Comparison of Group Cognitive-Behavioral Therapy, Medicinal Therapy, and Placebo in Reduceing Anxiety in Substance Abuseers

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Abstract

Objective: Drug addiction is one of the most important problems of the present age, which has become globally widespread. The purpose of this study was to compare three therapeutic methods, i.e, group cognitive-behavioral therapy, medicinal therapy, and placebo in reducing the anxiety of substance abuse patients. **Method:** The present study is a quasi-experimental research with pre-test/post-test and control group. The number of 40 male addicts who had obtained high scores in Beck Anxiety Inventory and were diagnosed with general anxiety disorder was selected through convenience sampling method and randomly divided into four groups, i.e. three experimental groups, including cognitive-behavioral therapy, medicinal therapy group, and placebo group and control group. The cognitive behavioral group received six 90-minute sessions of treatment. The medicnal group was placed under sertraline treatment, the placebo group also recived the placebo capsule, and the control group recived no treatment. **Results:** The results of covariance analysis indicated the effectiveness of group cognitive-behavioral therapy in reducing anxiety in comparison with the medicinal therapy and placebo groups. **Conclusion:** Based on the results of this study, which indicate the effectiveness of group cognitive-behavioral therapy in anxiety reduction, this therapy can be used as an effective method to reduce anxiety among addicts.

Keywords: anxiety, medicinal therapy, placebo, cognitive-behavioral therapy, addicts

Introduction

Although social damage has always existed throughout human history, the industrialization and alteration of the life structure of human life have led to the emergence of some of these damages. Substance abuse, also known as a "catastrophe", has become a major dilemma for human societies today, and rarely is a country found not to have been engaged in this phenomenon (Stevens et al., 2014). Thus, on a daily basis, a great deal has been added to the number of people suffering from this tragedy, and thus the complications including physical, psychological, family, cultural, economic and social disorders, eliminate the cultural boundaries of the community and put on danger the mental and economic health of mankind. (Orkie and Matbuie, 2012). Being in the neighborhood of two major producing countries, our country has a very critical and sensitive situation due to several reasons as to numerous cultural and geographical location; and addicts cause serious economic and cultural harm to society (Sohrabi and Nateghi, 2017). Drug addiction is one of the most important health issues as it reduces the quality of life, increases mortality, reduces social and moral values, and increases the criminal behaviors (Hollinghurst et al., 2010; Morton, Snowdon, Gopold, & Guymer, 2012). Psychiatric disorders from addiction have had destructive effects on physical, psychological, social issues and matters of social and familial communication (Astals et al., 2009; Roberts, Roberts, & Oxine, 2007). In addition, addiction, diseases and chronic and prolonged disorders, such as hepatitis and AIDS, have reduced the ability to think, work and also creativity among people and besides damaging their families and employment, have reduced their quality of life (Bagheri and Sohrabi, 2017). Some researches suggest a negative and direct relationship between substance abuse and quality of life; and also it is indicated that there is a high overlapping of symptoms of psychological disorders such as anxiety and stress with addiction; Acording to Lazarus, a person faces a major event or severe stress with two sources of stress, first, a stressful situation which might threaten the person's life and health and reduce individual care, and second, one’s reaction to this situation might be threatening. Severe anxiety, confusion and despair can reduce control of one's behavior and reduce his/her ability to solve problems and prepare him for addiction and using more drugs (Poursid Mousayi, Mousavi and Kafi, 2012). In addition, according to Aaron Beck's COGNITIVE THEORY, Peoples' judgments that are prone to experience anxiety events have an extreme and unilateral aspect. These people attribute the causes of anxiety events and they know themselves responsible for themselves and use cognitive distortions in their confrontation with the events and their irrational sensitivities affect their cognitive and affective structure (Salimi, 2014). According to this view, drugs use triggers is a chain of factors including activating stimuli; like mood and anxiety states, these internal activating stimuli activate expectation beliefs that predict the effectiveness of substance. This means that when I use drugs in the state of anxiety, I'm happier and these ideas are activated and they

recall automatic thoughts. These thoughts come automatically to the mind of the individual and mostly are about the substance use itself and emphasize the positive aspects of the substance use. These automatic thoughts give rise to temptation and craving (Poursid Mosayee et al., 2012).

According to Garland, Boettiger, Howard (2011), anxiety is considered to be a mediator in the process of dependence and relapse; stressful events in life predict heavy use of cocaine and other drugs. Also, anxiety can increase the craving and relapse of the quitters. In an animal research, different types of anxiety increase Drug-seeking behavior in mice (Banna, Back, Do, See, 2010). Therefore, a review of literature has shown that the effectiveness of Medicinal maintenance treatment without psychosocial interventions has not been very successful due to merely having emphasis on medicinal treatments (Roozen et al., 2006). It seems that in rehabilitation centers and reducing the damage, we need more psychological therapies to change the attitude of substance abusers; therefore, it is necessary to consider psychological and non-medicinal treatments (Kamarzerin, Zare and Brukimillan, 2012).) Over the past few decades, hundreds of researches on psychotherapy and its outcomes have been performed showing that some of the psychotherapy methods have been successful in the treatment of addiction, including non-medicinal treatments such as individual psychotherapy, group therapy, family therapy, occupation therapy, exercise therapy, treatment-oriented society centers and self-help groups (Fallahzadeh, 2006). About 90% of addicts' treatment is non-medicinal therapy, or generally psychiatric treatment. Disorders such as anxiety can be considered as the cause and effect of drug addiction and play an important role in the relapse of quitters, which can help to reduce relapse by using non-medicinal treatments in these patients (Nateghi and Sohrabi, 2017).

One of the treatments that is effective on substance abuse is cognitive-behavioral therapy; this approach is a therapeutic approach that, in addition to changing attitudes, seeks to change the behaviors caused by inadequate and false learning, and it also changes attitudes, irrational beliefs. The cognitive-behavioral therapy method is based on this theory that determines the behavior of a person, his attitude about himself and his role in the world (Sadouk, & Sadouk, 2007). Cognitive-behavioral therapy is a psychosocial education program; the main activity of this type of therapy is the learning of new skills and using these skills in home therapy as home task and under real life situations. Cognitive techniques consider drugs-related beliefs and automatic thoughts that are involved in desire and craving (Erb, 2010). Behavioral techniques focus on behavior and actions that interact causally with cognitive processes (Beck et al., 1993; quoted by Ghorbani, Mohammad Khani and Sarrami, 2012). In cognitive-behavioral therapy, the therapist helps the patient to use his or her experiences to assess the integrity or inaccuracy of his or her beliefs ; the purpose of this therapy is to identify and reconstruct irrational beliefs and the relevant schemas

of self, others and the world that play important role in emotional disturbances and maladaptive behaviors .

Also, this approach is collaborative inherently and increases the self-efficacy of the patient (Najafi and Moradzadeh Khorasani, 2015). In addition, enhancing coping skills and training intrapersonal and interpersonal skills, and strengthening the control of painful emotions such as anxiety and anger, are the main tasks in this treatment. In this view, the familiarity of clients with problem-solving skills helps them to think about all aspects of situations and to consider that the steps leading to their response are more based on instincts, feelings and emotions. Self-efficacy will increase as customers succeed in problem solving (Shariati, Izadi-Khah, Molavi, and Salehi, 2013). In recent years, this kind of treatment has been greatly improved, and methods have been developed that are widely used in the treatment of anxiety and addiction. Nik (2006) reported cognitive-behavioral therapy effective in four clinical cases of male addicts; the findings clearly show that cognitive-behavioral approaches to solving addiction problems and helplessness of addicts have been helpful in reducing their anxiety. Also, studies have shown the effectiveness of cognitive-behavioral therapy in improving substance abuse disorders and anxiety disorders (Mc Hugh, Hearon, & Otto, 2010; Hamzzin et al., 2011), reduction in anxiety, stress, aggression and substance abuse (Lak, Moazedian, Hosseini al-Madani , Sedaghat and Ameri, 2012; Haj Hosseini and Hashemi, 2015; Ahmadkhani, Ghareipour and Penafi, 2007; Denis, Lavie, Fatseas, & Auriacombe, 2006); reducing relapse rate (Malazadeh and Ashoori, 2009) and improving the quality of life.

Orkie and Matbuie (2010) In a research aimed at the effectiveness of cognitive-behavioral intervention on the improvement and prevention of opioid abuse, found that cognitive-behavioral therapy in reducing the rate of relapse, increasing the duration of treatment, reducing drug use and improving social performance and anxiety reduction are more effective than medicinal therapy. Alavi Langroudi and Nikzad Moghadam (2015) investigated the effectiveness of cognitive-behavioral therapy on reducing the relapse of drug addiction in anxious students. The findings indicated that cognitive-behavioral therapy has been effective in reducing the relapse rate of anxious drug addicts and has been able to prevent them from returning to drug use. McHugh et al. (2010) presented a supportive evidence for the use of cognitive-behavioral therapy in improving substance abuse disorders, and focused on applying learning, cognitive, and motivational strategies as well as coping skills in facing stressful conditions as a supportive factor throughout the process of treatment and prevention of drugs relapse. Ghorbani et al. (2012) showed that cognitive-behavioral therapy in comparison with methadone maintenance therapy and control group significantly reduced substance-related beliefs, seductive beliefs, decreased anxiety and significant increase of self-efficacy and emotion regulation of drug users. The results of Fierro (2009) research on the rate of recovery in drug addiction showed that cognitive-behavioral method had the highest effect on

stress and anxiety. Regarding the role of anxiety in the addiction withdrawal and the effect of cognitive-behavioral approaches on reducing anxiety, this study aimed to investigate the comparison of three therapeutic styles (cognitive-behavioral group therapy, medicinal therapy and placebo) in reducing anxiety in men with substance abuse.

Method

Population, sample and sampling method

The present study is a quasi-experimental research with pre-test/post-test and control group. The statistical population of this study is men receiving substance abuse treatment in second and eleventh district of Tehran city randomly selected by cluster sampling referring to addiction centers in Tehran in 2016 for treatment. 40 male addicts were selected by purposeful method and randomly divided into four groups (Cognitive-behavioral therapy, medicinal therapy group, and placebo group and control group. The individuals in groups were assigned randomly as 10 people. The inclusion criteria were: patient records and their history and treatment, clinical interviews for diagnosis of anxiety by the psychologists and the general anxiety diagnosis by the center psychiatrist and the Beck Anxiety Inventory for selecting patients, the age range of 18-60 and having the minimum degree of diploma, the patient's willingness to participate in the research.

Procedure

Participants in the cognitive-behavioral therapy group received cognitive-behavioral therapy for 6 sessions (60 minutes). The medicinal group received medicine therapy using sertraline capsule with a mean of 50 mg based on the type of drug, duration of use and dosage, according to the physician's opinion, without the intervention of the researcher. The placebo group’s capsule was prepared and administered the same as the medicinal therapy group. The control group did not receive any medicine and psychological treatment and was included in the waiting list of treatment. In order to observe ethical principles, at first, explanations were given to individuals about the research and a consent form was presented for the voluntarily nature of participation in the research to individuals and treatment centers. The description of cognitive-behavioral sessions is presented in Table 1.

Table 1: Cognitive Behavior Therapy Package by Sessions

Sessions	*Sessions content*
First	Introduction and communication, expressing expectations in the treatment process, emphasizing the confidentiality of the sessions. Individual motivational feedback: Disadvantages of continued use of the substance and no change - The benefits of changing the substance use - The benefits of continued substance use and the lack of change - the disadvantages of changing the substances use.
Second	The description of the model of behavior functional analysis, the expression of absolute beliefs and values, attention to the problem of beliefs, the identification of thoughts and hypotheses, the identification of high-risk interpersonal and intrapersonal situations-triggers (emotions, individuals, places and objects- practical plans for coping with high-risk situations, providing assignments.
Third	Reviewing the tasks of the previous session, evaluating thoughts and challenges with them, and examining the causes of anxiety, introducing four error-related styles (negative automatic thoughts, negative central beliefs, cognitive triangle, rational error in anxiety), determining the underlying factors for drug abuse, Planning methods to cope with desire and craving for substance use, such as stopping thought, practicing number creation in decision making and delay and providing homework.
Fourth	Practical solutions for leisure time of clients, the magic of the daily activity stability, and disconnecting from the beginners in substance use. Explaining irrelevant substance use beliefs and providing task on internal and external starters. planning and forecasting emergency situations - The unexpected triggers or risky situations and the provision of task.
Fifth	Assessment of previous session assignments, assessment of negative concerns and feelings, avoidance skills, and coping with direct institutions for substance use-role play for practicing courageous responses-criticizing and being criticized- courageous responding to criticism-tension removing skills, role play. Anxiety management and substance abuse - Identify signs and symptoms of anxiety – removing tension skills / cognitive recovery skills in stimulating thoughts and providing task.
Sixth	Reviewing the tasks of the previous session, teaching relaxation, practical relaxation in the classroom and giving a role in reviewing the relaxation method outside the treatment sessions, training coping behaviors with temptation, creating friendships that are not focused on drug use-breaking off relationships with friends and acquaintances who are vulnerable - Disconnect with drug dealers and users - Find a group of supporters and groups of self-help groups.

Instrument

1-Beck Anxiety Inventory: This questionnaire has 21 items and measures the severity of anxiety among adolescent and adult as developed by Beck, Rush,

Shaw, & Emery (1988) to assess the severity of anxiety symptoms. Each item describes one of the common symptoms of anxiety (mental symptoms and panic). The items are scored from 0 to 3, the maximum score obtained is 63, which indicates severe anxiety. The proposed cutting point for this questionnaire from 0 to 7 indicates minor anxiety, 8 to 15 mild, 16 to 25 moderate, 26 to 63 severe anxiety. Beck et al. (1988) reported the internal consistency of this test to be 0.92; also, the test retest reliability was estimated to be 0.75. Beck and Stier (1993) examined the content validity, concurrent and construct validity for this test and confirmed the high efficiency of this instrument in measuring the severity of anxiety. The test-retest reliability in the city of Zahedan has been reported 0.77 with three-week interval (Bakhshani, 2002). In this study, Cronbach's alpha coefficient was 0.84.

Findings

Descriptive statistics of demographic variables by groups are presented in Table2.

Table 2: Descriptive Statistics of Demographic Variables by Groups

Variables		*Experiment group*		*Control group*	
		N	*%*	*N*	*%*
Age	25-30	4	%40	4	%40
	31-35	5	%50	4	%40
	36-45	1	%10	2	%20
Marital status	Married	6	%60	7	%70
	Single	4	%4	3	%30
Education	Below diploma	3	%30	2	%20
	Diploma	4	%40	3	%30
	Associate	1	%10	3	%30
	BA	2	%20	2	%20
Job condition	Employed	8	%80	9	%90
	Unemployed	2	%20	1	%10
Use rate	Below 1gr	3	%30	2	%20
	11-2 gr	5	%50	4	%40
	2 gr and above	2	%20	4	%40
Addiction duration	Below 5 years	4	%40	5	%50
	5-10	4	%40	4	%40
	Above 10 years	2	%20	1	%10

Descriptive statistics of anxiety by groups and type of test are presented in Table 3.

Table 3: Descriptive Statistics of Anxiety by Groups and Type of Test

Groups	**Pretest**		**Posttest**	
	Mean	**SD**	**Mean**	**SD**
Cognitive behavioral	29/00	10/41	14/20	5/62
Medicinal therapy	32/00	5/84	25/70	6/54
Placebo	31/40	6/36	24/70	7/98
Control	29/70	7/28	29/60	8/22

To investigate the effectiveness of interventions, covariance analysis should be used. One of the assumptions of this analysis is variance quality of variable. The results of the Leven's test showed that this assumption was established (F = 0.34, P > 0.05). Another assumption is the analysis of normal distribution. The results of the Kolmogorov-Smirnov test showed the establishment of this assumption (x=0.49, P>0.05). Therefore, a univariate covariance analysis was performed and its results are presented in Table 4.

Table 4: The Results of Covariance Analysis to Evaluate the Effectiveness of Intervention on Reducing Anxiety

Variance	*Sum of squares*	*Degree of freedom*	*Mean of squares*	*F statistics*	*Significance*	*Eta square*
Covariance effect	1469/97	1	1469/97	74/03	0/001	0/67
Group effect	205/71	3	68/57	3/45	0/02	0/22
Error	694/92	35	19/85	-	-	-
Corrected tot	2280/77	39	-	-	-	-

As shown in Table 4, intervention has been effective in reducing anxiety scores (effect size=0.22, P <0.001, F = 3.45). Tukey's post hoc test was used to examine patterns of difference. The results showed that the mean scores of individuals in cognitive-behavioral group therapy decreased significantly in anxiety than medication and placebo groups. It can be concluded that cognitive-behavioral group therapy is more effective than medicinal therapy and placebo in reducing the anxiety of addicts.

Discussion and conclusion

The purpose of the present study was to compare three therapeutic styles (cognitive-behavioral group therapy, medicinal and placebo therapy) in reducing anxiety in male drug abusers. The results of the research indicate that group intervention in cognitive-behavioral therapy is more effective in reducing and improving the symptoms of anxiety than medicinal and placebo groups. The results are consistent with the studies done by Veka et al. (2015), Öngider, N., Baykara (2015), Garland et al. 2011), Bana et al. (2010), McHugh et al. (2010), Alavi Langroudi and Nikzad Moghaddam (2015), Ghorbani et al. (2012), and Orki and Matbuie (2010). From the biological foundations, the stimulant structure of the substance seeking or craving is affected by arousal-induced anxiety in the brain circuits. In the study of Erb (2010), the role of corticotrophin releasing agent and noradrenalinepathways in amygdala and direct and indirect interactions with the mesocortical dopamine system in anxiety during cocaine avoidance periods were investigated. The results of this study showed that the activity of the mentioned nervous system explained the relationship between anxiety and substance abuse during the avoidance process. Also, discontinuation of cocaine can lead to anxiety and tensions in individuals and can lead to slippage by confronting environmental stressors.

Regarding the consistent findings, it seems that cognitive behavioral techniques that have been effective in reducing anxiety have been effective in identifying situations and increasing awareness to anxiety factors were effective on reducing anxiety. Studies have also shown that the phenomenon of substance desire in these groups is a complex and multidimensional factor, and it seems that the role of negative mood of the patient and anxiety is effective on the onset and continuation of drug use. Therefore, psychological interventions can help patients manage depressed and distressed mood well (McHugh et al., 2010).

In the early studies of the efficacy of cognitive-behavioral therapy and its related strategies, this group received the highest support in reducing the anxiety and distress from patients, as Bourquick and Rossiou ,2001, quoted by Hopert and Sanderson, 2009) in a meta-analysis of treatments used for anxiety concluded that cognitive-behavioral therapy is the most effective treatment for the treatment of anxiety symptoms and the combination of cognitive and behavioral therapy is more effective than the use of any of the treatments alone (Ghorbani et al., 2012).) In addition, the main characteristic of anxiety disorder is concern and fear that is more than expectation; concerns are often widespread, in such a way that they cover daily life issues, and the concern source changes over time. For anxious person, control of anxiety is difficult and this can lead to a reduction in social and occupational performance (Beiteran et al., 2009). Therefore, Beck (2003; quoted by Kevin et al., 2009) stated that craving is rooted in incorrect beliefs about the need for drug use, and also, according to the cognitive-behavioral model, coping skills deficiency lead to reduced self-efficacy and drug use is a coping strategy for risky and anxious situations. New theories of the analysis of addicts' behaviors are based on the transformation of the impulse process of drug use into an algebraic process. Based on this approach, the hedonic aspects and rewards of drug use in the course of addiction progression are reduced and the addict is involved in the obsessive-compulsive process to reduce the anxiety caused by non-use of the substance. Using available sampling and difficulty of coordination and attending treatment sessions were among the limitations of the present study. Also, study of a male sample makes it impossible to generalize it to the addicted women sample. It is suggested in future studies that the effectiveness of cognitive-behavioral training be assessed on other psychiatric disorders that have high comorbidity with addiction. Also, cognitive-behavioral group training in comparison with other common therapies and also combined therapies on addicted patients with anxiety disorders is to be performed.

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