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The Effectiveness of Mindfulness-Based Group Therapy on Improving Metacognitive Beliefs in Preventing Relapse of Women Consuming Stimulants

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Abstract

Objective: The present study aimed to determine the effectiveness of mindfulness-based group therapy on improving metacognitive beliefs in preventing the relapse of women consuming stimulants.

Method: The design of this study is experimental with pretest-posttest, control group and follow-up phase. The statistical population of this study included all women who have been consuming stimulants for eighteen to forty years and referred to the Addiction Treatment Behbud Gostaran Center of Tehran in 1396. Among them thirty individuals were selected through convenience sampling method. Then they were randomly assigned to the experimental and control groups, each of which consists of 15. Mindfulness method was applied to the experimental group during 90-minute treatment sessions and the control group received no training. Metacognition Questionnaire (MCQ) in both pre-test and post-test stages were complemented by both groups. Covariance analysis was used to analyze data using SPSS software. After three months, both groups were followed up.

Results: Results showed that there was a significant difference between the mean of metacognitive post-test scores in the experimental and control groups. Mindfulness training has improved metacognitive beliefs in preventing relapse in women using stimulants.

Conclusion: The findings of this study in general indicate the effectiveness of mindfulness-based group therapy training on improving metacognitive beliefs in preventing the relapse of women consuming stimulants. Therefore, such sessions are recommended in drug addiction treatment centers and clinics.

Keywords: Mindfulness, Meta-cognitive beliefs, Relapse prevention, Stimulants

Introduction

Dependence on stimulants has devastating effects on people's biological, psychological and social conditions. Addiction is a recurrent and chronic mental illness that leads to severe motivational disorders and a lack of behavioral control (Oraki, 2019). High prevalence of stimulant use is one of the most important health problems worldwide in recent years (American Psychological Association, 2013).

Stimulus drug addiction is now one of women's health and social problems. Women addiction leads to social disturbances, such as increased divorce, delinquency, prostitution and unemployment (Timurid, Ramadan & Mahjub, 1394).

Drug abandonment is one of the issues that is always addressed by the authorities as well as the drug users themselves and their families. Physical abandonment of drug is not so much a problem, but the major problem is returning and getting started it again. Accordingly, health professionals and educational institutions have developed, invented, tested and evaluated various theories, models, strategies and techniques in the prevention

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and treatment of substance abuse and relapse prevention. (Firouz Abadabi et al., 1393).

It has been stated that most people who report drug abuse after treatment have been relapsed (McKay, Franklin, Patapis & Lynch, 2006). In order to fight against the recurrence of drug use, various studies have been performed and the conclusions obtained from these studies show that the effectiveness of drug maintenance therapies is associated with high recurrence of drug use in the lack of psychological and social interventions. (Whitcotiz, Marlatt, & Walker, 2005; Whitcotiz, 2004; Segal & Williams, 2002).

Modeling is one of the outstanding psychological interventions in addiction treatment and relapse prevention in recent years. It is based on helping the patient to acquire cognitive therapy of mindfulness therapy opportunities needed to manage situations. The risk and treatment of psychiatric disorders has been focused, in recent years. on both physical and mental aspects that are highly effective in treating depression, anxiety, fear, pain and addiction disorders (Millers, secretary, & Asgari, 1394).

Mindfulness helps one to understand that negative emotions can occur, but they are constant components, not permanent features. It also allows the individual to respond to events rather than involuntarily respond to them with reflection (Emanuel, Ipdegraf, Kalumbach & Kaysal 2010). On the other hand, the method of mindfulness is due to its underlying mechanisms such as acceptance, awareness, desensitization, presence in the moment, observation without judgment, confrontation and release, which can reduce symptoms and consequences after leaving, increase the effectiveness of treatment, and help prevent the return of drug use (Damirchi, shishegaran & Veloie, 1396).

Many drug abuse therapists have specific patterns of thinking that may persist and prevent change. These patterns of thinking are beliefs related to expectations, assumptions, beliefs and attitudes of drug use. Indeed, mindfulness training requires learning new metacognitive and behavioral strategies to focus on attention and prevent rumination, and tendency to it is a worrying response, developing new thoughts and reducing and improving metacognitive negative thoughts (Aghajani, 1391).

Among the determinants of drug use tendency, psychological variables are particularly important because psychologists believe that the impact of biological and social factors should go beyond the psychic tendency of the person to use the drug. From the psychological factors associated with drug use, we can refer to cognitive and metacognitive mechanisms, which are the same metacognitive beliefs that affect our behavior (Falavol 1999).

Metacognition is defined as awareness of cognitive processes and cognitive control, regulation, and active cognitive review (Wells, 2004). Metacognitive beliefs are important predictors of addiction and its persistence (Sahrasterg, Kazemi, & Raeesi, 1392). In the last two decades, researchers in the studies on the role of knowledge (beliefs), processes and strategies that assess, monitor and control cognition in the study of cognitive and metacognitive patterns, refer to them as the underlying mechanisms of addiction and people's tendency to become addicted. Metacognitions are one of the most important factors in the development and persistence of addiction (Soltani & Najafi, 2011). In fact, it can be said that metacognitive beliefs consist of the components of positive beliefs about worry, negative beliefs about anxiety, poor confidence, and the need to control thoughts (Wells, Cartwright & Hutton, 2004). In fact, what is more important in substance abuse disorder is the underlying beliefs, cognitive and metacognitive factors, and components of metacognitive beliefs, which often mediate between thoughts, temptations, and forced

acts that play important role in the persistence of disorder and recurrence (Berl & Starsio 2005).

Surveys conducted by Kamarzarin, Zare, and Brockey (1390) showed that 20 to 90 percent of addicts who were treated with medication started to use again. Due to the multifaceted nature of drug dependence, as well as the existence of chronic, progressive, and recurrent disease, treatment methods that emphasize only one aspect, such as drug therapy, have not been very successful in preventing relapse.

Shuanin and Gardon (2016) examined mindfulness therapy on substance use and gambling disorders, and their experimental studies showed that weekly treatment sessions led to changes in consuming drugs and gambling disorders. And finally, the present study aimed to determine the effectiveness of mindfulness-based group therapy on improving metacognitive beliefs in preventing the recurrence of women using stimulants.

Therefore, considering the issues raised and considering that the provision of relapse prevention strategies in patients related to stimulants is of particular importance, the need to do the present study has been felt. So the present study aims to test the hypothesis of the study which states: "treatment based on acceptance and commitment is effective in improving metacognitive beliefs in preventing the recurrence of women using stimulants."

Materials and Methods

The study was experimental with pre-test and post-test, control group and follow-up phase. The statistical population of the study included all women having been used stimulant drug for eighteen to forty years and referred to the Addiction Treatment Behbud Gostaran Center of Tehran Province in the 1396. Thirty of them were selected through convenience sampling and randomly assigned to experimental and control groups (each group consisting 15 subjects). The inclusion criteria were: not receiving mindfulness therapy before entering the study, not being diagnosed by a psychiatric or other physician and psychologist to prescribe drugs, applying SCID clinical interview form, being in the first and early periods of their stay in the camp, keeping constant in using dose of medicine prescribed during the research period, having a minimum of 18 years and a maximum of 40 years old, having a minimum education of secondary level, signing the written consent to participate in the research, dependence on stimulants based on urine test results and non-dependence to opioids, and the ability to speak in Persian.

Exclusion criteria also included: having all criteria for personality disorder in axis two, the patient's unwillingness to cooperate at any time of research and absence in medical sessions, the existence of risks for the patient such as having serious thoughts about suicide that makes it impossible to receive the drug and keep it constant, the record of receiving other psychological therapies, and inability to do homework at the camp.

Instruments

Metacognition

Questionnaire: This questionnaire was developed by Cartrit-Hutton and Wells (1997) to measure individual differences in positive and negative beliefs about unwanted worries and thoughts, meta-psychological review, and judgment on cognitive efficacy. The metacognition questionnaire (MCQ-30) is a short form of the Metacognition Questionnaire. The questionnaire (MCQ) was developed by Wells and Cartrit-Hutton (2004) and contains 30 self-reported statements that reflect people's beliefs about their thinking. The answers to this scale are calculated based on a four-point Likert scale (1 = I don't agree with = 4 = I strongly agree). This scale, like MCQ, has five subscales,

each containing six components. Shirinzadeh (۲۰۰۶) translated and prepared this questionnaire for the Iranian population. Cronbach›s alpha coefficient of the whole scale in the Iranian sample was reported as ۰,۹۱. Cronbach›s alpha coefficients for uncontrollable subscales, positive beliefs, cognitive awareness, and the need to control thoughts have been reported in the Iranian sample as ٪۸۷, ٪۸٦, ٪۸۰, ٪۸۰, and ٪۷۱, respectively.

Ethical statement

Informed consent forms were given to the participants and all necessary information, including the aims, confidentiality, and anonymity of their information, and the like, were given to the subjects. It was explained that if the respondents were reluctant to continue, they could stop taking part in the study at any time. It was also explained that after the completion of the study, the results would be revealed to participants. Meanwhile, free training sessions for the control group were planned.

Method

After formulating the intervention program, the first step in conducting this study was to invite all participants who had been in service since September 1396 until June 1397 and referred to the center for treatment of addiction. In the second step, the researchers conducted a sample of abusive diagnostic interviews with registered individuals, then the dates and start of the workshops were announced to them. In the third step, the experimental group training began on even days. Therefore, the training and treatment program for the individuals in each group was such that none of the members of the control and experimental group were in contact with each other. After the end of the course, post-test quality determination for both groups was performed. In the process of presenting the contents of each session, first the contents of the previous session were reviewed, then the training materials of the same session were presented and at the end, the review of new materials and assignments were given, while the control group did not receive mindfulness group therapy; however, they underwent group therapy after treatment for the sake of morality. The summary of mindfulness-based intervention (Buen, Chavala & Marlat, 2011) which was performed in eight 90-minute sessions is shown in Table 1.

Statistical analysis

Descriptive and inferential statistics were used to analyze data. In the descriptive statistics section, the mean and standard deviation, and in the inferential section, covariance analysis (MANCOVA) and analysis of variance with repeated measurement were used. All statistical analysis were done by using SPSS software version 21.

Findings

The age means of the participants was 33, also 55% had secondary school educational level, 35% had a high school diploma, and 15% had a bachelor's degree; 70% were unmarried and 30% were married; in addition, 85% had the record of drug use. Table 2 shows the results of the mean scores of the variables studied in the experimental and control groups in both pre and posttests. As shown in Table 2, in the control group, there are no differences between the pre and post test scores, but in the experimental group, the difference between the post test and the pretest scores were significant. To investigate the hypothesis of the study, covariance analysis test was used to determine the difference between experimental and control groups. Before doing covariance analysis, at first step, the assumption of covariance was examined. Levine's test result was not significant for any of the metacognitive beliefs (0.94). The assumption of variance homogeneity has been realized. For the purpose of normal distribution of metacognitive

Table 1. Summary of mindfulness treatment protocol (Bouen, Chawala & Marlat, 2011)

Session	Description
Direction of work	Introduction, brief description of 8 sessions, description of the relation between addiction, metacognitive beliefs, prevention of recurrence, discussions of automatic guidance, or inclination to doing behaviors mechanically, unconsciously, and without using enough awareness, contact with using stimulants (behavior based on temptation and desire, automatically and unconsciously). Practice in eating a raison, a practice called body scan.
Awareness of stimulators and temptation	Learning to experience stimulators, temptations and thoughts of using substance and alcohol without experience of automatic reactions, encouragement in doing a body scan meditation, hence, experience in carrying out duty in camp discussion, obstacles to practice and ways of conscious mind planning for the issue (being non-judgmental and abandoning confusing thoughts), and discussions.
Conscious mind in daily life	Giving materials to the group members in a way to develop quality of conscious mind in seating formally or practicing while laying. Daily training meditations formally.
Conscious mind in more dangerous situations	The participants were asked to focus on attending the situations and accompanying people whom they had connection in using substance before, sitting meditation along with attention to breathing, body sound and thought about stress and individual reaction to hard situations and attitudes and alternative behaviors.
Acceptance and skillful performance	Technical training such as breathing area and focusing on them in dealing with situations via practice, considering signs of alertness and training cessation for skillful performance both in more dangerous situations and in daily life.
Viewing thoughts as mere thoughts	Providing materials about awareness of thoughts and relation of awareness with thought focusing on experiencing thought as mere thoughts, the role of thoughts in recurring cycle, thoughts that anyhow seem problematic, and skillfully working with them, and practicing on the contents most of which are not real.
Self-care balance and lifestyle	Paying attention to the personal alerting signs for recurrence and how to respond them the best, proper respond for them including more developed choices in lifestyle, self-sympathy and importance of reliance on nutritional and sport programs for a healthier life. Four-dimensional meditation and awareness of anything coming to consciousness.
Social support and following exercise	Reviewing skills and practices learned in the course, using whatever learned so far, and ways of dealing with obstacles for doing recurrence. Question on whole sessions such as: Have the participants achieved their expectations?, Do they feel they personality has developed?, Do they think their skills improved?, and do they like to keep doing recurrence practices?

belief scores, Shapiero and Wilk test was used. The results indicated that the distribution of the data was normal because the significance level of the variable in the study groups were greater than 0.05. The assumption of homogeneous slope regression coefficients of variables considered in the experimental and control groups is equal to (P= 0.95 and F= 0.003). The F statistic is not significant in either case, so it can be concluded that the regression slope of the variables is equal in both groups.

The results of covariance analysis by eliminating the effect of posttest in Table 3 shows that the difference between the mean scores of the two

Table 2. The mean and standard deviation of metacognitive beliefs' parameters in pre-test and post-test

Parameter	Group	Mean			Standard deviation		
		Pre-test	Post-test	Follow-up	Pre-test	Post-test	Follow-up
Positive beliefs about anxiety	Experiment	26/06	20/33	18/66	1/35	1/28	1/14
	Control	26/73	26/73	27/33	1/66	1/93	1/47
Negative beliefs about uncontrollability	Experiment	19/40	16/00	16/80	1/51	1/05	1/13
	Control	16/40	16/86	16/40	1/11	0/87	1/02
Lack of cognitive assurance	Experiment	21/26	15/00	14/93	1/49	1/22	1/29
	Control	17/93	15/80	17/13	1/59	1/17	1/09
Thought control	Experiment	22/60	17/86	19/13	1/59	1/19	1/58
	Control	16/80	17/00	17/33	0/69	0/76	1/08
Self-awareness	Experiment	26/93	23/00	22/00	1/29	1/36	1/16
	Control	27/53	28/33	28/53	1/68	1/44	1/31

Table 3. Results of Covariance Analysis Test for the two groups of control and experiment

Source of index change	Sum of squares	DF	Squares mean	F	Sig
Pre-test	2642/388	1	2642/388	55/959	0/0001
Error	1274/946	27	47/220		
Total	295966/000	30			

experimental and control groups is significant in metacognitive beliefs (F (30, 1) F=55/909, P<0/05).

Also, the results of the analysis of variance of the repeated measures in Table 4 show in the posttest and posttest, there is no significant difference in metacognitive beliefs (P <0.05 and F = 0.30). Therefore, the changes observed in participants' behavior were statistically stable. The comparison of metacognitive beliefs in control and experimental groups is compared.

Discussion

The main purpose of this study was to investigate the effectiveness of mindfulness-based group therapy on improving metacognitive beliefs in prevention the relapse of consuming stimulants in women. The results showed the stable effect of mindfulness-based training in the experimental group. The effectiveness of mindfulness training has been confirmed, and the results of this study can be reconciled with them. Numerous studies in Iran and abroad indicate the effectiveness of different types of mindfulness training. Results of some research (Demirchi, shishegaran & Veloie , 2017; Asiaban, Manshai & Asgari, 2016; Amanoel, Jepidjraf, kalembaj & kaysal, 2010; Ahmadi Tahoor & Najafi, 2011) are consistent with each other emphasizing the importance of training and acquisition and application of mind skills awareness and growth, and development of such skills are emphasized for improving psychological and mental health variables. In addition, it was shown that interventions improve the ability of these individuals to receive awareness, desensitization, and attendance to the moment, and observation has been judged without biased and improves metacognitive beliefs in women who use stimulants. Based on the results and follow-up, it was found that negative emotions such as pessimism, inadequacy, frustration and lack of

resilience, as well as disturbed metacognitive thoughts, are among the precursors of recurrence. In particular, mindfulness exercises are designed to prevent substance abuse from recurring and teach clients alternative methods to link them to their experiences, especially those related to emotion and negative cognition that are unpleasant or challenging. In fact, mindfulness exercises improve negative emotions and disturbed metacognitions so that the consequence and continuation of this change will lead one not to reuse drugs and help clients change their reaction to negative emotions without responding immediately to the temptation and craving for drug to soothe the negative mood (Zemestani, Babamiri, & Pesyani, 2016).

In fact, in the present study, on the one hand, through cognitive mindfulness, we were able to detect this change in women's using stimulating drug by applying mindfulness as a way to better deal with life's problems, make their lives meaningful, enrich their lives, and find the ability to resist and observe things like temptation, craving, abusing, high anger, and related problems in themselves, and by removing automated processing and instead attempting to control processes through re-understanding, control their present emotions such as temptation to reuse, anxiety, frequent nervousness, and increase their psychological assets, such as hope, optimism, self-efficacy and resilience, as well as allow the individual to respond to the events with reflection and thought rather than responding in an involuntary and biased manner. It also helps the individual know that negative emotions may occur while recognizing that they are not fixed personality. On the other hand, we have been able to train the mind by mental representations of objects in the lives of people who were out of control through deep breathing and thinking. The reason for the effectiveness of mindfulness group therapy training is that mindfulness training, due to making metacognitive monitoring and processing dysfunctional thoughts, disrupts negative biases and treats the individual with greater awareness; therefore, it leads to altered patterns of defective thinking and training attention control skills, by increasing the preventive aspect of treatment.

Metacognition means that people get trapped in emotional distress because their metacognition is a particular pattern. This pattern leads to Syndrome 12, which sustains negative emotions and reinforces negative beliefs in responding to internal experiences or cognitive and attentional behaviors and self-regulation strategies, including anxiety, rumination, and established attention and maladaptive opposition (Wells, 2000). Based on the metacognitive beliefs, a person who has drug abuse in response to an arousal that is usually an unwanted thought, feeling or desire becomes distressed and anxious. Disturbing thoughts, the individual's metacognition beliefs of the meaning and significance of these thoughts, activates and subsequently leads individuals to reuse and relapse (Papajorgio & Wells, 2003). Activation of dysfunctional metacognitive beliefs causes negative evaluation of intrusive thinking as a sign of threat. This evaluation in turn exacerbates the negative emotions that are predominantly anxious as a result of the individual, who uses mind control strategies to reduce his anxiety and control cognitive system. Eventually, when a negative interpretation of harassment develops, beliefs about neutralization are activated to reduce anxiety (Wells, 2000).

Mindfulness-Based Group Therapy uses different techniques and attention to concepts such as acceptance, mindfulness, living in the present moment, and cognitive impairment. Values and committed actions, which cause psychological flexibility and reduce cognitive processing defects and effects on negative metacognitive strategies, can reduce the patient's effectiveness, lessen symptoms, and decrease the effectiveness of treatment and prevent slipping and relapse

(Arjmand Ghujur et al., 2019).

Limitations

One of the limitations of the present study relates to the statistical population that consists of only women who use stimulants. Absence of people who are addicted to opiates and other drugs, and lack of six-month and one-year follow-up are other limitations of this study.

Conclusion

Based on the results of the present study, mindfulness-based group therapy, as a psychological intervention, improves metacognitive beliefs in preventing the relapse of women consuming stimulants. Therefore, these approaches can be used to improve metacognitive beliefs in preventing the relapse of stimulants.

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Conflict of interests

The authors expressed no conflict of interests.

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