THE EFFECTIVENESS OF COGNITIVE BEHAVIORAL THERAPY IN PREVENTING ADDICTION RELAPSE AND INCREASING COPING SKILLS AND MOTIVATION AMONG INDIVIDUALS WITH OPIATE ADDICTION

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ABSTRACT: *The present study aimed to investigate the effectiveness of Cognitive Behavioral Therapy (CBT) in preventing relapse and increase coping skills and motivation among self-reported individuals with opiate addiction in Zahedan. To this end, 40 self-reported individuals (two groups of experimental and control, each including 20 individuals) were selected through applying stratified random sampling method. The experimental group received CBT intervention in 16 sessions, while the control group did not receive any intervention. All of the subjects completed two questionnaires including Opiate Abuse Coping Response Inventory (OACRI) and Stages of Change Scale (SOCS) at the beginning of the research, during the treatment, and three months after the treatment (follow-up). The required data were collected and analyzed. In assessing the descriptive findings, mean, standard deviation, frequency and percentage were used and for the inferential statistics, analysis of covariance was applied. Results indicated that CBT was effective in preventing addicts' relapse and increasing their coping skills and motivation.*

Keywords: ***Cognitive Behavioral Therapy, Coping Skills, Motivation***

1 INTRODUCTION

Drug abuse and addiction are considered as the most dangerous phenomena of the modern society which lead to nowhere but degradation, destruction and death. Very few phenomena can threaten human societies, like drug addiction; however, in spite of the risks and public information of complications caused by addiction, the victims of this deadly trap are increased day by day [1].

Addiction is associated with physical and psychological dependence. After taking a drug, it provides a sense of relaxation and joy and when it is not taken, it causes physical pain and mental pressure [2].

Addiction to authorized and unauthorized drugs is widely pervasive and implies the occurrence of serious physical, mental and social health problems. On one hand, social and psychological factors and, on the other hand, biological and pharmacological factors contribute to occurrence of addiction. Social and psychological factors are mostly involved in the outset of use, while biological and pharmacological factors deal with later dependence. According to official statistics, in 2004, the number of drug users in Iran was 4 million, with more than 2 million regular consumers. According to the latest assessment conducted in 2004, drugs imposed a total of 99.47 billion Rials on Iran's economy, including costs of purchasing and consumption, reduced productivity and social participation of consumers and dealers, government expenditure on reducing demand and confronting with drugs supply [3]. About 10% of addicts commit suicide which often occurs in the context of a mood disorder due to drug dependency. Also, a large proportion of drugs, if not all, are transmitted to the placenta and may leave undesirable effects.These disorders are among the factors that directly or indirectly cause security dysregulation in the society and personally as well as socially create legal, social, environmental and financial effects across the world. In addition, millions of people are suffering from this phenomenon which also indirectly affect the lives of millions of others [4] According to Bandura's social learning theory, drug abuse arises from modeling those who have positive expectations about drug abuse. Other words, in individuals' lives, models encourage individuals to take drugs [4] Many of those who suffer from drug abuse and seek treatment have particular thinking styles which lead to continuation of their disorder and may also prevent the continuation of change [4].

These thinking patterns are established by beliefs related to expectations, beliefs related to permissions to drug abuse and individual's beliefs about drug abuse. These beliefs are concerned with thoughts and ideas about pleasure, problem solving, importance, and escape which might grow in childhood [5] Negative individual, familial, social, moral, spiritual and cultural effects of drug abuse cause addicts as well as their families and public officials to take actions for prevention, withdrawal and avoiding addicts relapse and also call on help from specialists such as psychiatrists, psychologists, counselors, and social workers. Recently, in advanced countries, mental health professionals and educational-therapeutic institutions have invented, experimented and implemented various theories, models and methods to prevent and treat addiction as well as to avoid addiction relapse. However, no definite treatment method has still been found [6] There are various treatment methods for drug dependency, among which maintenance treatments are mostly emphasized. A variety of narcotic and non-narcotic drugs are applied in these methods. Reviews on previously conducted studies indicate that due to their exclusive emphasize on drugs, drug maintenance treatments without psycho-social interventions are not effective. Studies indicated that many addicts under such treatments experienced addiction relapse [7] Even after a long withdrawal, there is not any specific hope that the addicts under such treatments will not relapse. The history of addiction relapse prevention dates back to mid-1970s. Since then, some researchers have become interested in promoting relapse prevention strategies [6].

One prominent psychological intervention for addiction treatment and relapse prevention used in recent years is the cognitive-behavioral therapy model, which focuses on treating psychological disorders and aiding patients to acquire coping skills necessary to manage risky situations. Many studies have been conducted on the effectiveness of CBT interventions in treating substance abuse disorders, the results of which have proved the effectiveness of this therapeutic approach. In these studies, the CBT approach is compared with alternative approaches and control groups [8].

Recently, this treatment is highly improved. The created methods are greatly effective in treatment of depression and anxiety, fear, pain as well as addiction [4].. Studying for male addicts, Nick reported the effective results of CBT. He concluded that these results revealed that CBT had a great impact on elevating addiction problems. Results of study, examining the level of addiction recovery, indicated that among a variety of therapeutic models, CBT had the highest effectiveness [4] It is assumed that these people had a low level of motivational skills and lack of these skills in the beginning affects the strength and stability of addiction; therefore, the purpose of CBT is to teach addicts that although they may not have control over all of the environmental factors, they can control how to interpret and address stimuli in the environment, since in cognitive theories, cognitive processes are the main factors for stabilizing the behavior. CBT is a short-term therapeutic approach which focuses on helping addicts on the basis of behavioral change through acquisition and learning from others' experiences that are used to assist addicts to reduce their drug abuse [9].

All behavioral, social or mental treatments include common and specific factors (active factors). Common factors are aspects of therapy found in all psychotherapy including education, providing a rationale for treatment, increasing the expected recovery, support and encouragement, especially the quality of the therapeutic relationship [10].

Specific factors are techniques and interventions that are particular to a method of treatment, and distinguish it from other methods of psychotherapy. For example, in CBT, teaching coping skills without establishing positive therapeutic relationship leads to a cold approach causing fatigue in patients and ineffectiveness of the therapeutic approach. Hence, it is important to note that CBT reveals its impact through a complex interplay between common and specific factors. The therapist's important task is to strike a right balance between paying attention to create a positive relationship and training skills [10].

CBT is mostly similar to other cognitive therapies and behavioral therapies. These approaches include Beck's cognitive therapy [5] and especially Marlat and Gordon's relapse preventive approach [3] Cognitive therapy is a psychotherapeutic system that attempts to reduce emotional reactions and masochistic behaviors through creating change in defective thinking and maladaptive beliefs that underlie emotional reactions [5]. The main objective of CBT is to create change both in patient's actions and thoughts. CBT approach is parallel with Miler's therapeutic approach in which internal motivational changes are demanded. CBT is based on the social learning theory which assumes that at the beginning of drug abuse, the consumer learns the behavior; therefore, learning can be altered provided that the required change is initially created in the consumer's thoughts and then in his/her actions and behaviors [3].

Regarding the definition of coping and its importance, authors' views are seen on a continuum with two contrasting poles. On one end, there is a belief that coping refers to how individuals overcome their problems [11] and on the other end, there is a theory developed by that considers coping as the management of the situation. Other definitions are often placed between these two poles on the continuum [8,11]. In fact, emotions and physiological provocation created by stressful situations force an individual to make decisions to cope with these condition. This is known as coping skills. Coping skills include various types ranges from declining mental stress, relaxation, techniques for avoiding temptation to other cognitive behavioral techniques [11]. In a research study conducted on coping processes, coping styles are divided into three basic styles: problem-oriented coping styles, emotion-oriented coping style, and avoidance coping style. Problem-oriented coping strategies describe methods in which the individual seeks methods to reduce or eliminate stress. Problem-oriented behaviors include searching for more information about changing the structure of the problem from the cognitive perspective and prioritizing steps to address the problem. On the contrary emotion-oriented strategies define methods in which the individual concentrates on himself/herself and attempts to reduce uncomfortable feelings. Emotion-oriented coping strategies include crying, being nervous, demonstrating cynical behaviors, preoccupation and daydreaming. Finally, avoidance coping strategies encompass cognitive activities and changes that aim to avoid stressful situations. Avoidance coping strategies may be manifested in the form of involvement in a new activity or establishing relationships with others in the society [11]. Gossop, Stewart, Browne & Marsden [6] found that patients who mostly used cognitive coping strategies had increased motivation and lower relapse. Not only availability of coping mechanisms is necessary but also the ability to apply such skills determines whether or not a change will occur [11] Self-regulation is the ability to monitor and change behaviors related to drug abuse in which coping skills are mostly involved [11] Some studies indicate that having negative perception of events and adopting negative coping techniques, such as anger and inability and also increased motivation, are much higher in drug users and cigarette smokers, compared to non-addicts or those who quit [12].

The history of prevention of addiction relapse dates back to mid-1970. Since then, some researchers have become interested in promoting relapse prevention strategies. Research indicates that 20% to 30% of addicts under therapy suffer from relapse. Relapse is often a part of the recovery process [6] A review on previously conducted studies showed that the effectiveness of drug maintenance therapies without psychosocial interventions is weak due to low-level of drug information and high rates of loss [13] also found that coping skills can train patients (addicts) how to cope with their environmental elements. Kamarzarrin, Zare and Barouki [4] demonstrated that coping skills can increase mental and

physical health of drug dependent patients. Motivation is a force that aides an individual to behave in a special manner. It is a factor that makes an existent to do different activities and spends various levels of energy. Regarding the effect of motivation, it is argued that motivation is goal-oriented, i.e., it triggers the reasons related to behaviors. In addition, motivational goals are external to the individual [6] Indeed, there is an interrelation between motivation and being goal-orientated. Anshel [13] stated that in order to provide the required motivation for an individual, an activity should comply with his/her goals. This is a mutual relationship. Sometimes, goals may also provide the motivation required for an effort and stability to achieve the goal. Motivation acts as a central factor of change in treatment of alcohol and drug abuse disorders. Motivation is the driving force toward the target. Some other specialists consider motivation as an important factor for achieving goals. For example, Anshell (199 9) defines motivation as a factor for selecting and directing a behavior and the necessary stability to achieve the goal. Motivation is also studied by psychologists from two different aspects of intensity and direction. The intensity of motivation refers to how individuals are motivated, aroused and made efforts to achieve their goals. What is people's motivation to do things? No activity is finished without motivation. The first step toward treatment of addiction is to motivate the addict. Hence, motivation here means the addict's level of need to change. Some of the addicts attempt to withdraw due to their internal needs, some of them try to quit due to external pressures or a combination of both. Religious beliefs are within the domain of motivation. They include self-efficacy and task valuation. In addition, individual interests and negative emotional reactions to himself/herself and every single task and strategy that is in line with controlling and directing motivational factors are placed within this domain [13] The strategic position of Iran, adjacency to Afghanistan, as one of the major producers of drugs, on one hand, and drugs transition across Iranian borders, due to Iran's specific regional characteristics, on the other hand, have provided a striking market for drug trafficking in Iran and increased the rate of drug abuse due to its easy access.

Relapse is often seen as a part of the recovery process. Some specialists reports that about 90% of addicts who quit suffer from relapse in less than a year [6] This outstanding figure means that prevention should have priority over treatment. Relapse times should decrease and addicts' motivation should increase. Overall, the current study's research questions are as follows.

Does CBT have any significant effect on addiction relapse of individuals addicted to opiates?

Does CBT have any significant effect on increasing coping skills of individuals addicted to opiates?

Does CBT have any significant effect on increasing motivation of individuals addicted to opiates?

METHOD

The present study aimed to investigate the effectiveness of Cognitive Behavioral Therapy (CBT) in preventing relapse and increase coping skills and motivation among self-reported individuals with opiate addiction in Zahedan. The pretest-posttest design with a control group was selected. The population included all self-reported addicts in Zahedan who visited Zahedan Welfare Organization by August 2013. The sample was selected through applying stratified random sampling method. Criteria of the research included psychiatrist or physician referral given the primary diagnosis of drug dependency according to the diagnostic criteria of revised manual of mental disorders diagnostic and statistics (4th ed.), spending over a week of successful detoxification treatment, negative results of urine test for opiates use, absence of anti- psychopathic drug consumption, lack of physical and psychological problem, no concurrent presence in parallel therapeutic program during the study, no long-term dependency to various drugs rather than opiates simultaneously and experiencing at least a relapse. Questionnaires were completed after gaining the organization's permission. Questionnaire forms were individually completed.

MATERIALS

1- Opiate Abuse Coping Response Inventory (OACRI):

In this study, the self-report OACRI designed by Humke in 1999 was used. OACRI is used to assess subjects' ability to cope with high-risk situations as well as their self-efficacy. It is a self-report questionnaire with 51 items, each having 3 choices (1 = never, 2 = sometimes, 3 = almost always). The subjects can answer this questionnaire within ten to fifteen minutes. Items are objectively scored and examiner needs minimum requirements for different parts of it. The questionnaire includes 18 behavioral items and 33 cognitive items in 3 subscales: 1) self-rewarding thoughts, 2) behavioral coping, 3) thought about the consequences of relapse. In the present study, the overall score was calculated. Higher scores indicate higher levels of coping skills, the likelihood to encounter high-risk situations and the chance to prevent relapse. The questionnaire has high validity and reliability. The internal consistency of the inventory has been calculated using Cronbah's alpha that was 0.93. Having translated the inventory and checking its validity by supervisors, consulting advisors, experts and specialists in various addiction studies, the inventory was piloted on a sample of subjects. After investigating revisions and getting feedbacks, the final edition was copied to be delivered to patients. Both applied tools were analyzed in terms of internal consistency. The alpha value of OACRI and Stages of Change Scale was 0.87 and 0.85, respectively.

2- Stages of Change Scale (SOCS):

SOCS was developed in 1989, based on the work conducted by McKounaffi, Di Clement and Prochaska. The scale has 32 items, each having 4 options (1 = strongly disagree to strongly agree = 4). On the basis of the work carried out by Di Clement and Prochaska, the behavioral changes in

subjects' behaviors are inferred from the scale. The scale highly differentiates between stages of change and motivation and has a good internal consistency (Cronbach's alpha: 0.89). The reliability of the scale in the present study was 0.85 and the overall score was calculated. If a subject achieves higher scores, he/she has greater motivation for change. Subscales of the scale are: 1) pre-thinking, 2) thinking, 3) action, and 4) maintenance

3- Morphine Test:

Being clean of opiate indicates the absence of relapse. To check this, morphine test (special kits), which measures the level of morphine in urine, was used.

Research Procedure

According to the criteria of the study, among those who successfully completed detoxification and their morphine test results were negative, 20 subjects were placed in the experimental group and 20 subjects were selected for the control group. To inform the subjects of the goals, procedures, time table etc. meetings were held with the subjects and their formal consent was obtained. Afterwards, the experimental group received the instruction in sixteen 45-minute sessions with a 30-minute break.

RESULTS

Analysis was performed on 40 subjects (experimental group, N=20), (control group, N=20). Descriptive statistics are provided in the following table.

Does CBT have any significant effect on addiction relapse of individuals addicted to opiates?

As table 2 indicates, the ratio of relapse of the experimental group to the control group is 4 to 13 and the ratio of having no relapse in the experimental group to control group is 16 to 7. To compare the ratio of relapse between these two groups, chi-square test was used which indicates significant results: df = 1, (p <0/05, x 2 = 4.78), (p <0/05 and the x2 = 4.62). Considering the chi-square value, it can be argued that this ratio is significant and the ratio in the experimental group is significantly lower than that of the control group. In other words, CBT has a significant effect on addiction relapse of individuals addicted to opiates.

Table 1: Descriptive statistics of the variables

Gender	N
Male	20
Female	20

Table 2: Chi-square test

Group		Experimental	Control	Total
No relapse	N	16	7	23
	Percent	80	35	58
Relapse	N	4	13	17
	Percent	20	65	42
Total	N	20	20	40
	Percent	100	100	100

Table 3: Descriptive statistics of coping skills according to the type of test and group

Coping skills				
Type of test	Groups	Mean	Standard deviation	N
Pretest	Experiment	46.97	9.97	20
	Control	40.36	9.39	20
Posttest	Experiment	62.7	11.84	20
	Control	40.24	9.72	20
Follow up	Experiment	72.47	13.75	20
	Control	44.70	9.19	20

Table 4: Descriptive statistics of motivation according to the type of test and group

Type of test	Steps	Experimental		Control	
		Mean	SD	Mean	SD
Motivation	Pretest	37.84	9.14	35.11	8.41
	Posttest	41.78	9.73	32.11	8.3
	Follow up	39.46	9.89	31.14	8.25

Table 5: ANCOVA results regarding the comparison of coping skills posttest scores

Scale	Sources of variation	Sum of squares	df	Mean square	F	sig	Eta squared
Coping skills	Pretest	0.038	1	0.038	0.14	0.63	0.005
	Group	6.87	1	6.87	25.8	0.001	0.64
	Error	5.03	37	0.325			
	Total	193.85	40				

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Table 6: ANCOVA results regarding the comparison of motivation posttest scores

Scale	Sources of variation	Sum of squares	df	Mean square	F	sig	Eta squared
Motivation	Pretest	0.042	1	0.042	0.15	0.63	0.006
	Group	5.97	1	5.97	23.2	0.001	0.58
	Error	5.82	37	0.427			
	Total	183.27	40				

Table 7: ANCOVA results regarding the comparison of coping skills follow-up scores

Scale	Sources of variation	Sum of squares	df	Mean square	F	sig	Eta squared
Coping skills	Pretest	0.036	1	0.036	0.06	0.73	0.06
	Group	5.59	1	5.59	78.9	0.001	0.72
	Error	2.98	37	0.068			
	Total	191.97	40				

Table 8: ANCOVA results regarding the comparison of motivation follow-up scores

Scale	Sources of variation	Sum of squares	df	Mean square	F	sig	Eta squared
Motivation	Pretest	0.004	1	0.004	0.05	0.79	0.005
	Group	8.68	1	8.68	253.2	0.004	0.87
	Error	1.96	37	1.96			
	Total	185.94	40				

As Tables 3 and 4 demonstrate, in the pretest, mean and SD values of coping skills and motivation are equal for both groups, while these values are significantly different in the posttest and follow-up. To analyze the data and to control the effect of pretest-posttest, multivariate analysis of covariance was used. This analysis has some assumptions. One of these assumptions is to examine the homogeneity of variance-covariance matrices. For this purpose Box's test of equality of covariance matrices was calculated as follows:[(Table 3 the pre-test: p <0/05, f = 1.62, Box's M = 22.37), for the posttest p <0/05, f = 1.26, Box's M = 21/19)] and [(Table 4 for the pretest: p <0/05, f =1.78, Box's M = 25.41,) (for the posttest: p <0/05, f = 2.46, Box's M = 26.76)].The significance level of Box's test is higher than 0.05; therefore, it can be concluded that variance-covariance matrices are homogeneous. To investigate homogeneity of variance in these two groups in posttest and follow up, Levene's test for equality of variances was used. The calculated Levene's test values are not significant in posttest and follow-up. [Posttest: Table 3, (posttest: coping skills p> 0.05, f (1.38) = 2.86, and follow-up: coping skills p>0.05, f (1.38) = 3.69) (table 4: motivation p> 0.05, f (1.38) = 4.98]. Thus, the assumption of equality of variances is also met. Another important assumption is homogeneity of regression coefficients. It can be noted that homogeneity of regression coefficients test was examined through the interaction of subscales including pre-thinking, thinking, action and maintenance and the independent variable (therapeutic method) in the posttest. The interaction is not significant and indicates the homogeneity of regression coefficients. The assumptions is met with regard to follow-up [Table 3, the posttest (p> 0.05, f (1.39) = 2.48, Wilks lambda =0.86), follow-up (p>0.05, f (1.39) = 1.85, Wilks lambda =0.57), Table 4, the posttest (p>0.05 , f (1.39) = 1.62, Wilks lambda =0.75), follow-up (p> 0.05, f (1.39) = 1.65 , Wilks lambda =0.26)] As already mentioned, the values of Wilks Lambda are not significant at the 95% confidence level.

Therefore, the assumption of homogeneity of regression coefficients (α =0/05) is met. Having met all of the assumptions of the analysis of covariance, this statistical test was performed. Multivariate statistic is significant at the 99% level (α = 0/01, n2 = 0.86 p> 0.001, f (1.15) = 23.8 for Table 3 and for Table 4 (n 2 = 0.74, p> 0.001, f (4.15) = 24.7). Therefore, the zero statistical hypothesis is rejected and it is proved that the linear composition of the variable of coping skills and four variables of motivation are influenced by CBT (posttest). Regarding the follow-up, the zero hypothesis is also rejected (n2 =0.78 P>0.001, f (1.15) =26.82) and it is proved that the linear composition of the variable of coping skills and four variables of motivation are influenced by CBT (follow-up). Overall, the results of ANCOVA are significant, i.e., the results indicate that CBT increases motivation and coping skills. In the following, the second *and third research questions are answered*.

As it is represented, there is a significant difference between the scores of pretest and posttest regarding coping skills (Coping skills n 2 = 0.76 p> 0.05, f (1.38) = 5.0). In this regard, the mean scores of the experimental group are significantly higher than those of the control group. In other words, CBT has a significant effect on increasing coping skills of individuals addicted to opiates

As demonstrated in Table 6, there is a significant difference between the scores of pretest and posttest regarding motivation (Motivation n 2 = 0.57 p> 0.05, f (1.38) = 3.45). In this regard, the mean scores of the experimental group are significantly higher than those of the control group. In other words, CBT has a significant effect on increasing the motivation of individuals addicted to opiates. Tables 7 and 8 provide follow-up results for both coping styles and motivation.

Considering the above results, there is a significant difference between the scores of pretest and posttest regarding coping skills (Coping skills n 2 = 0.83 p> 0.05, f (1.38) = 65.69). In this regard, the mean scores of the experimental group are significantly higher than those of the control group. In other words, CBT has a significant stable long effect on increasing coping skills of individuals addicted to opiates.

Based on these findings, there is a significant difference between the scores of pretest and posttest regarding motivation (Motivation n 2 = 0.85 p> 0.05, f (1.38) = 122.3). In this regard, the mean scores of the experimental group are significantly higher than those of the control group. In other words, CBT has a significant stable long effect on increasing motivation of individuals addicted to opiates.

DISCUSSION AND CONCLUSION

The results of this study, aimed to examine the effectiveness of Cognitive Behavioral Therapy (CBT) in preventing relapse and increase coping skills and motivation among self-reported individuals with opiate addiction in Zahedan indicated that CBT had a significant effect on increasing coping skills and motivation, improvement of addiction symptoms and reduction of drug use dosage. In addition, it was revealed that after the intervention and the three-month follow-up, a significant difference was observed between experimental and control groups in terms of increased motivation and improved coping skills of opiate addicts. The findings are consistent with results of Kamarzarrin *et al* [4] Galloway and Singleton [14], Naar- King *et al* [15] and Lewis *et al* [16] These findings explained that teaching tasks such as functional analysis, learning a skill, dealing with consuming desires, providing a sense of mastery and ability affect treatment motivation and prevention from high-risk behaviors. There are several factors involved in addiction.

There is a body of psychological research on topics such as addiction relapse, preventive measures and addiction treatment. One of the factors involved is the lack of motivational skills. The aim of teaching and CBT is to enhance the level of coping skills to prevent relapse or drug reuse in prone individuals. CBT improves coping skills, helps with management of risky situations and provide a control over drug abuse.

The key to CBT success is the focus on identification of cognitive errors and the attempt to overcome them. The reason is that the cognitive process and awareness-raising in addicts under CBT with successful recovery may divert and make them relapse. Therefore, it is suggested that after the treatment period and recovery, required conditions be prepared for the patients to be in constant contact with therapists. Experienced therapist should, therefore, manage organizations such as Welfare Organization and University of Medical Sciences in order to help patients with successful recovery to be admitted pay-free. Also, psychologist may hold meetings on addiction for the patients to clarify the risky conditions and guide them through the recovery process and teach them required coping skills.

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