



## Effectiveness of Mindfulness and Counseling on the Stress Reduction in Drug Relapse Prevention

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**ABSTRACT:** The present study was designed to investigate the effectiveness of mindfulness in the prevention of drug relapse. Using a quasi-experimental design, 90 male drug abusers who had undergone detoxification were selected from among all detoxified individuals referred to drug rehabilitation centers in the City of Tehran. Patients were placed randomly in three groups: Mindfulness training intervention, Behavioral drug reduction counseling (BDRC) and a control group in which no intervention was applied. Diagnosis of drug abuse was made using structured clinical interview for diagnosing axis I disorders on DSMIV (SCID-I) as well as tests to measure morphine levels in the blood. Fisher test was used to compare groups. Patients were assessed two weeks and two months after the intervention as follow up measure. Results show that both intervention groups were effective in preventing relapse as compared to the control group ( $p < 0.05$ ). Furthermore, the effectiveness of mindfulness training and BDRC was about the same. There were no significant differences between patients with and without experience of drug abuse and married and single patients. Both mindfulness training and BDRC may be considered effective practical methods in reducing the risk of relapse in male drug abusers.

**Key words:** Mindfulness Training, Behavioral Drug Reduction Counseling, Drug Abuse

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### INTRODUCTION

Harmful and destructive effects and results of individual, social and cultural resulting from abuse, dependence and addiction has caused take patients to the drug abuse and society health staff for the prevention, cessation and prevention of drug relapses. Accordingly, educational institutions and medical health professionals have experienced the theories, models, strategies and various techniques for prevention and treatment of drug abuse and prevention of relapse, innovation. It has been reported, most patients who have recourse to drug abuse, they have suffered to drug relapse after discharge from treatment (McKay et al., 2006). However, it has not yet discovered how to cure it. Even after that a person dependent stops drug use for so long, cannot hope to start the drug use. Therefore, the drug relapse is one of the major problems in the treatment of patients with drug abuse. In order to prevent the drug relapse, several studies have been done and summarizing the results of these studies indicate that effectiveness of drug therapies holder is associated with high drug relapse without the intervention of psychosocial (Roozen et al., 2006).

One of the approaches to psychological interventions is the Mindfulness Based Stress Reduction (MBSR) in preventing the drug relapse. Witkiewitz et al. (2005) have suggested a new cognitive-behavioral interventions for disorders in drug use named prevention of back based on mindfulness by combining research (more than two decades) on preventing back as a treatment for drug dependency

with existing techniques based on mindfulness (Segal et al., 2002). Therefore, prevention of relapse based on mindfulness is a new behavioral therapy so that it combines the prevention techniques of the traditional behavioral back (prevention of back) by meditation of mindfulness for the treatment of drug use disorders. This combination is mentioned as the third wave of behavior therapy (Hayes et al., 2006).

According to Kabat Zinn, the aim of mindfulness is not an altered state of consciousness, but it is a case of self-assessment and observer without considering the reality at present (Greeson, 2008). Mindfulness can help increase the treatment efficacy and to prevent drug relapse besides reducing symptoms and consequences of the withdrawal due to its underlying mechanisms, such as acceptance, awareness raising, desensitization, present at the moment, observer without judgment, confrontation and release in combination with traditional cognitive behavioral therapy techniques due to come into effect for the people (Witkiewitz et al., 2002; Marlatt et al., 2008; Breslin et al., 2002). Previous reports indicated that Mindfulness has a positive effect on the prevention of recurrence of substance abuse disorders (Suti, 2005). It has been reported that people sprayed who have been received a Mindfulness intervention, they had a lower prevalence in drug relapse during 4 months (Bowen et al., 2009). The study has shown that mindfulness leads to the prevention of relapse to drug abuse by promoting acceptance and understanding person experiences and in a wide range of problems such as

borderline personality disorder, drug abuse, trauma and depression (Witkiewitz et al., 2013; Rygh and Sanderson, 2004). Mindfulness is used in the treatment of generalized anxiety disorder and alcohol rehabilitation prisoners so that it is a major part of the problems related to people leave addiction and have emphasized the beneficial results (Witkiewitz et al., 2005; Witkiewitz et al., 2013). With that Mindfulness is a useful method for interventions in drug abuse, but major psychological intervention in Iran is based on BDRC and less attention has been paid to other interventional procedures. Previous reports also show that the treatment paradigms based on behavioral counseling is effective in AIDS harm reduction and drug abuse for treatment and prevention of drug relapse and HIV infection control (Chawarski et al., 2011; Ko et al., 2012).

However, previous studies have less paid comparative to interventional procedure. Since the Mindfulness approach has been entered recently in psychology and in a few psychotherapists is trained in the medical field, it is also used in quantitative research. Due to the use of Mindfulness in preventing drug relapse and the high rate of drug abuse needs to research and numerous studies in Iran. Accordingly, the main goal of this research in the form of student thesis is to determine the effectiveness of Mindfulness and a reduction in HIV damages and drug abuse in the prevention of drug relapse.

## MATERIAL AND METHODS

**Population, Sample and Sampling procedure:** In this research, the research method is Semi-empirical and in the form of pre-test and post-test with control group. The research population included all patients had congenital toxin in addiction centers in Tehran during a recent week. The sample was selected from among three Aryaman, Varna and Borhan Tehran addiction clinic by convenient sampling method. A sample of 90 men were assigned to drug abuse so that they have freedom of poison in one week were randomized to one of three groups (Mindfulness intervention, counseling in harm reduction, control). Research inclusion criteria were included in the study, informed consent to participate in research, detoxification in one week, being male, having minimum 18 and maximum 45 years of age. Factors that led to withdrawal from the study were participants include: According to a psychologist for evaluation, during the intervention sessions, people with severe mental problems (such as depression, anxiety or family problems) and missing more than two sessions of training in Mindfulness and three sessions on harm reduction advice. The instruments used in this study are included:

**Demographic questionnaire:** To collect demographic characteristics, were used in the study of demographic questionnaire and extracted age, education, marital status, history of drug drug relapse through medical records.

**Structured Clinical Interview for DSM-IV (SCID-I):** Structured Clinical Interview is used for Disorders of axis; it is designed as flexible interview by First et al. (2002). Bakhtiari (2000) has reported the reliability of the Persian version of the SCID-I, %95, and the inter-rater reliability %60. In this study, we used the SCID-I for the diagnosis of disorders in drug abuse.

**Thin-layer chromatography (TLC) test:** Morphine TLC is the most common method for the detection of alkaloids and including specific methods for the diagnosis of morphine and other opium alkaloids in urine and it has a very high sensitivity. Positive response suggests the presence of drugs in urine, so that shows the presence of drug use in the past week. If negative, it implies the absence of drugs in the urine so that it indicates a lack of substance. In fact, TLC can discriminate all the psychoactive drugs that exist in the urine. TLC morphine test is used to identify morphine and other alkaloids of opium derived from in urine. TLC test results can be used as an accurate test in addiction centers. In this study, patients who had history of drug use Apoedy and have succeed to leave the course with a hoof mark. If the TLC is positive for morphine after detoxification in three tests (which is done in one day), it is considered as a drug abuse relapse (Cheng et al., 2011).

Obtaining the necessary coordination of the three addiction centers in Tehran (Aryaman, Varna and arguments), those requirements were identified to participate in the study, 120 people. Then, with their consent, and the study inclusion and exclusion criteria of the study were selected from 90 patients. A total of 60 people have been trying to prevent drug use, were randomly assigned to one of two groups (drug use and HIV risk reduction and Mindfulness). Also, the remaining 30 participants were enrolled as controls. All 90 patients before conducting research was ensured the existence of detoxification testing using TLC test. All three groups were treated with methadone. But the intervention groups Mindfulness and Behavioral Counseling received aforementioned procedure. Thus, the experimental group therapeutic Mindfulness Based Stress Reduction (MBSR) was taught 8 sessions with a psychologist. Then, TLC test was performed two weeks after the intervention. Drug use and HIV risk reduction group were also consistent with BDRC program. Then, TLC test was performed two weeks after the intervention. Also, the condition of drug abuse, two months after the post-test, participants was re-evaluated by TLC. Then, frequency drug relapse was

assessed in the studied groups using appropriate statistical methods. Also, the frequency drug relapse in experimental group were compared (single, married),

(with a previous history of drug use / no experience) (less literate and educated).

**Table 1.**Containing the Behavioral drug and HIV risk reduction counseling (BDRC) (Rostami and Haddadi, 2005)

Phase	Section	Description
<b>Phase I (first six sessions) The first phase of treatment usually lasts 6-4 weeks.</b>	First Section	Introducing Consultant, investigating the reason of Clinical presentation and provide feedback, Introducing counseling program, assessment of patients and familiarity with his usual behaviors and activities, reviewing the treatment process and urinalysis, the first contract on adherence to treatment
	Second Section	Positive feedback about the first contract, review of current problems and changes in the patient's life, urine test and provide feedback on the effectiveness of weeks ago, education about addiction as a disease and treatment, for a change of contract
	Third to fifth Section	Review and provide feedback about the contract, review the patient's current problems, see the results of urinalysis, a contract for the next meeting
	Sixth Section	Review the implementation of the contract and providing positive feedback, positive changes Summary of in the first six sessions, smmary of evaluating consultant of the patients longer-term goals described in treatment contract after meeting
<b>Phase two (Seventh Session onwards): Consulting and patients continue to use behavioral contracts and lifestyle changes started on the first phase of treatment focus.</b>	Seventh to eleventh Sections	12-7 sessions may be different depending on patient's needs. Contract evaluation and positive feedback, review of current problems, urinalysis results and feedback session after the contract to assess HIV risk awareness and education about risk behaviors, addiction relapse prevention, activation family education, problem-solving skills
	Sequence of sessions and topics are planned for	

**MBSR:** Cognitive therapy based on Mindfulness designed by Segal et al (2002) for eight sessions and group sessions each week based on Kabat Zinn stress reduction in a saddle. The goal of cognitive therapy is based on Mindfulness creates a different relationship between attitudes or thoughts, feelings and emotions so that It includes maintaining full attention and every moment and with an attitude of acceptance and away from the judgment (Wells, 2002). Mindfulness training was trained based on stress reduction in 8 sessions, each session lasting an hour and a half. First session: implementation of pretest, communication and conceptualization necessarily Mindfulness training and learn how to use relaxation; Session II: Relaxation Training 14 groups of muscles, including the forearm, upper arm muscle, leg, legs, thighs, abdomen, chest, shoulders, neck, lips, eyes, jaw, forehead bottom and front top; Third session: Relaxation Training for 6 groups of muscles, including the hands, arms, legs and eyes, the abdomen and the chest, neck, shoulders, jaw and forehead and lips and eyes and household tasks relaxation; Session Four: Teaching Mindfulness Breathing: brief overview of the previous session, learn how Mindfulness breathing techniques inhale and exhale with relaxation and without thinking about something else and techniques by watching inhale and homework home Mindfulness of breathing before bed for 20 min; Fifth session: techniques for monitoring

body due to body movement when breathing techniques, focusing on body movements and seeking physical sense (hearing, taste, etc.) and household tasks Mindfulness Eating (according to taste and eat with comfort and the sight of food); Session VI: Teaching Mindfulness thoughts: Regarding training of the mind, thoughts, positive or negative, pleasant or unpleasant thoughts of allowing both positive and negative thoughts to enter the mind and can easily take them out of mind, without judgment and a deep respect for them and positive and negative experiences without judgment task to write home about; Session VII: Complete Mindfulness: repeated training sessions, 4, 5 and 6 each for 20 to 30 minutes; Session VIII: Summary of training sessions (Narimani et al., 2012).

**RESULTS**

Since most of which are referred to addiction recovery center for men, therefore, the sample in this study were male and living in Tehran. However, given that the majority of clients are aged less than 45 years and the effectiveness of psychological interventions in the high range (young or elderly) may affect the results of this research so the age range was 18 to 45 years as the basis for research subjects. In the present study, 90 men were involved in drug abuse (30 cases MBSR, 30 cases of BDRC group, and 30 patients in the control group). However, among them there were 2 people in

MBSR group and 3 patients in BDRC group, and 1 person loss in the control group. Thus, in the final analysis, a total of 28 people attended the MBSR group, 27 patients in BDRC group, and 29 patients in the control group. Those who were excluded due to loss exclusion criteria (non- continuous participate in intervention sessions). The mean age of participants in the MBSR group is 35.5 with SD = 7.05, BDRC group 36.3 with SD = 6.7 and the control group is 33.6 with SD = 6.02. Participants age was 22 and maximum age of 45 years. Minimum age of participants was 22 and the

maximum age of 45 years. In Mindfulness group, 3 patients were married (10.3) and in Consultative Group on BDRC, 2 patients (6.7) and the control group, 4 patients (13.7). In MBSR group, 12 cases (36.4%) had primary education level, 9 (33.3%) of sixth, 7 cases (29.2 percent) Diploma/Associate. In BDRC group, 11 cases (33.3%) had primary education level, 8 (29.6%) in sixth, 8 (33.3 percent) Diploma / Associate. There were 10 cases in the control group (30.3%) had primary education level, 10 patients (37%), sixth, 9 (37.5 percent) Diploma/Associate.

**Table 2:** Frequency (percent) clean / drug use relapse in the studied groups

Group		Pre-test		Posttest		Follow-up tests	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Mindfulness group</b>	Clean	28	100	24	85.7	23	82.14
	relapse	0	0	4	14.3	5	17.86
<b>BDRC group</b>	Clean	27	100	22	81.5	20	74.87
	relapse	0	0	5	18.5	7	25.93
<b>Control Group</b>	Clean	29	100	15	51.7	12	41.38
	relapse	0	0	14	48.3	17	58.62

People compare the frequency of Clear / drug relapse using Fisher's exact test drug use in after test of Mindfulness group and control group showed a drug relapse was significantly less than the control group; 14.3 percent versus 48.3 percent ( $P < 0.01$ ,  $df = 1$ ,  $\chi^2 = 7.61$ ). Also, in the frequency follow-up of drug relapse in the control and Mindfulness group showed that in the frequency of drug relapse was significantly less than the control group; 17.9 percent versus 58.6 percent ( $P < 0.01$ ,  $df = 1$ ,  $\chi^2 = 9.98$ ). People compare the frequency of Clear / drug relapse using Fisher's exact test drug use in the follow-up test of control groups and BDRC group showed that drug relapse in the BDRC group was lower significantly than the control group; 18.5 percent versus 48.3 percent ( $P < 0.05$ ,  $df = 1$ ,  $\chi^2 = 5.52$ ). Also, in the follow-up test of drug relapse frequency in the control group and BDRC group showed that in the frequency of drug relapse was significantly less than the control group; 25.9 percent versus 58.6 percent ( $P < 0.05$ ,  $df = 1$ ,  $\chi^2 = 6.1$ ). People compare the frequency of Clear / drug relapse using Fisher's exact test drug use in after test of Mindfulness and BDRC groups showed that the frequency of drug relapse, there were no significant differences between in the two groups; 14.3 percent versus 18.5 percent ( $P < 0.47$ ,  $df = 1$ ,  $\chi^2 = 0.18$ ).

Also, in frequency follow-up tests of drug relapse in the two groups of Mindfulness and BDRC was not observed any significant differences; 17.86 percent versus 25.9 percent ( $P < 0.34$ ,  $df = 1$ ,  $\chi^2 = 0.52$ ). Therefore, these two groups have the equal therapeutic effect on drug relapse. To analyze the effect of Mindfulness in the prevention of drug relapse in individuals with a

history of drug relapse and without it, the results showed that among the 27 patients studied, 22 patients had a history of drug withdrawal, and 5 cases had no history of drug withdrawal. In the the group that had a leave history, 4 patients had the current relapse while group that had attempted to leave for the first time, drug relapses were observed. Based on Fisher's exact test, chi-square, degrees of freedom and significance level are respectively  $P < 0.56$ ,  $df = 1$ ,  $\chi^2 = 1.6$ . Therefore, there are no significant differences between the two groups in frequency of drug use and both groups of patients with history and no history of leave drugs had the same effect of MBSR.

To analyze the effect of Mindfulness in the prevention of drug relapse in single and married individuals showed that among the 27 patients studied, 3 were married and 24 were unmarried in the group. In group who were single, 4 patients had drug relaps and in married group, none of the patients had drug relapse. Based on Fisher's exact test, chi-square, degrees of freedom and significance level, respectively are  $P < 0.99$ ,  $df = 1$ ,  $\chi^2 = 0.58$ . Therefore, there are no significant differences between the two groups in frequency of drug use and both groups of single and married and both have the same effect of MBSR group.

## DISCUSSION

The present study was done by objective effectiveness of Mindfulness in preventing drug relapse considering both the control group and group of intervention based on BDRC. The results indicated that Mindfulness is effective in preventing drug relapse. Consistent with these results, previous reports have

focused on the effects of MBSR to reduce drug relapse (Suti, 2005, Bowen et al, 2009). Another study also indicates that teaching the Mindfulness-based relapse prevention model, is effective in preventing relapse to addiction and motivation (Kaldavi et al., 2011).

In probable explanation for the effect of Mindfulness on drug relapse, various factors may be involved. As there is in theoretical foundations of Mindfulness, Mindfulness is built based on three basic assumptions including Awareness, acceptance and free from judgment of what is happening now. Since part of drug use problem lies at this same factor, therefore, the promotion of Mindfulness will be an important step in preventing drug relapse so that the increase in attention and awareness of thoughts, emotions and practice desires are the positive aspects of Mindfulness (Brown et al, 2007). That leads to coordinated adaptive behaviors and positive psychological states and improve the individual's ability in order to individual and social activities and interest in these activities (Chambers et al, 2009). So, training Mindfulness in patients of drug abuse -who are suffering from addiction and mental health problems- by improving these abilities and promotion of interest in personal and social activities, can be effective in drug relapse reduction. In this regard, it has been reported that Mindfulness leads to the prevention of drug abuse relapse through promote acceptance and awareness of person to his experience (Witkiewitz et al., 2013).

Furthermore, consistent with previous reports, there is a high convergence between mood disorders and drug abuse so that one-third of depressed individuals are suffering from drug abuse (Davis et al, 2008; Riggs et al, 2008). Since Mindfulness is effective in reducing psychiatric problems, particularly depression and anxiety symptoms (Way et al, 2010; Hofmann et al, 2010), it helps to reduce drug abuse (Witkiewitz and Bowen, 2010). This issue exists in theoretical basis of Mindfulness so that Mindfulness people understand internal and external realities freely and without distortion and they have great ability in dealing with a wide range of thoughts, emotions and experiences (pleasant and unpleasant acts) (Brown et al, 2007). Therefore, it is consistent with a previous study and emphasized to this result that MBSR plays an important role in reducing drug abuse and in preventing drug relapse (Chawarski et al., 2011). In support of this explanation, Lee and et al (Lee et al., 2011) in a study have shown that Mindfulness is effective in reducing depression symptoms in patients with drug abuse.

Of course, considerations some of the findings in previous studies may help to better understand the practical aspects of the study. Since in the people with severe anxiety or mood disorders and or drug abuse, problems have arisen from greater depths, it has been

reported in a number of studies on the effects of mindfulness in people who have endured less stress (Hsu et al., 2013). The results showed that BDRC is effective in preventing drug relapse. The findings of this study are consistent with several previous reports (Mark et al., 2013; Chawarski et al., 2008; Bayanzadeh et al., 2007; Backmund et al., 2001; Gossop et al., 2001). The fact is that BDRC is a comprehensive methadone maintenance treatment with a complex system of health care and psychosocial interventions. Psychological interventions in methadone maintenance treatment program can increase the effects of methadone and its positive consequences caused by changes in people lifestyle and leads to stabilization and support a drug-free life in person.

Therefore, it can be argued that BDRC would prevent a recurrence of drug abuse in two ways: First, the direct effects of conservative treatment, including drug and drug therapy reduced withdrawal symptoms and withdrawal and psychological treatments have helped patients to identify and using coping skills and problem solving, so that the functional analysis of the situation that lead to drug use and solutions find problems other than drug use. Secondly, the indirect effect due to medical advances in treatment and on parallel developments of the Marwan Alai such as depression, participation in treatment programs leads to a positive attitude to their patients' self-esteem, increased sense of mastery and competence, creating hope for the future, and improve family relationships. Overall, the structure of BDRC creates possibility that person needs to be able to control their emotions and behavior by the Interventions and in regulating emotions rid of drug addiction, and the temptations of drug use can reduce recurrence.

The results showed that Mindfulness-based education have equal efficacy in comparison to BDRC in preventing drug relapse. Review of previous research has paid less compared different methods of treatment and there is little study of different therapeutic methods in the field of drug abuse in preventing drug relapse. In explaining the findings of the study it can be concluded that no difference between the two methods can be attributed to the same target two types of intervention which both emphasize on reducing psychological problems and deal more effectively in the future so that in MBSR is recommended on the lack of judge and not overwhelmed by the circumstances of life in an imaginary past and present wishes and combat problems with a clear sense of emotion and in BDRC is recommended on the logical problem solving and life with the promise of behavioral contracts.

Another argument about the lack of difference in findings between treatment Mindfulness and BDRC, it seems that the number of sessions was more in BDRC

so that it was 11 sessions while was applied in 8 sessions in Mindfulness. However, results showed that individuals have experienced drug relapse in Mindfulness group 14.3% and in BDRC group 18.5%. It seems that the combination of number of poor results superior MBSR be two possible reasons the lack of superiority in MBSR than BDRC and drug use. Accordingly, further study compared two MBSR and BDRC drug use with the same number of training sessions and increasing sample subjects could help to clarify the differences between the two interventions.

Both methods of regard to the application have the same effect in preventing drug relapse. Therefore, one of the important scientific methods in clinical interventions is more effective ways of treatment. Since two methods of Mindfulness and BDRC are entitled to the same effect, so the necessary of more detailed scientific studies about that, are two methods are easier, better productivity in terms of costs and application? Since in the MBSR is more emphasis on cognitive aspects but in BDRC, there is greater attention to behavioral methods. Therefore, the difference used between the two interventions in this important scientific question related to drug research noted that can different personality characteristics be effective in combination with the possible causes of drug relapse in the use of two interventions (Mindfulness and BDRC)? The results showed that Mindfulness has equal efficacy in preventing drug relapse in individuals with and without a history of drug relapse.

Since the history of drug relapse material may be indicative of its ability to individuals auto control (Abd-alsalam, 2013), but In the this study it was found that Mindfulness training in the prevention of drug relapse in individuals with and without history of drug relapse has not a different effectiveness. In other words, regardless of their background of behavioral disorders in the drug abuse, Mindfulness has an effect on drug prevention. However, the findings of this research could lead to another obscure aspects of the mind, recall that it is important to note the need for further studies. Do you have a different effect various factors in the creation of drug relapse on Mindfulness effectiveness in preventing drug relapse in individuals with and without history of drug relapse? Although marriage can be considered as an important factor in mental health and family support (Pernice-Duca, 2010), but the results showed that Mindfulness has equal efficacy in preventing drug relapse in single and married individuals. Reducing stress based on mind only through awareness can help reduce stress by changing cognitive and affective conditions. On the other hand, is not paid In the Mindfulness to family and social factors so, no differences between married and

unmarried men In the effectiveness of MBSR can be due to lack of attention MBSR to support others.

But, one thing that can be useful In the this regard for further research is that what are the effects of family structure on the result of Mindfulness in the prevention of drug relapse regardless of marital status as married and have the family support or not? Also, since the despite divorce is one of the possible stresses of drug abuse, this question can be raised; can despite divorce impact in the outcome of MBSR in the prevention of drug relapse? The research's findings could be exploited due to its limitations. The purpose of this study has been investigated effectiveness of mindfulness training to prevent drug relapse. Therefore, generalization of its findings in the treatment of this problem is limited. With regard to the effectiveness of Mindfulness training and BDRC in preventing drug relapse, we recommend in the use of this treatment method and the development of theoretical and practical workshops to be held at addiction centers especially for psychologists. The authors have declared about conflict of interest, the findings in the study is not associated with the research interests of the researchers.

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