

The Comparison between the Effect of the Cognitive-Behavior Combinatory Therapy with MMT (Methadone Maintenance Therapy) on Uncompromising Cognitive Emotion Regulation Strategies of Addicts Volunteer for Quitting in Jiroft City

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Abstract

Introduction: Substance abuse disorder with chronic and recurrent nature has dedicated a wide range of psychosocial interventions and drug therapy. Today, a combination of pharmaceuticals and psychological treatments for treatment and prevention of re-use and subsequent increase in psychological co-existence in these patients have been used. One of the most important guidelines for recovery and prevention of recurrence, is psychological treatments and maintenance therapy with drugs such as methadone. Accordingly, the present study has taken place for comparison of the effect of the cognitive behavior combinatory therapy with MMT (Methadone Maintenance Therapy) on uncompromising cognitive emotion regulation strategies in patients with substance abuse.

Methods: The present study was a quasi-experimental pretest-posttest with a control group. Accordingly, 30 addict participants referring to drug rehabilitation centers were considered as the sample of the study and were randomly assigned into three groups: cognitive-behavior therapy, methadone maintenance therapy, and control. The subjects completed the Cognitive Emotion Regulation Questionnaire, before and after the intervention. Data were analyzed using descriptive statistical methods and analysis of covariance.

Results: The findings showed that cognitive behavior therapy led to the reduction of uncompromising cognitive emotion regulation strategies compared to methadone maintenance therapy. However, methadone maintenance therapy was also effective ($p < 0.05$).

Conclusion: Cognitive-behavior therapy, by changing the cognitive and behavioral variables associated with drug abuse, such as uncompromising emotion regulation strategies, helps the addicts for drug rehabilitation.

Keywords: Methadone Maintenance Therapy, Cognitive- Behavior Combinatory, Emotion Regulation Strategies, Addicts

Introduction

Addiction is a chronic poisoning that is created by the consumption of natural or industrial drugs. For this reason, the World Health Organization has used the concept of dependence for it, and they think that it is because of the long-term use of a substance or a combination of substances that results in

tolerance or withdrawal syndrome when it is discontinued. They also use disorder instead of the word addiction. For example, in the classification of psychiatric disorders, addiction has been attributed to substance abuse such as alcohol, heroin, etc. that they will cause problems like changes in thinking, feelings and behavior (1). Today, this kind of

issue has become a disaster, social dilemma, and major health challenge. Addiction and chronic and prolonged diseases caused by it, such as hepatitis and acquired immune deficiency syndrome (AIDS), have damaged the thinking, work, creativity, and families of the infected people. Some research indicates that there is a negative and direct relationship between substance abuse and quality of family life and high overlapping of symptoms of psychological disorders such as depression and anxiety with addiction. Of the most important interventions, for substance abuse disorder, are pharmaceutical, psychological, and social interventions. One of the main goals of cognitive-behavioral therapy approach is to help addicts in maintaining the quitting periods and preventing addiction (5). In many studies, the effects of cognitive-behavioral therapy approach group have been approved for addicted persons. On the other hand, methadone maintenance treatment can also be an effective treatment to quit the addiction. This program, which is based on drug treatment, has controlled the withdrawal syndrome due to drug discontinuation by replacing methadone with an addictive substance, and in many cases, its efficacy during absenteeism. Newberry (2017), in a study entitled "The Effect of Methadone on the Treatment of Heroin Disorder", stated that the methadone maintenance treatment has caused secondary addiction and has only changed the subject of addiction. (7) Carpenter *et al.* (2009) in a study of 193 addicts with methadone maintenance treatment demonstrated that 78% of them had psychiatric problems and they needed additional psychological services (2). Emotion regulation is one of the important factors that may be affected by addiction. The emotional regulation involves a range of cognitive-behavioral conscious and obscure strategies that is done for reduction, preservation or enhancement of emotion (8). Emotion regulation, has been defined as a process of initiating, maintaining, modifying or changing the incidence, severity or continuity of the inner feeling and the

excitement associated with social, psychological, and physical processes in accomplishing the person goals (9). One of the most commonly used strategies is the emotional regulation using cognitive strategies. Cognition or cognitive processes helps people to adjust their emotions and feelings and not overcoming to the intensity of emotions (10). Emotion regulation is one of the important factors that may be affected by addiction. The emotional regulation involves a range of cognitive-behavioral conscious and obscure strategies that is done for reduction, preservation or enhancement of emotion (8). Emotion regulation, has been defined as a process of initiating, maintaining, modifying or changing the incidence, severity or continuity of the inner feeling and the excitement associated with social, psychological, and physical processes in accomplishing the person goals (9). One of the most commonly used strategies is the emotional regulation using cognitive strategies. Cognition or cognitive processes help people to adjust their emotions and feelings and not overcoming to the intensity of emotions (10). The cognitive emotion regulation mentions the cognitive management method and managing and manipulating emotion information (11). Non-regulating emotion, disturbing the effective functioning of cognition and this disturbance will intensify the emotional disturbance. The inability to control the negative emotions is due to the existence of negative thoughts and beliefs about worries and the use of inefficient practices (12). These strategies play an important role in creating emotional and behavioral problems for individuals after exposing to stressful events. The strategies that people use for emotion regulation, has been studied in practical and theoretical research and has been discussed as compromised and uncompromising strategies (13, 14, 15). In the same vein, Garnovskii Craig and Spinhawne (2001), have introduced nine different cognitive emotion regulation strategies under the titles: rebuke of oneself (thinking with the

content of blaming and faulting oneself), acceptance (thinking with the content of acceptance and submission an event), rumination (mental work about emotions and thoughts related to a negative event), positive concentration (thinking about a delightful and joyful subject instead of thinking about the real incident), re-focusing on planning (thinking about the steps to be taken negative event or change on it), positive reappraisal (thinking about positive aspects of an event or Personal promotion), rumination (thoughts about the low importance of the event or the emphasis on its relativity feature in comparison with Other events), catastrophizing (thinking with the content of horror from the incident) and other blame (thinking with content Blaming and faulting others for what's going on). Among those nine strategies, they have introduced, the rebuke of oneself or others, rumination and catastrophizing as uncompromising cognitive emotion regulation strategies and acceptance, re-focus on planning, positive concentration, positive reappraisal and rumination as compromised strategies of cognitive emotion regulation (16). Research indicates the positive effect of methadone maintenance therapy and cognitive-behavioral therapy on cognitive emotion regulation. Ismaili and *et al.* (2017) investigated the effect of group cognitive therapy on cognitive emotion regulation in methadone-treated patients and found that cognitive group therapy could affect the psychological factors associated with drug addiction. Therefore, we can use this approach as a non-pharmacological treatment for these patients (17). In this regard, Ghorbani, Kazemi and Ghorbani (2012) found that cognitive-behavioural therapy reduces the risk of return to the substance by changing the cognitive and behavioural variables associated with substance abuse, such as self-efficacy beliefs and emotion regulation strategies. (18). Ghorbani, Mohammad Khani and Sarrami (2011) also showed that cognitive-behavioral therapy is an effective treatment that can change the behavioral and cognitive variables

associated with drug abuse like emotion regulation strategies (19). So, according to these findings, substance abuse treatment programs should target these mediator variables. Hasin and *et al.* (20) and Quello (9), Brady (10), and Sonne (11, 21) pointed to the role of improving emotion regulation skills in reducing alcohol and drug use. Jalali and *et al.* (2017), in study titled "The Effectiveness of Cognitive Group Therapy on Confidence and emotion regulation in addicted prisoners under methadone maintenance treatment", have found that cognitive group therapy caused enhancing confidence and improvement of emotion regulation in addicted prisoners under methadone maintenance treatment (22). Accordingly, the aim of this study is to compare the effect of cognitive behavioral therapy and MMT on the uncompromising strategies of cognitive emotion regulation of addicts volunteer for quitting in Jiroft town.

Methods

This research was a quasi-experimental research having pretest-posttest with a control group. The statistical population of this study consisted of all addicts who volunteered for quitting referring to Jiroft addiction treatment clinics. Their age ranged between 18 and 45 years old, 30 people were selected through a sampling method and were randomly assigned to two experimental and one control groups. The sample selection method was the way that the researcher referred to six Jiroft addiction treatment clinics by obtaining permission from Jiroft's welfare a word is missing here, e.g., Office and received the subjects' addresses, and phone number of the people and invited them to participate in the research. Classes were held at the clinics. All three groups were pre-tested and the first experimental group received cognitive-behavioral therapy for six sessions (they were treated for two sessions weekly and each session 1 hour), and the second group received methadone treatment. Finally, post-test was performed for all three groups. After the end of the study, cognitive behavioral training was provided for the other

two groups. The criteria for attending the sessions included the following: -1 Diagnostic interviews taken by the specialist. -2 Age from 1 to 45 years. -3 being a man. 4. The absence of simultaneous disorder in the first, second and third axis -5 level of education (middle school to bachelor). Exclusion criteria included the following: 1. the presence of simultaneous disorder in the first, second and third axis 2. No entry criteria (age, gender, education). The design of the treatment sessions was such that during each session, individual was trained special skills such as anti-temptation skills and emotional regulation strategies. To teach these skills, they got familiar at first two sessions with subjects with a cognitive-behavioral pattern of substance abuse, including identifying a chain of cognitive-behavioral events associated with drug abuse (such as recognizing situations, feelings, beliefs, thoughts and actions), behavior (the outcomes and consequences of behavior, provocative situations, etc.), and temptation reduction methods. In the next two sessions the subjects were trained to identify negative self-thought, cognitive errors, awareness of triggering and temptation factors and their relationship with drug abuse in high-risk situations, and how to deal with stress and alternative methods for drug abuse. In the last two sessions, the methods of coping with negative mood, lack of drugs, and methods for controlling anger, etc. were trained. Also, in each session, a task was given to people to practice and repeat the skills learned in the treatment sessions (19). Table 1 shows the therapeutic steps taken during the treatment sessions. Measuring tools included the following: A diagnostic interview to initiate a primary medical relationship, diagnose, justify, and engage in partnerships and collaboration. The subjects' participation in the group therapy sessions was based on the fifth version of diagnostic guidelines. Also, this interview was a tool for matching the three groups of cognitive-behavioral therapy, methadone maintenance therapy, and the control group based on the criteria for entering

treatment. Cognitive Emotion Regulation Questionnaire: The questionnaire was prepared by Garnovskii, Kraiyev, and Spinhaun (2001). This multi-dimensional questionnaire is used to identify the cognitive coping strategies of individuals after experiencing negative events or situations. Unlike other Coping questionnaires that clearly do not differentiate between individuals and their actual actions, this questionnaire evaluates their thoughts after a negative experience or harmful events. Cognitive emotion regulation Questionnaire is a self-reporting tool with 36 items. The implementation of this questionnaire is very easy and useable for people over 12 years old (normal people and clinical populations). Emotional Cognitive Questionnaire evaluates 9 cognitive strategies of rebuke of oneself, acceptance, rumination, positive concentration, re-focusing on planning, positive reappraisal, rumination, catastrophizing, and other blame. Scale range is from one (almost never) to five (almost always). Each sub-scale consists of four items. The total score of each the sub-scales is obtained by aggregating the score of the items, which total scores range is from 36 to 180. Scale builders, by using Cronbach's alpha coefficient, have obtained the reliability of positive, negative and total strategies 0.91, 0.87 and 0.93, respectively. Usefi, in Iran, studied the test validity through correlated between total scores with test subscales score that is ranging from 0.4 to 68%, with a mean of 56. All of them were significant and the Cronbach's alpha coefficient was reported 0.82. In the validity test of the scale, through correlation, the negative strategies with depression scores and anxiety scores of the general health questionnaire obtained with coefficients of 0.35 and 0.37 respectively that all were meaningful. Also, in the study of Andami khoshk, golzari and Isma'ili Nasab (2013), Cronbach's alpha of this scale ranged from 0.76 to 0.92. The questionnaire reliability in this research is used Cronbach's alpha of 0.85 (23). Lab testing for rapid diagnosis: This

test is a qualitative diagnostic test used for the determination of morphine in a human urine specimen, medical diagnosis, and other diagnostic tests (for laboratory conditions only). According to the laboratory expert, this is a quick diagnostic test used to determine morphine or any other Narcotic. This test is a narrow strip in which some morphine has been added in compressed and artificial form. When you put the strip into the urine, if the person consumes the substance, morphine inside the urine competes with morphine inside the strip and shows that there is morphine in the human body. As a result, there is a line on the strip that indicates the presence of morphine. There are two lines in negative cases. Data were analyzed by SPSS software version 18 and the statistical test of analysis of covariance (ANCOVA) was used.

Results

The mean, standard deviation and standard error of the mean of the variables of research are presented in Table 2. As shown in Table 2, the mean score of posttest scores for catastrophizing in the methadone treatment group is 6, the cognitive behavioral group is 5.6 and the control group is 11.8. Mean scores of post-test for the other blame in the methadone treatment group is 8.3, the cognitive behavioral group is 7.3, and the control group is 11.9. Mean scores of self blame in the methadone treatment group is 11.2, the cognitive behavioral group is 9.3, and the control group is 11.9. Mean scores of rumination in the methadone therapy group is 11, the cognitive behavioral group is 9.8, and the control group is 14.6. The default of analysis of covariance is the variance homogeneity. Levene's test was used to test variance homogeneity. The results of Levene's test on the catastrophizing variable were ($F = 1.74$, $P = 0.32$), other blame ($F = 0.72$, $P = 0.49$), rebuke of oneself ($F = 1.11$, $P = 0.34$), and rumination ($F = 0.74$, $P = 0.48$) that they confirm the homogeneity of variances. The

analysis of covariance test was used to examine the significance of the difference between the mean scores of the three groups and to control the effect of the pre-test. The results are presented below. As shown in Table 3, assuming that the control variable is pre-test scores, there is a significant difference, in the three groups, between catastrophizing scores before and after treatment ($P = 0.001$). Therefore, this hypothesis is confirmed. The difference is 66 % that means 66 % of catastrophizing scores variance related to group membership. The statistical power of 1 shows that Sample size has been sufficient. Assuming that the control variable is pre-test scores, there is a significant difference, in three groups, between the scores of other blame before and after the treatment ($p=0.001$). Therefore, this hypothesis is confirmed. The difference is 40% that means 40 % of other blame scores variance related to group membership. The statistical power of 0.94 indicates that the sample size was sufficient. Also, assuming that the control variable is pre-test scores, there is not a significant difference in three groups, between the scores of self-blame before and after the treatment ($p=0.001$). Therefore, this hypothesis is rejected. Assuming that the control variable is pre-test scores, there is a significant difference in three groups, between the scores of rumination before and after the treatment ($p=0.001$) so, this hypothesis is confirmed. The difference is 40% that means 40 % of rumination scores variance related to group membership. The statistical power of 0.94 indicates that the sample size was sufficient. Overall, according to the results of Tables 2 and 3, it can be said that methadone therapy and cognitive-Behavioral therapy have impacted on the uncompromising cognitive emotion regulation strategies and have reduced mental employment of People to these variables.

Table 1. Schedule of Behavioral Therapy and Drug therapy Sessions in the Control group-cognitive treatment

Sessions	Cognitive-behavioral	Methadone maintenance therapy
First and second sessions	Cognitive- behavioral chain Recognition	Start of drug treatment by methadone
Third and fourth sessions	cope with temptation, stress, and negative thoughts	Continuing the process of drug therapy
Fifth and sixth session	Training the skills of cope with temptation , negative mood , and anger	Drug effectiveness evaluation

Table 2. Mean, standard deviation and standard error of research variables

Variable	Group	Te	Frequency	Mean	Standard deviation	Standard error
Catastrophizing	MMT	pre	10	10.50	3.65	1.15
		post	10	6.00	2.00	0.63
	CBT	pre	10	9.50	2.67	0.84
		post	10	5.60	0.84	0.26
	Control	pre	10	11.70	2.90	0.91
		post	10	11.80	2.78	0.87
Other blame	MMT	pre	10	10.80	2.48	0.78
		post	10	8.30	3.12	0.98
	CBT	pre	10	12.00	23.26	1.03
		post	10	7.300	2.90	0.91
	Control	pre	10	11.90	2.33	0.73
		post	10	11.95	2.60	0.82
Self- blame	MMT	pre	10	11.20	2.39	0.75
		post	10	11.20	2.39	0.75
	CBT	pre	10	9.30	1.76	0.55
		post	10	9.30	1.76	0.55
	Control	pre	10	11.91	1.85	0.58
		post	10	11.90	1.85	0.58
Rumination	MMT	pre	10	14.70	2.40	0.76
		post	10	11.00	2.21	0.69
	CBT	pre	10	14.50	2.01	0.76
		post	10	9.80	3.11	0.98
	Control	pre	10	13.70	2.40	0.63
		post	10	14.60	2.67	0.84

Table 3. Results of analysis of covariance (ANCOVA) in the three groups in the research variables

		Sum of Squares	df	Mean Square	F	Sig	Eta2	Observed Power
Catastrophizing	Pretest	5.35	1	5.35	1.30	0.26	0.04	0.19
	Group	205.73	2	102.86	25.08	0.001	0.65	1.00
	Error	106.64	26	4.10				
Other blame	Pretest	56.57	1	56.57	8.72	0.007	0.25	0.81
	Group	111.38	2	55.69	8.59	0.001	0.39	0.94
	Error	168.53	26	6.48				
self- blame	Pretest	9.60	1	9.60	1.03	0.31	0.03	0.16
	Group	41.39	2	20.69	2.22	0.12	0.14	0.41
	Error	241.49	26	9.28				
rumination	Pretest	25.92	1	25.92	3.96	0.05	0.13	0.48
	Group	112.48	2	56.24	8.59	0.001	0.39	0.94
	Error	170.07	26	6.54				

Discussion

The aim of this study was to compare the effect of cognitive-behavioral combination therapy with MMT on uncompromising cognitive emotion regulation strategies of addicts who volunteered for quitting in Jiroft city. In general, the findings of this study indicate that cognitive-behavioral therapy is effective for improving uncompromising emotion regulation strategies in substance abuse people. Experimental group who has been received cognitive-behavioral therapy showed better improvement than the other two groups independent variables. The results of one-way analysis of variance (Table 3) showed that after an intervention, there was a significant difference between the control group and the other two groups. This finding suggests that cognitive behavioral intervention is effective for improving the uncompromising emotion regulation strategies. The results of this study are consistent with the findings of Qorbani, Kazemi and Ghorbani, Ghorbani, Mohammad Khani and Sarami, Rasuli, Kilo, Brady and San, Jalali *et al.*, Ismaili and *et al.*, and Otto and *et al.*, (17, 18, 19, 21, 22, 24, 25). In explaining this result, it can be said that the researchers, in the study of the causes of the prevalence of substance abuse and recurrence after treatment, have indicated to various

factors such as stress and lack of appropriate coping skills, lack of courage and mental health status, as well as inappropriate mood status Particularly in association with major depressive disorder. For example, based on Khantzian self-healing theory, the abuse by addicts is a self-healing technique used to treat depression (19). In Beck model, one of the most important drivers for resuming substance abuse, has been mentioned to be negative emotions and inability to manage them. Empirical research in this area has shown that abusers who use better emotional regulation strategies are more successful in treatment. Conversely, people who are not able to control their emotions are more likely to be consuming substances permanently (19). Addicts have difficulties in identifying their emotions and others, which causes them have problem to be in a positive emotional, constructive, and conductive relationship with others that themselves agents of drug use. The approach of cognitive-behavioral therapy helps these individuals to identify their negative emotions and mood and control their mood and emotions.

Conclusion

According to findings it can be said that the cognitive-behavioral therapy method has an

impact on emotional regulation and control of the attention of addicts in adverse conditions, and it may be, in the long-term, an alternative to substance use.

Ethical issues

Not applicable.

Authors' contributions

All authors equally contributed to the writing and revision of this paper.

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