is increasingly spread among adolescents (Barghi, 2002). The first national extensive review by the Ministry of Health and Medical Education in collaboration with the Office of Drug Control and Crime Prevention estimated the number of opium and heroin users amounted to 3.67 million people, among whom the number of 1.39 million people has been recognized as substance abusers and the number of 1.16 million people has been recognized as drug-dependent individuals. In recent years, models, strategies, and various techniques have been devised to prevent and treat addiction and also to prevent addiction relapse after abstention in developed countries. However, a definitive method has not been found to treat addiction (Kaldavi, Borjali, Falsafinejad & Sohrabi, 2011).

Although a large number of drug users tend to change their life styles, the existence of numerous difficulties in treatment process causes relapse and treatment failure (Ravandal & Vaglum, 2002). Thus, the major problem in addiction treatment is the high rate of relapse even with prolonged periods of purity (Yan & Nabeshima, 2009). McLellan, McKay, Forman, Cacciola & Kemp (2005) concluded that about 50-60% of patients within 6 months after treatment relapse into drug use regardless of the type of discharge, patient characteristics, and substance type.

Self-control as another important variable in addiction refers to interpersonal conflict between logic and passion, between cognition and motivation, between internal planning and external operation in which the first part of each of these couples dominates the second part (Rachline, 1995). The concept of self-control in Bandura's social learning theory reflects the fact that this concept is learnable and teachable (Butler, 2000). Some studies have referred to low self-control as a key factor for substance abuse (Sussman, Dent & Lue, 2003; Allahverdi Poor, Shafi'i, Azadfallah & Imami, 2006, and Ford & Blumenstein, 2013). It seems that people who have low self-control pay less attention to the consequences of their behavior (Logue, 1998) and try to quickly satisfy their desires (Sorenson & Brownfield, 1995). According to what was mentioned, it is inferred that non-medicinal treatments and the reduction of relapse rates are among the most important areas that seem to have attracted therapists and patients' attention. In this regard, Witkiewitz, Marlatt & Walker (2005) combined the studies of more than two decades on relapse prevention as an important treatment for drug dependence based on existing techniques of mindfulness and proposed a new

cognitive-behavioral intervention for substance use disorders in the name of mindfulness-based relapse prevention. The first wave of behavioral therapy was rooted from the conceptual framework of behaviorism and was formally begun with the introduction of operant and classical conditioning techniques in the 1950s (Ost, 2008).

The second wave of cognitive therapy was introduced for the first time by Beck in 1970 on depression, anxiety disorders, and eating disorder (Hayes, 2004). At the end of the 80s, some integration of behavioral therapy and cognitive therapy in the name of cognitive-behavioral therapy came true (Ost, 2008). The third wave of behavioral therapy commenced in the early 1990s with the development of innovative therapies in which principles of mindfulness were used and awareness of the present moment and its acceptance were emphasized (Cardaciotto, 2005). In general, this therapy of the third wave is referred to as acceptance and mindfulness-based behavioral therapy which includes a range of approaches. Some of these approaches include mindfulness-based cognitive therapy, acceptance and commitment therapy, dialectical behavior therapy, behavioral activation, and mindfulness-based relapse prevention. With emphasis on topics such as acceptance, mindfulness, values, spirituality, relationships, and dialectics, these approaches have entered into the areas that have been ignored in clinical practices due to their fewer experimental angles in traditional cognitive behavioral approaches (Hayes, Luoma, Bond, Masuda & Lillis, 2006; Baer, 2003). Over the past decade, mindfulness has received unprecedented attention on part of the scientific community and is defined as the step by step awareness that is obtained from purposeful attention, along with acceptance without judgment of existing experiences (Kabat, 2003; cited in Dabaghi, Asgharnejad Farid, Atefvahid & Bolhari, 2007). Such therapies are currently used in the treatment of substance abuse disorder (Leigh, Bowen & Marlatt, 2005). Some researchers believe that the use of mindfulness in combination with traditional cognitive behavioral techniques can enhance the effectiveness of the treatment and cause relapse prevention due to its latent mechanisms such as acceptance, awareness raising, desensitization, mindfulness, observation without judgment, confrontation, and release (Witkiewitz et al., 2005; Breslin, Zack & McMain, 2002; and Spinella, Martino & Ferri, 2013). Kabat-Zinn's therapeutic approach for the treatment of substance abuse includes bodily check, or technical knowledge of the body and entails a series of deliberate changes which focuses on the whole body at the beginning and, then, focuses on every part of the body without judgment (1990). In this regard, Dabaghi, et al. (2007) arrived at the conclusion that mindfulness-based cognitive therapy and cognitive-behavioral methods are effective in the reduction of relapse rates, increase of treatment compliance, increase of retention in treatment, reduction of opioid consumption, decrease of physical symptoms and anxiety, and the betterment of the impact of spirituality on behavior compared to naltrexone. In a review article entitled "The third wave of behavioral therapy with emphasis on

acceptance-based behavior therapy”, Zargar, Mohammadi, Omidi & Bagherian Sararoudi (2012) have addressed therapies pertaining to the third wave of behavioral therapy and have found this method effective in the prevention of relapse into opiate use. Kiyani, Ghasemi & Pourabbas (2012) concluded that both acceptance and commitment-based therapy and mindfulness-based therapy influence the severity of desire for drug use in post-test and follow-ups and reported that both methods are equally effective in cognitive regulation parameters. In a study entitled “Mindfulness meditation for substance use disorders: A systematic review”, Zgierska et al. (2009) reviewed 25 eligible studies and reached the conclusion that mindfulness-based methods are effective and safe. In a study, entitled “Mindfulness-based relapse prevention for substance craving”, Witkiewitz, Bowen, Douglas & Hsu (2013) argued that latent factors in the scores of acceptance and awareness have a significant mediating role in the relationship between mindfulness reception and self-report levels of craving after treatment and claimed that clients experience a non-judgmental attitude in this therapeutic method. Overall, a lot of research such as Bowen et al (2009); Witkiewitz, Lustyk & Bowen (2012); Bowen & Vieten (2012) have confirmed the effectiveness of mindfulness-based relapse prevention. Since the third wave therapy treatments are considered new methods and the basic need of our community for the treatment of addiction is obvious; therefore, the present study was mainly aimed at investigating the effectiveness of mindfulness-based group therapy in relapse prevention, prevention of substance craving, and self-control in male opiate-dependent individuals of Yasuj.

Method

Population, sample, and sampling method

The present study is an experimental design with pretest-posttest and control group. After the definitive diagnosis of opioid dependence from the population of the study, 30 participants were selected via simple random sampling method and, then, were randomly assigned to 15-person experimental and control groups. The study sample included all the men who referred to treatment clinics of Yasuj in 2013 in order to receive treatment in accordance with Diagnostic and Statistical Manual of Mental Disorders. The sample of the study included 30 male addicted participants who were randomly selected among those with the necessary criteria for inclusion in this study. Since the mere administration of mindfulness-based therapy on addicts is often difficult, naltrexone is used in treatment in order to prevent substance relapse. To this end, after initial detoxification period, the experimental group received mindfulness-based relapse prevention method and were given urine test every week. The second group was the control group that received no psychological intervention and just

weekly referred to take urine test, and after each test just received naltrexone. Necessary measures were taken in terms of the measurement of the research variables (i.e., relapse, substance craving, and self-control) before and after the conduct of the above-mentioned treatment method. The criteria for the inclusion of participants in the study were as follows: placement in the 20-50-year age range, the availability of diagnostic criteria in accordance with Diagnostic and Statistical Manual of Mental Disorders before the start of treatment, not taking anti-psychotic drugs, being male, minimum education level of junior high school, and successful presence in detoxification process for at least one week. Exclusion criteria were: reluctance for participation in the treatment period, simultaneous presence in other health programs, and suffering from psychotic diseases and serious physical illnesses that prevent attendance in treatment sessions.

Method

The experimental group was put under mindfulness-based relapse prevention treatment and, accordingly, received eight two-hour sessions of mindfulness training (one session per week). The content of mindfulness-based relapse prevention intervention is derived from the treatment protocol designed by Bowen, Chawla & Marlatt (2010). The first session was related to the automatic direction and relapse, practice of mindfulness principles using automated guided empirical sense arising from the simple experience of eating a raisin a day against feeling of being at the present moment, and the emphasis on the relationship between reactivity, automatic guidance, and relapse. In addition, bodily check-up was conducted to address attention to and awareness of the present moment. In the second session, awareness of triggers and craving was taken into consideration and some other techniques and strategies such as the recognition of these obstacles, the nature of mind, the nature of our habitual tendencies, and the way of extrication from these cravings were elaborated on. Use of meditation and correct breathing to become familiar with the temptation of drug cravings and its resultant feelings and how to put curbs on them were presented. In the third session known as mindfulness in daily life, it was reiterated that everything in life can be an opportunity to practice mindfulness and can be useful to return to the present. In addition, some examples were given and discussed, such as waiting the traffic lights, hearing the phone ring, sitting and drinking a cup of tea or coffee, and lying down before sleep, before anger and irritation. In the fourth session, mindfulness in high risk situations was taught. Other items of the sessions were as follows: work and focus on everyday problems, seeing or hearing five minutes of exercise, our relationship with the problems of life, sitting-mode meditation practice, the definition of high risk situations, identification of individual risk states, breathing practice, acceptance, and abandonment of the struggle with reality. In the fifth session known as

acceptance and skilful action, activities such as sitting-mode meditation (along with poetry of Rumi), a critical review of practices and exercises, short and brief spatial breathing, discussion on the usefulness of these techniques in extreme conditions, direction of breathing space and its review, and discussion on acceptance and change were addressed. In the sixth session known as thoughts (seeing thoughts as thoughts not reality), the following items were dealt with: sitting-mode meditation discussion on it, discussion on metaphors, practice and review of worksheet, the relation of thoughts with relapse, the fact that difficulty in substance abstinence is not equal to addiction relapse, discussion on thoughts as triggers for relapse, spatial breathing while focusing on thoughts, and discussion and mention of preparation for the end of the period. In the seventh session known as self-care and lifestyle balance, tips and suggestions for dealing with harmful factors in life, coping techniques, evaluation of the previous training session and practices, and repeated sitting-mode meditation were practiced and discussed. In the eighth session whose focus was on social support and persistence of training and practices, bodily check, review of practices, and balance sheet review were practiced and discussed and, then, support network development, barriers to seeking help, return to sports, looking forward, and final meditation were fulfilled. It should be noted that homework assignments and review of them were an inseparable part of all the treatment phases.

Instrument

Desire for drug questionnaire: This questionnaire was developed to assess heroin craving at the right moment (Franken & Hendricks & Van den Brink, 2002) and, indeed, was extracted from desire for alcohol questionnaire (Love & Willner, 1998). The questionnaire consists of 13 questions and three major factors that measure substance craving. The first factor is desire and intention, which contains the items numbered 1, 2, 4, 6, 9, 12, and 13. The second factor measures negative reinforcement and includes the items numbered 5, 8, 10, and 11. The third factor is named control and includes the questions numbered 3 and 7. Cronbach's alpha coefficients for desire and intention, negative reinforcement, and control were obtained .81, .84, and .79, respectively. In addition, this scale shared a high correlation with obsessive compulsive drug use scale, visual analog scale, and their subscales (Franken et al., 2002). In Iran, the psychometric properties of the questionnaire were evaluated and appropriate reliability and validity were reported for it (Hassani Abharian & Ekhtiyari, 2008).

Short form of Tangney's self-control scale: This questionnaire consists of 13 items which have been extracted from the 36-item version of the scale. A higher score of the scale represents a person's better self-control. The scoring of the scale is accomplished based on a 5-point Likert scale with the choices as follows: "It always holds true for me." to "It never holds true for me." It is noteworthy that some of the questions are scored in reverse (Tangney, Baumeister & Boone,

2004). Tangney et al (2004) reported the Cronbach's alpha coefficient of the scale to be .89 on two samples while they reported this value to be .83 and .85 for the 13-item version on the two samples. Ridder, et al. (2011) considered two subscales of inhibitory and initiatory self-control for this version wherein the items numbered 1, 2, 5, 6, 9, and 12 belong to the inhibitory subscale, the items numbered 3, 10, 11, and 13 are related to the subscale of initiatory self-control, and the items numbered 4, 7, and 8 are unclassified. In the present study, Cronbach's alpha coefficient was obtained .83 and .67 for inhibitory and initiatory self-control, respectively.

Results

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

Table 1: Descriptive statistics of the variables or each group and test stage

<i>Variable</i>	<i>N</i>	<i>Experimental</i>				<i>Control</i>			
		<i>Pre-test</i>		<i>Post-test</i>		<i>Pre-test</i>		<i>Post-test</i>	
Substance craving	15	73.20	5.33	67.80	5.73	74.80	4.09	74.53	4.37
Desire and intention	15	40.87	1.3	38.47	1.68	41.20	1.42	40.93	1.83
Negative reinforcement	15	22.13	3.42	20.13	3.27	22.80	2.40	23.06	2.34
Control	15	10.20	1.21	8.87	1.68	10.80	1.50	10.67	1.38
Self-control	15	20.87	3.97	23.87	3.81	23.00	3.74	22.73	3.71

Multivariate analysis of covariance should be used to examine the effectiveness of the intervention. One of the assumptions for using this test is the equality of error variances. To this end, Leven's test was used and the results indicated that this assumption has been met in substance craving ($P>.05$, $F=2.323$) and self-control ($P>.05$, $F=1.499$).

The results of MANCOVA test represented the existence of a significant difference in the linear combination of the variables ($P<.01$, $F=2.323$, Wilks Lambda=.499). Univariate analysis of covariance was used to evaluate differences in patterns as follows.

Table 2: Results of univariate analysis of covariance representing differences in patterns

<i>Variable</i>	<i>Mean square</i>	<i>F</i>	<i>Sig.</i>	<i>Eta squared</i>	<i>Statistic</i>
Substance craving	200.91	29.016	.001	.52	1.00
Desire and intention	34.61	21.210	.001	.44	.99
Negative reinforcement	40.36	35.920	.001	.57	1.00
Control	9.94	9.921	.004	.27	.86
Self-control	47.77	6.670	.016	.20	.70

As it is indicated in the above table, there is a significant difference between control and experimental groups in all the components.

The descriptive statistics of relapse are presented in the following table for control and experimental groups.

Table 3: Descriptive statistics of relapse for control and experimental groups

<i>Group</i>	<i>No relapse</i>		<i>Relapse</i>		<i>Total</i>	
	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>
Experimental	11	73	4	27	15	100
Control	5	33	10	67	15	100
Total	16	53	14	47	30	100

Chi-square was used to evaluate the effectiveness of interventions in relapse. The results of this analysis indicated the significance of the difference ($P < .05$, $\chi^2 = 4.821$). In other words, it can be stated that mindfulness-based relapse prevention has been effective in reducing relapse.

Discussion and Conclusion

This study was an attempt to investigate the effectiveness of mindfulness-based group therapy in relapse prevention, prevention of substance craving, and self-control in male opiate-dependent individuals of Yasuj. The results of the study showed that mindfulness-based group therapy prevents relapse, reduces substance craving, and increases self-control compared to the control group. This finding is consistent with those of some previous studies (Hamed, Shahidi & Khademi, 2013; Dabaghi, et al, 2007; Bowen, et al., 2014; Witkiewitz, et al., 2013; Bowen, et al., 2009; Bowen & Kurz, 2012). To explain the above finding, one can state that mindfulness originates from old spiritual traditions and according to Buddhism, it is a coherent tradition of the direction that initiates with and ends in perception. It is also a tool that is used by humans in order to get rid of the growing pains and problems (Gunaratana, 2002). Therefore, mindfulness is the main part of an integrated system that helps us recognize the inner suffering of humans and provides us with the opportunity of judicious use of this treatment. Mindfulness exercises pays special attention to some the methods that opt for more powerful ways to establish and strengthen our relationship with our inner vision (Kabat-Zinn, 2005). Theoretical interest in cognitive and emotional components has made mindfulness an effective technique. Shapiro et al. (2006) have proposed a mindfulness model based on three principals of intention, attention, and attitude. Mindfulness refers to deliberate or motivational aspects of mindfulness, attention refers to mindfulness and observation of the experience at the moment of being obtained, and attitude refers to the non-judgmental nature of experiences and the acceptance of experiences. They believe that mindfulness involves various psychological

mechanisms that reduce confusion. These mechanisms are as follows: re-understanding or reframing of experiences from one perspective and a better cognitive perspective, improvement of self-regulation of emotion, increase of mental flexibility, and desensitization of annoying experiences through exposure to a lack of perceived threat. These emotional and cognitive aspects are likely to be stemmed from a framework of neuropsychology, through which mindfulness is associated with substance abuse. In this way, prefrontal brain malfunctions are viewed to be interrelated with self-regulation in drug abuse (Kalivas & Volkow, 2005). The activation of the prefrontal cortex has been observed during meditation in functional neuroimaging studies (Lazar et al., 2000). Meditation practice rings about a change towards the left part in prefrontal activity which is associated with positive emotions and increased immune response (Davidson et al., 2003). In addition, long-term meditation practice may cause an increase in prefrontal cortical thickness (Lazar et al., 2005). In terms of addiction, a form of meditation yoga (Yoganidra) similar to mindfulness meditation (e.g. with emphasis on the impartial observer's attitude and attention to sensory stimulation) results in dopamine release in ventral striatum (Kjaer et al., 2002). On the other hand, the effectiveness of mindfulness meditation as a clinical method has been proved by addiction-related studies and stress has been introduced as the major factor in the development and maintenance of addiction relapse (Goeders, 2003). A meta-analysis done based on 20 controlled studies has confirmed the efficacy of mindfulness in stress reduction with the effect size of .05 (Grossman, Niemann, Schmidt & Walach, 2004). In the relationship between mindfulness and emotion regulation, this is the emphasis on the acceptance of non-judgmental essence of thoughts and emotions that constitutes the core of mindfulness (Kabat-Zinn, 2005). Those who practice mindfulness, learn to deliberately observe and accept their emotional states and this enables them to reduce their perpetual (habitual) interests and tendencies that are seen as rumination (Brown, Goodman & Inzlicht, 2013). In addition, it causes the reinforcement of more adaptive processing of emotional information (Farb, Segal & Anderson, 2012).

Mindfulness leads to early awareness and the non-judgmental acceptance of the emotional stimuli (Goldin & Gross, 2010) and allows people to get involved in the regulation of early primary emotions at the time of processing of the stimuli before the intensification of emotional responses. Thus, mindfulness can be considered as a unique type of regulation (Gross & Thompson, 2007) that concentrates on changed mode of people's relations with their own feelings and emotions rather than the nature of their own emotions. At the right moment, the awareness raised by mindfulness involves a level of attention that causes participants to get ready for attendance in an early emotion. Conscious acceptance, in turn, contributes to the promotion of non-judgmental attitudes towards this emotion, coping with rumination, and suppression. For example, mindfulness encourages people to awareness and openness towards primary

bodily feelings of anger rather than focusing on the “story” behind individuals’ anger. In the same way, this allows people to flexibly pay attention to the physical properties of emotional experiences rather than to permanent cognitive responses which lead to the diminution of the need for evaluation (Brefczynski-lewis, Lutz, Schaefer, Levinson & Davidson, 2007). However, beginners may use acceptance as a cognitive assessment when they have the experience of a maladaptive response to their emotions. Therefore, mindfulness does not reduce initial emotional reactions, but contributes to the decrease of the negative consequences of long-term activation (Williams, 2010). The exact nature of the relationship between mindfulness and emotion regulation is not yet fully understood. In general, it can be stated that mindfulness-based therapy as a new approach in the field of addiction and treatment has desirable practical capabilities in clinical practices. The present study was restricted to the men who had referred to the treatment clinics of Yasuj city; therefore, discretion should be exercised in the generalization of the results. In addition, due to the possibility of follow-up in this study, it is suggested that the follow-up stage be included in future studies.

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