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Original Article

A comparison between the effectiveness of mindfulness-based group therapy with maintenance treatment in reducing precarious behaviors and explosive anger in opiate abusers

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Abstract

Introduction: This study aimed to compare the effectiveness of mindfulness-based group therapy with maintenance treatment in reducing precarious behaviors and explosive anger in opiate abusers.

Materials and Methods: This was a clinical trial study conducted on 57 patient diagnosed with substance abuse were assigned randomly into the experimental group (mindfulness-based group therapy and common group therapy such as methadone therapy) and control group (camp group). The experimental group received treatment for 8 sessions. The participants were examined using structured interviews and Barratt Impulsiveness inventory (BIS). The results were analyzed using repeated measures variance analysis (ANOVA) and SPSS-19.

Results: The results showed that although both mindfulness-based group therapy intervention and common therapy caused the decreased precarious behaviors and impulsiveness behaviors in opiate abusers, the mindfulness-based group therapy intervention was more effective and significantly contributed to the increased mental health after opioid withdrawal for substance abusers. In addition, the results showed that the treatment impact was so significant in the follow-up period.

Conclusion: The results revealed that the mindfulness-based group therapy was effective compared to the maintenance treatment in reducing precarious behaviors and explosive anger in opiate abusers.

Keywords: Impulsiveness, Maintenance treatment, Methadone, Mindfulness, Opioid, Substance abusers

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Introduction

Social damages are diverse, relative and changing phenomena. Aggression, crime, suicide, divorce, addiction and prostitution are examples of social harms, the amount and quality of which changes depending on time and place, one of the basic issues related to physical and mental health is addiction (1), which The three main causes of death (accidents, homicides and suicides) among teenagers are related (2).

Addiction is a multidimensional disorder that is characterized by features such as compulsive behaviors, irresistible temptations, substance-seeking behaviors, and its continuous use even in situations that have many negative consequences for the individual. Drug use and its continuation prevent addicts from performing their normal behavior and performance in the family, work environment and on a wider level in the society (3).

Addiction and its consequences are considered as one of the most important mental and physical health risks all over the world, which not only causes pain and suffering to the consumer, but also burdens and harms the family and Society also imposes (4) and plays a role in many important issues of society such as accidents, violence, delinquent behavior, family problems, etc. The treatment is facing and the main problem in the treatment is the long-term clean period and the high rate of relapse, because stopping the treatment period and re-using drugs, with more negative consequences such as the possibility of consuming more drugs, more intense dependence on drugs, using different drugs, increasing Criminal behaviors and imposing additional costs on healthcare networks are related (5,6). One of the main problems of addicts in dealing with emotions is the inability to control impulses, which manifests in their behavior as restlessness and boundless impulsivity, and numerous studies indicate a connection between impulsivity and drug use (7).In recent years, many researches have been conducted on different methods for the treatment of substance dependence, such as maintenance treatment with methadone, detoxification, duration of treatment and different effects of treatments. Unfortunately, the main problem in the treatment of drug addicts is the long-term clean-up period and the high rate of relapse (8). Also, leaving the treatment stages and using drugs again is related to more negative consequences such as the possibility of high drug use, more severe dependence on drugs, use of different drugs, increase in criminal behavior and imposing additional costs on health and treatment networks (6).

Different interventional approaches have been used in the field of individual and group addiction treatment, such as supportive group therapy, cognitive and interpersonal psychotherapies. Considering the effectiveness of the mindfulness method in physical and psychological disorders, it seems to be effective in the treatment of reducing some of the symptoms of opioid addiction relapse (9-11). New treatments, especially in the field of psychological treatments, especially addiction treatment, are the integration of Eastern spiritual traditions, including observational thinking (mindfulness) meditation techniques with traditional cognitive behavioral therapy, which is called the third wave of behavioral therapy. They learn (12). Examples of these new approaches are: Mindfulness-based therapy for the prevention of addiction relapse and mindfulness-based cognitive therapy for the prevention of depression relapse and addiction treatment (13).

Mindfulness-based treatments are effective in reducing mental pressure, chronic pain, anxiety, preventing recurrence of depression, generalized anxiety disorder, post-traumatic stress disorder and other disorders (3). In recent years, interventions based on

mindfulness have also received attention in the treatment of substance abuse disorders (14). Using the observational thinking method due to the mechanisms hidden in it such as acceptance, increasing awareness, desensitization, being present in the moment, observation without judgment, confrontation and release in combination with traditional cognitive behavioral therapy techniques can reduce symptoms and consequences. After quitting, it increases the effectiveness of the treatment and helps to prevent the relapse of drug use (15).

Considering that impulsivity and risky behaviors cause drug use and relapse, this study was conducted with the aim of comparing the effectiveness of mindfulness-based group therapy with maintenance therapy on reducing risky behaviors and explosive anger in opioid users.

Materials and Methods

The research method of the present study is of clinical type (pre-test, post-test and follow-up period) with a control group. The receiving group of the mindfulness-based therapy group and the common treatment group (methadone therapy) are of the test group type, and a group is considered as a control group (camp group).

The population under study is all the people suffering from opioid abuse who refer to the addiction treatment center in Tehran, out of which 57 people are selected from the people who volunteered to receive treatment services and met the entry criteria, and then the people are randomly selected. They are divided into two experimental groups and the control group. Considering the size of the sample in the treatment group of mindfulness-based interventions and the control group and the possibility of attrition of group members, a sample size of 19 people was considered for each group, and considering the attrition in the stages of the research to the mindfulness group, control and Methadone treatment was reduced to 13, 14 and 12 people respectively.

Research instruments

A) Structured Clinical Interview for Axis I-II Disorders: It is a standardized comprehensive tool for evaluating the main psychiatric disorders based on DSM-IV definitions and criteria, which is designed for clinical and research purposes (16,17).

B) Bart's Impulsivity Scale: this questionnaire is a suitable tool for measuring all kinds of impulsive behaviors. The eleventh version of this questionnaire was created by Barrett. This questionnaire has 30 four-choice questions that evaluate the three factors of cognitive impulsivity (involving cognitive decisions), motor impulsivity (involving acting without thinking) and lack of planning (defined as immediate orientation or lack of foresight) (19). The structure of the collected questions shows aspects of hasty decision-making and lack of foresight. Its highest score is 120. This questionnaire has a positive and significant correlation with Eysenck's Impulsivity Questionnaire and this indicates the criterion validity.

The Farsi translation of the Barrett scale, which was made by Okhti et al. in 2017, is at a desirable level in terms of validity and reliability. The reliability rate obtained in this study is 0.83, which is better than the findings reported by Barrett et al. in the English version (0.81) and other versions such as the Italian version (0.79) and the Cronbach's alpha coefficient is between 4. It is estimated from 0 to 0.83 (20).

First, all the people willing to participate in this study were evaluated by structured clinical interview for Axis I and II disorders and measured by Barat impulsivity test. After selecting and assigning subjects, the intervention program based on mindfulness-based on the therapeutic protocol of Bowen, Chavala and Marlatt (2011) was carried out in the experimental group during 8 2-hour group sessions. The meetings were held once a week

for 2 months. A month and a half after the last treatment session, a follow-up test was taken from the subjects (21).

The first session included the introduction and acquaintance of the members with each other, the purpose of the treatment, the duration of the treatment, and the commitment form and group regulations were stated. In the second session, automatic guidance and recurrence and necessary exercises and awareness of stimuli and enthusiasm were examined. In the third session, mindfulness in everyday life and its application were examined and exercises were conducted. In the fourth session, mindfulness in high-risk situations was examined. In the fifth session, acceptance and skillful performance, jumping thoughts, emotions and unwanted feelings of work were examined. In the sixth session, thoughts, seeing thoughts, becoming aware of thinking and communicating with thoughts by focusing on experiencing thoughts were taught, in the seventh session, the balance of self-care and lifestyle, personal warning signs of relapse and response were examined when the symptoms appeared, and in the last session, social support and other necessary trainings in risky conditions were examined and assignments were given to the individuals. Due to the fact that the current research project is an experiment with pre-test, post-test and follow-up test, repeated measurement (mixed) variance analysis statistical methods are used to analyze the data.

Results

The results show that the distribution of the frequency of participants in the three mindfulness groups was 35.15 (±5.14), camp control 14.30 (±6.99) and methadone therapy 31.17 (±6.65). The highest level of education in the mindfulness group was diploma with 38.5%, in the control group camp and methadone therapy cycle diploma with 42.9% and 58.3%, respectively. Most of the clients in all 3 groups were married. Distribution of job frequency of the participants in mindfulness group, no job with 42.3%, camp control group with employee job with 50% and methadone treatment were in free job status. The mean and standard deviation of the variable age of onset of mindfulness was 21.69 (±3.72), camp control was 22.0 (±3.61) and methadone therapy was 21.75 (±5.44). The number of unsuccessful quits was from the highest to the lowest in mindfulness, Shahid camp and methadone therapy, respectively.

Due to the small volume of samples and as a result of not establishing the assumptions of normal distribution and equality of variances, the non-parametric Kruskal-Wallis test was used to compare the average scores of the age of onset ($P< 0.675$, df = 2, 0.785 = 2) and the number of recent relapses ($P< 0.485$, df= 2, df= 1.44)) and there is no difference in the variables of length of recent treatment ($P< 0.000$, df= 2, 29.16= 2) and the number of failed quits ($P< 0.01$, df = 2, 14.37= 2) There was a significant difference between the groups.Considering the fact that the current research is an intervention type and has an inter-group factor (experimental and control groups) and several intra-group factors (various dependent variables) and because the people in each of the groups in the dependent variables. They have been measured in three stages, so the present design is a dual multivariate design. To examine the results and answer the research questions and hypotheses from the analysis of variance test with repeated measurement of two factors with an intragroup stage variable (pre-test, post-test and follow-up measurements three times) and an intergroup variable (mindfulness therapy, camp control group and methadone treatment group) were used. The mean and standard deviation of impulsivity variables (unplannedness, motor, and cognitive impulsivity) in three groups in the pre-test, post-test and follow-up stages can be seen in Table 1.

Table 1. Mean and standard deviation of impulsivity variable of three groups in pre-test, post-test and follow-up stages

		Mindfulness		Camp Control		Methadone therapy	
		Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Disorganized impulsiveness	Pre-test	35.07	3.59	33.85	3.79	34.83	2.79
	Post-test	19.23	1.83	35.71	3.07	35.41	3.34
	Follow-up	17	1.52	35.14	2.74	35.41	3.42
Motor impulsiveness	Pre-test	34.69	3.79	33.78	4.26	34.33	3.55
	Post-test	16.53	2.02	35.28	3.40	35.25	3.98
	Follow-up	15.15	1.72	35.35	3.45	34.83	3.73
Cognitive Impulsiveness	Pre-test	26.76	2.42	26.14	2.41	26.83	1.26
	Post-test	16.38	2.66	26.71	2.163	26.08	1.97
	Follow-up	15.23	2.166	26.71	2.36	25.83	1.89

The results of Mochli's test in Table 1 indicate that the assumption of sphericity is rejected ($P< 0.05$). Therefore, in order to interpret the test, a conservative test such as the Greenhaus-Kaiser test was used for impulsivity variables, and the results indicate that in the unplanned variable, the effect The main step is meaningful. That is, there is a significant difference at least between the average of two performances ($F(1,36)= 11.64$, $P< 0.000$, discriminant eta square=0.64) Also, the results show that the interactive effect of stage and group in The unplanned variable is significant ($F(2,36)= 89.89$), $P< 0.000$, discriminant eta square = 0.83), that is, at least in one of the three times of repeated measurement, there is a significant difference between the average of the experimental and control groups.

The main effect of stage is significant. That is, there is a significant difference at least between the average of two performances ($F(1,36)= 100.08$, $P< 0.000$, discriminant eta square=0.73) also, the results show that the interactive effect of the stage with the group in The observation variable is significant ($F(2,36)= 140.25$, $P< 0.000$, discriminant eta square = 0.86), the main effect of stage is significant in the motor impulsivity variable. That is, there is a significant difference at least between the average of two performances ($F(1,36)= 44.44$, $P< 0.000$, discriminant eta square=0.69) also, the results show that the interactive effect of stage with group in The motor impulsivity variable is significant ($F (2,36)=76.90$, $P< 0.000$, discriminant eta square = 0.81), that is, at least in one of the three repeated measurement times, there is a difference between the average of the experimental and control groups. There is a meaning.

Table 2. Analysis of variance of repeated measures for within-group and between-group effects of stage with group scores of unplannedness, motor and cognitive impulsivity

Scale	Source of effect	Sum of squares	Degree of freedom	Mean squares	F	Significance level	Eta square
	level	556.92	1	566.92	64.11	0.000	0.64
Disorganization	Level*group	1572.26	2	786.13	88.89	0.000	0.83
	error	318.34	36	8.84			
	level	658.43	1	658.43	100.08	0.000	0.73
Motor impulsiveness	level*group	1845.35	2	922.67	140.25	0.000	86
	error	236.83	36	6.57			
	level	309.6	1	309.06	83.44	0.000	0.69
Cognitive impulsiveness	level*group	596.61	2	284.81	76.90	0.000	0.81
	error	133.33	36	3.704			

Considering the significance of the interaction effect, we examined two simple effects of group and stage. First, we used the repeated measurement analysis of variance of one factor with three measurement levels in the group variable levels (mindfulness test group, camp control group, and methadone treatment group). Therefore, we first examined the simple effect of the stage (regardless of the between-group factor) and compared the averages of three executions in the dependent variable of impulsivity.

The results showed that among the three stages of measuring the unplanned variable, at least in the two stages of the measurement in the mindfulness test group (F (1,12)= 203.15, *P*< 0.000, discriminant eta square= 0.94) There is a difference, but in the camp control groups (F(1,13)= 2.81, *P*< 0.07, discriminant eta square= 0.22) and the methadone treatment group (F(1,11)= 0.146, *P*< 0.709, discriminant eta square= 0.013), also, among the three stages of measuring the motor impulsivity variable, at least among the two stages of measurement in the mindfulness test group (F(1,12) 410.059, *P*< 0.00, discriminant eta square= 0.97) and camp control group (F(1,13)= 5.14, *P*< 0.04, discriminant eta square = 0.28) there is a difference, but in the methadone group therapy (F(1,11)= 0.137, *P*< 0.718, discriminant eta square= 0.012) and among the three stages of measuring the cognitive impulsivity variable, at least among the two stages of measurement in the mindfulness experiment group (F(1,12)= 85.155, *P*> 0.000, discriminant eta square=0.92) and camp control group (F(1,13)= 0.809, P<0.385, 0.059). There is a difference, but in the methadone treatment group (F(1,11)= 2.20, *P*< 0.166, eta square= 0.167) the difference with There is no reed. To further examine the results and pairwise comparisons of pre-test, post-test and follow-up, pairwise comparisons with Bonferroni correction were used (Table 3).

Table 3. Pairwise comparison in three implementations of dependent variables in three groups in impulsivity variables

		Disorganization variable		**Motor variable**		**Cognitive variable**	
Group	levels	Post-test	Follow-up test	Post-test	Follow-up test	Post-test	Follow-up test
Mindfulness treatment	Pre-test	**15.84	**18.07	**18.15	19.53**	10.38**	11.53**
	Post-test		*2.23		1.38		1.15
Camp control	Pre-test	*−1.85	−1.28	−1.50	−1.57	−0.571	−0.5710
	Post-test		0.571		−0.071		−0.001
Methadone therapy	Pre-test	−0.583	−0.583	−0.917	−0.500	0.750	1.00
	Post-test		0.00		0.417		0.250

**P<0.01 *P<0.05

In the mindfulness treatment group, there is a significant difference between the unplannedness, motor impulsivity and cognitive impulsivity of the subjects in the pre-test with the post-test and the pre-test with the follow-up (*P*< 0.01), and there is also a significant difference between the post-test and the follow-up (*P*> 0.05). In the camp control group, there is a significant difference between the pre-test and the post-test (*P*< 0.05), but there is no significant difference between the pre-test and the follow-up, but there is a significant difference between the post-test and the follow-up (*P*< 0.05). In methadone treatment group, there is no difference between pre-test and post-test,

pre-test and follow-up and post-test and follow-up. According to the three levels in the intergroup grouping variable (mindfulness treatment group, camp control group and methadone treatment group) to investigate the simple effect of the intergroup factor from the one-way analysis of variance test in each of the pre-test, post-test and A follow-up session was used. The results showed that there is no significant difference between the three groups in the pre-test stage of measuring the unplanned variable (F=0.474, *P*< 0.626), in other words, this issue indicates the homogeneity of the three groups in the pre-test before the start of the intervention. In the post-test measurement stage of the unplannedness variable, there is a significant difference between at least two levels of the intergroup grouping variable (F=145.73, *P*< 0.000). There is no significant difference between at least two levels of inter-group grouping in the follow-up measurement stage of unplannedness. (F= 204.51, *P*> 0.000). There is no significant difference between the three groups in the pre-test phase of measuring the impulsivity variable (F= 0.185, *P*< 0.832), in other words, this issue indicates the homogeneity of the three groups in the pre-test before the intervention. In the post-test measurement phase of the motor impulsivity variable, there is a significant difference between at least two levels of the inter-group grouping variable (F= 146.20, *P*< 0.000). There is no significant difference between the two levels of inter-group grouping at the follow-up measurement stage of unplannedness (F= 180.49, *P*< 0.000).

Also, the results showed that there is no significant difference between the three groups in the pre-test stage of measuring the variable of cognitive impulsivity (F= 0.429, *P*< 0.65), in other words, this issue indicates the homogeneity of the three groups in the pre-test before the start. It is an intervention. In the post-test measurement stage of the cognitive impulsivity variable, there is a significant difference between at least two levels of the intergroup grouping variable (F= 83.47, *P*< 0.000). In the follow-up measurement stage of cognitive impulsivity, there is no significant difference between at least two levels of intergroup grouping. (F=113.90, *P*> 0.000).To further examine the results and pairwise comparisons between the three groups of mindfulness experiment, camp control and methadone therapy in each of the pre-test, post-test and follow-up sessions, pairwise comparisons with Bonferroni correction were used (Table 4).

Table 4. Pairwise comparisons of variables between groups based on the dependent variable of unplannedness in three measurement times

Level	Group	Camp control	Methadone therapy
Pre-test	Mindfulness treatment (disorganization)	1.21	1.38
	Mindfulness treatment (motor)	0.6590	0.8935
	Mindfulness treatment (Cognitive)	0.6237	−0.064
	Camp control (disorganization)		0.976
	Camp control (motor)		−0.5476
	Camp control (cognitive)		−0.6904
Post-test	Mindfulness treatment (disorganization)	**−16.48	**−16.18
	Mindfulness treatment (motor)	**−18.74	**−18.71
	Mindfulness treatment (Cognitive)	**−10.32	**−9.69
	Camp control (disorganization)		0.297
	Camp control (motor)		0.035
	Camp control (cognitive)		0.6309
Follow-up test	Mindfulness treatment (disorganization)	**−18.14	**18.41
	Mindfulness treatment (motor)	**−20.20	**−19.67
	Mindfulness treatment (Cognitive)	**−11.48	**−10.60
	Camp control (disorganization)		−0.273
	Camp control (motor)		0.3852
	Camp control (cognitive)		0.8809

Discussion

The results of the present study show that the effectiveness of mindfulness-based group therapy in reducing impulsivity components in the pre-test and post-test evaluation is statistically significant, and this effect is maintained in the follow-up period as well.

According to the obtained results, it can be said that the use of mindfulness and conducting research in this field has increased in recent years (21). There is increasing evidence of the usefulness of mindfulness in clinical situations, especially in psychiatry (22) and increasing research indicates the usefulness of mindfulness in the following cases: chronic pain (23), post-traumatic stress disorder, physical symptoms, Therapeutic models of stress, coping and resilience (24), addictive behaviors (24), behavioral abnormalities such as aggression and substance abuse (25), impulsivity (26), social anxiety (27) and rumination and depression (3).

Impulsivity is one of the most important components of substance abuse, and mindfulness training indicates a reduction in aggression (28). In explaining this result and according to Segal, Teasdale and Williams (29) in relation to impulsivity and aggression, one strategy is that the addicted person escapes from the stressful situation by using drugs, while the other strategy is to look at this position to focus awareness on what is happening in the present moment.

Mindfulness skills program training reduces the level of stress, anxiety and depression and negative emotions such as aggression and impulsivity from the severity and deterioration of the psychological symptoms of caste addicts. Mindfulness intervention program with extensive content in all areas of life such as exercises (yoga, meditation, presence of mind, breathing), control of attention and concentration, acquisition of correct and effective coping skills in dealing with stressful events in life, familiarity with The disease and the change in the patient's attitude towards it, change in mental and attitudinal patterns, advanced relaxation training, time management and stress management training and creating a happy and cheerful mood have reduced the level of negative and positive emotions in addicts and the amount It reduces the severity and severity of illness and possibly reduces the adverse consequences of substance abuse.

This research, like any research, had limitations, which will pave the way for future more accurate researches. 1- In terms of the sample of the studied population, it is only limited to camp and methadone treatment centers in Tehran. 2- In terms of methodology, the main limitation of this research is the limitation in generalizing the results. Although the significant findings obtained from smaller samples are more accurate, the external validity of the research is reduced due to the limited number of samples in the treatment groups. In the future, interventional studies with larger samples can compensate for this shortcoming. 3- The subjects of the treatment groups were selected only from men suffering from substance abuse. This issue makes it difficult to generalize the results to the female population. Nevertheless, due to the nature of substance abuse disorder, which is more common in men, and due to the availability and higher probability of cooperation of the male population, it was preferred to select the study sample from the male population, and in order to propose, it can be solved in this way.

Conclusion

Although the common goals of mindfulness therapy group and usual treatments are factors such as improvement of psychological symptoms of addicts, reduction of drug use, positive expectations from treatment, facilitating therapeutic relationship, etc., but in therapy group based

on mindfulness through mutual behavior and the complexity of human experiences, which are called therapeutic elements, and as one of its strengths compared to common treatments, it was able to have a remarkable effectiveness, and it can be said that mindfulness has a more effective effect than usual and maintenance treatments (methadone therapy, spiritual therapy) in risky behaviors. The results of the findings indicate the effectiveness of mindfulness therapy in reducing the risky behaviors of anger and impulsive behaviors. The findings of this research support the findings of the research conducted in this field.

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