



ORIGINAL ARTICLE

## Effectiveness of Cognitive-behavior Therapy on depression and Craving beliefs of Abusers under Methadone Maintenance Treatment

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### ABSTRACT

*This study aims at investigating the effectiveness of cognitive-behavior therapy on depression and craving beliefs of abusers under methadone maintenance treatment who attended Addiction Treatment Clinics of Bushehr City. Statistical population of this research includes all abusers who refer to the addiction treatment centers (clinics) of Bushehr City. In regard to the research problem and research objectives, sampling is of type purposive and random. For carrying out the present study, via referring to the addiction treatment clinics of Bushehr City, those abusers were invited who had tendency to participate in this research plan. The referred firstly completed the Beck depression inventory and craving questionnaire. Then, those abusers were selected whose scores were one standard deviation higher than the mean in the variable of Beck depression and one standard deviation higher than the mean in the variable of craving beliefs. Out of these, 20 qualified persons were selected and divided randomly into two groups (experiment and control groups) and only the experiment group was intervened. After intervention made in the experimental group, both groups took post-test in research variables. At the end, data obtained from the research were analyzed by Multivariate Analysis of Covariance (MANCOVA). Results showed that there is a significant difference between the experiment and control groups in terms of depression and temping beliefs ( $P < 0.0001$ ). Findings showed that research intervention has been effective on reducing the depression symptoms and increasing craving beliefs for using the drug.*

**Keywords:** cognitive-behavior therapy, depression, craving behaviors, drug abuse

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### INTRODUCTION

Drug abuse as a social issue, is a phenomenon that deteriorates the society ability in organizing and keeping the existing discipline and causes structural transformations in economic, social, political and cultural systems [1].

Having a realistic attitude towards the issue of drug abuse, we can easily find out that this issue dates back to several centuries ago and currently there is no country which has been stayed safe against its extension. This issue is one of the important social damages in such a way that not only endangers the health of individual and society, but also causes mental and moral degeneration of people.

One of the damages which emerges as result of afflicting with drug use and drug abuse within family and even outside is depression among the abusers and consequently their family members. In the meantime, it is possible that the drug abuse motivates the addicted persons to reuse the drug and craving beliefs towards drug use and these craving beliefs is considered one of facilitators for drug use [2]. One of the subjects which attracts many addiction therapists at the time of referring the addicted persons to them for treating drug abuse is their negative beliefs [3].

Existing documents show that those persons who are afflicted with drug abuse have suffered a high rate of depression in their life and this depression has affected negatively on their life quality [4].

There are many evidences indicating the relationship between drug abuse and depression and among these evidences researches by Leonard [5]; Kaufman & Asdigian [2]; Lemon, Verhoek & Donnelly [6]; Stewart, Moore, Kahler, Ramsey & Strong [7] can be mentioned. Also, craving beliefs is one of the common problems for the addicted and studies have shown that almost two third of the addicted people who have been participated in the drug abuse treatment reports this matter [3].

During the last two decades, numerous psychological interventions have been extended for drug use and this issue indicates the effect and effectiveness of these interventions [8]. Ordinary treatments of drug abuse include traditional treatments such as supportive treatments, psychodynamic, behavioral, cognitive models and cognitive-behavioral models. Among these, one of the treatments which affects directly on the mental and spiritual modes on those afflicted with drug abuse and is supported by many researches is cognitive-behavior therapy [9]. Cognitive-behavior therapy has led to reduction in many issues and problems such as weak communications within the family, unemployment, weak family supportive system, weakness in communicative skills and problems with drug abuse. As a result, this therapy program can create a supportive atmosphere for those persons afflicted with the drug abuse which leads to drug addiction treatment. Family support is one of the most important matters which guides to success and getting free from the drug abuse [7].

In view of the aforementioned, the main issue that this study is pursuing is the effectiveness of cognitive-behavior therapy on depression reduction and craving beliefs of abusers under methadone maintenance treatment in Bushehr City and whether the cognitive-behavior therapy can reduce the depression and craving beliefs of abusers under Methadone maintenance treatment of Bushehr City?

## MATERIALS AND METHODS

### Participant

Statistical population of this research includes all abusers who refer to the addiction treatment centers (clinics) of Bushehr City.

In regard to the research problem and objectives, sampling method of the present study is of type purposive and random. For carrying out the present study, via referring to the addiction treatment clinics of Bushehr City, those abusers who had tendency to participate in this research plan were invited to attend the addiction treatment clinic specified for performing the research in a given date so that they would take the test and have interview with the researcher and his/her colleagues. Those abusers, who referred to these clinics, firstly completed the Beck depression inventory and temptation-coping questionnaire. In the next stage, those abusers were selected whose scores were one standard deviation higher than the mean in the variable of Beck depression and one standard deviation higher than the mean in the variable of craving beliefs. Out of these, 20 qualified persons were selected and divided randomly into two groups (experiment and control groups) and only the experiment group was intervened and control group were put into the waiting list (after finishing the meetings of cognitive-behavior psychotherapy on experiment group, control group and those abusers who were not put into two groups in regard to the random sampling method, were timely passed cognitive-behavior treatment). At the end, after intervention made in the experiment group, both groups took post-test in research variables.

### Measures

#### 1. Beck depression Inventory (13-item version)

This questionnaire is the summarized version of 21-item version [10] which were presented in 1972 [11]. Content of questionnaire includes sadness, pessimism, frustration, unhappiness, guilt, self-hate, self-destructive, social resignation, indecision, self-image, job problem, fatigue and appetite. Each question has four choices to be answered for which the scores are 0, 1, 2 and 3. The person's score is the sum of all scores obtained from the questions [12].

For implementing this test, the subjects were asked to read the questions and choices of every question one by one and carefully. Then, she should select a choice for each question which expresses his current feeling better than the other choices; i.e. what she feels just at the time of test. Then she encircles the number before that choice. For calculating the results, the psychologist should sum all scores that the subject has encircled. Since in each question 3 is the highest, and number of items is 13, therefore, the maximum possible score is 39. Scores 0-4 (normal), 5-7 (mildly depressed), 8-15 (averagely depressed) and higher than 16 (acute depressed) are considered.

Reynolds and Gold [13] reported the reliability and internal similarity 0.83 for 13-item Beck depression Inventory. Through implementing this questionnaire on a sample of students of Ahwaz City reliability coefficient 0.89 was obtained by using the Cronbach's Alpha and 0.87 was obtained by split-half method.

#### 2. Craving Beliefs Questionnaire (CBQ)

This questionnaire is a self-measuring scale which measures the beliefs related to the drug craving and consists of 20 item each of which is ranked in a 1-7 degree scale (from strongly disagree to strongly agree).

Reliability of this questionnaire is reported 0.84 based on the Cronbach's Alpha [11].

## RESULTS

**Table 1. Mean, standard deviation, lowest and highest scores of depression among the subjects in experiment and control groups both in pre- and post-test**

Lowest	Highest	No.	Standard deviation	mean	Statistical index	Stage
					Group	
5	18	20	4.08	11.4	Experiment	Pre-test
4	18	20	3.88	9.13	Control	
1	7	20	1.40	3.53	Experiment	Post-test
6	17	20	3.05	9.93	Control	

As shown in table 1, in experiment group, the mean for depression scores in pre-test and post-test are 11.40 and 3.53, respectively. Also, in the control group, the mean for depression scores in pre-test and post-test are 9.13 and 9.93, respectively. Significance of these findings is examined in the section related to the research hypotheses.

Table 2 shows that mean and standard deviation for scores of craving beliefs in control and experiment groups both in pre- and post-tests.

**Table 2, mean, standard deviation, highest and lowest scores of craving beliefs in subjects of control and experiment groups both in pre- and post-tests**

mean	Standard deviation	No.	Highest	Lowest	Statistical index	Stage
					Group	
64	92	20	7.56	74.60	Experiment	Pre-test
63	83	20	6.67	73.73	Control	
56	106	20	10.39	81.30	Experiment	Post-test
62	82	20	5.26	71.00	Control	

As shown in table 2, in experiment group, the mean for life quality scores in pre-test and post-test are 74.60 and 80.13, respectively. Also, in the control group, the mean for life quality scores in pre-test and post-test are 73.73 and 71, respectively. Significance of these findings is examined in the section related to the research hypotheses.

Hypothesis 1: Cognitive-behavior therapy reduces the depression and improves the craving beliefs of abusers under methadone maintenance treatment.

**Table 3. Results obtained from MANCOVA method on the mean of post-test scores of depression and craving beliefs among the subjects of experiment and control groups**

Level of significance	Statistical power	Effect size	df error	df hypothesis	F	Value	Test name
0.001	1	0.73	25	2	35.29	0.73	Pillai Trace
0.001	1	0.73	25	2	35.29	0.26	Wilks' lambda
0.001	1	0.73	25	2	35.29	2.82	Hotelling's Trace
0.001	1	0.73	25	2	35.29	2.82	Roy's largest root

Table 3 indicates that there is a significant difference between experiment and control groups in terms of dependent variables in level  $p = 0.001$ . Therefore, hypothesis No.1 is accepted. Based on this, it can be said that there is a significant difference at least in one of dependent variables (depression and craving beliefs) between two groups. In order to find out this, three covariance analyses was carried out in MANCOVA

context of which the results are given in tables 4-6 and 4-7. Additionally, effect size index shows that 73% of difference between two groups is related to the experimental intervention. Statistical power is 1, i.e. possibility of second type error is zero.

Hypothesis 2: Cognitive-behavior therapy reduces the depression of abusers under methadone maintenance treatment.

**Table 4. Results obtained from MANCOVA method on the mean of post-test scores of depression of experiment and control groups**

sig	Statistical power	Effect size	F	Mean of squares	df	Sum of squares	Change source	Variable
0.016	0.70	0.20	6.70	30.48	1	30.48	Pre-test	Depression
0.001	1	0.73	72.17	328.24	1	328.24	Group	
				4.54	26	118.24	Error	

In regard to table 4, in the column “significance level”, it can be observed that there is a significant difference between experiment and control groups in terms of variable of depression in level  $p = 0.001$ . Based on this, it can be said that hypothesis 1-1 is accepted. Additionally, effect size index shows that 73% of difference between two groups is related to the experimental intervention. Statistical power is 1, i.e. possibility of second type error is zero.

Hypothesis 3: Cognitive-behavior therapy improves the craving beliefs of abusers under methadone maintenance treatment.

**Table 5. Results obtained from the ANCOVA analysis within MANCOVA context on the mean of post-test scores of craving beliefs of subjects in experiment and control groups**

sig	Statistical power	Effect size	F	Mean of squares	df	Sum of squares	Change source	Variable
0.526	0.09	0.01	0.41	18.99	1	18.99	Pre-test	Craving beliefs
0.006	1	0.25	8.82	405.17	1	405.17	Group	
				45.92	26	1193.9	Error	

In table 5, in the column “significance level”, it can be observed that there is a significant difference between experiment and control groups in terms of variable of craving beliefs in level  $p=0.002$ . As a result, hypothesis 1-2 is accepted. Additionally, effect size index shows that 25% of difference between two groups is related to the experimental intervention. Statistical power is 1, i.e. possibility of second type error is zero.

## DISCUSSION AND CONCLUSION

The present study has been planned in order to investigate the effectiveness of cognitive-behavior therapy on depression, and craving beliefs among the abusers under methadone maintenance treatment.

Hypothesis 1: Cognitive-behavior therapy reduces the depression and improves the craving beliefs of abusers under methadone maintenance treatment.

Results of this hypothesis are consistent with researches by Bastlar *et al* [14], Tesamparil and Siosiora [15], Wildermuth [16], Cigrang [17] and Petrak *et al* [18]

In line with the elaboration obtained from the results of this research, it can be said that: cognitive-behavior therapy causes depression reduction and craving beliefs improvement among the patients through training anger control, courageous behavior, problem solving skill, self-control skill and momentum control as well as training the relaxation.

Hypothesis 2: Cognitive-behavior therapy reduces the depression of abusers under methadone maintenance treatment.

The results of this research are consistent with the researches made by Fisher, Skaff, Mullan & Arian [19], Gonzalez, Peyrot & Serpa [20], Lustman, Willamis, Sayuk & Clouse [21], Brooks [22] and Whitton [23].

In line with the elaboration obtained from the results of this research, it can be said that: thought system of depressed persons consists of his/her negative thoughts about self, current and future experience. Negative thoughts about self are: belief of depressed persons in their insufficiency and imperfection and since he believes in imperfection, then he believes that he never reaches the happiness. The negative thoughts of depressed persons on experience include their interpretations from the events which have been occurred for him. He assumes the negative obstacles as the impassable obstacles, even when there are more rational positive views on his/her experience.

He/she leans to the most negative possible interpretation on what has been occurred to him/her. Finally, the negative attitude of depressed persons is about the future of prostration. When he/she thinks of the future, he/she believes that the negative events occurring currently for him will continue in the future due to his/her personal deficiency [11]. In fact, behavior-cognitive therapy emphasizes on the negative tendency in information process in which a result of distortion in interpretations from self, environment and future which is related to the inconsistent beliefs motivated by the person. Most recent views support a model in which the relationship between nature of depression events and patients' interpretations of these events is focused. Behavior – cognitive technique reinforces planning for objectives and reduces the depression by challenging the negative thoughts [24].

Hypothesis 3: Cognitive-behavior therapy improves the craving beliefs of abusers under methadone maintenance treatment.

Craving beliefs are assumptions and orientation beliefs that person has towards his/her self, peripheral world and future. As a result, these attitudes set orientation towards the person's understanding and perception from the events and also influence directly the strategies for confronting the stress and consequently reduce the persons' resources for countering the stress and affect the emotions and behaviors and make the person prone to depression and other psychological disorders.

In line with the elaboration obtained from the results of this research, it can be said that based on the researches; frequent use of drugs is affected by the beliefs and attitudes of patients. Some researches have shown that persons' beliefs are consistent with their cognitive and emotional responses. Drug craving beliefs, due to their importance in interpretation of specific situations, have special setting. According to Beck cognitive theory, these beliefs include negative cognitive designs (which is shown in low self-esteem) and abstract, stable and irrational opinions and beliefs (which refer to inefficient attitudes). Inefficient attitudes are orientation assumptions and beliefs that person has towards his/her self, peripheral world and future. Therefore, since it is accompanied with negative assessment of persons from self, world and future, this variable can play a role in compatible and incompatible behaviors like frequent use of drugs.

The amount of negative self-perception thoughts is more in addicted persons which in turn causes consequences like frequent use of drugs. In fact, the more negative self-perception thoughts, the more possible person afflicts with drug use and behavioral problems resulting from it.

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