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Original Article

The Efficacy of Cognitive Behavioral Therapy (CBT)in Anxiety and Depression in Chronic Cannabis Users in Tehran

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Abstract

Introduction: The use of cannabis is associated with psychiatric problems such as anxiety and depression, so the present study aimed at examining the efficacy of Cognitive Behavioral Therapy (CBT) on reduction of anxiety and depression in chronic cannabis users in Tehran.

Methods: This is a semi experimental study with pretest and posttest measurements. Among patients who referred to addiction center (Nyayesh center) in Tehran, those patients with 2-years Cannabis consumption were selected based on the inclusion and exclusion criteria. Of them, 36 members with depression and anxiety but without personality disorder were selected and assigned to two groups (n=18) randomly. All participants completed questionnaires on Beck's Depression and Anxiety. Data were analyzed using variance analysis with repeated measures, ANOVA and paired t-tests with SPSS -24.

Results: Results showed that there is a significant differences between two groups in baseline after the sixth treatment session, at the end of the intervention, and three months follow upon reduction of anxiety and depression ($P<0/001$).Also, the results of follow up stage showed that there was a significant difference between anxiety and depression scores in two groups ($F(3, 102)=103.42$, $P<0/001$(.

Conclusion: Cognitive Behavioral Therapy (CBT) could reduce the anxiety and depression in chronic Cannabis users.

Keywords: Cannabis, Anxiety, Depression, Cognitive behavioral therapy

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Introduction

Cannabis is usually referred as the gateway drug and Cannabis use disorders (CUD) are more common than all other illicit substance use.[1,2] According to Choudhury et al, drug addiction is prevalent among 20.3% of people aged 18 to 40 (male and female, with an average age of twenty-two years old). The United Nations Office on Drugs and Crime (UNODC) annually reports on the current state of drug use in the world, by continent, region, and country. As reported in 2017, 5.3% of the population aged 15-64 years has used drugs at least once. According to the same report, 183 million people use cannabis, 37 million use amphetamines and amphetamine-like compounds, 45 million use opioids, 22 million use ecstasy, and 17 million use cocaine as the predominant substance.[3]

Addiction to Cannabis is one of the main health problems of Iran and the world. It affects the physical, mental, social, and spiritual dimensions of health, causes misbehavior in personal and social life, and endangers the health of the society.[4] Also mood disorders such as depression and anxiety are prevalent in substances abuse such as Cannabis use disorders.[5-6]

Mood disorders, including depression and anxiety disorders, are the most common psychiatric problems among patients with substance use disorders. Treating patients' co-occurring mood disorders may reduce their substance craving and taking and enhance their overall outcomes.[7,8]Cognitive-behavioral therapy (CBT) refers to

a psychological interventions are maintained by cognitive factors. The core concept of this treatment approach, as pioneered by Beck and Ellis holds that maladaptive cognitions contribute to the maintenance of emotional distress and behavioral problems. According to Beck's model, these maladaptive cognitions include general beliefs, or schemas, about the world, the self, and the future, giving rise to specific and automatic thoughts in particular situations. [9] The basic model posits that therapeutic strategies to change these maladaptive cognitions lead to changes in negative mood and dysfunctional behaviors. According to Cognitive Model, it is accepted that cannabis use is a learned behavior and achievement of abstinence is also a learning process. Behavioral methods focus on interrupting cannabis use, and rewarding successful attempts. [11,10]

Cognitive restructuring includes modifying unrealistic expectancies, changing maladaptive beliefs about effects of cannabis and enhancing motivations toward sobriety, as well as strengthening coping mechanisms. [9, 10] This process is done by training people to use skills such as relaxation techniques, exposure to high-risk situations, coping with craving , trigger avoidance, and reinforcing self-control and problem-solving skills.[12,13]

Some studies have shown that cognitive-behavioral therapy (CBT) is one of the most effective psychological interventions playing a significant role in relapse prevention (RP) by reducing anxiety and depression, improving relationships with others, increasing self-control in cannabis users. Accordingly, drug dependence is seen as a learned behavior that is acquired through experience, based on wrong attitudes and beliefs.6 Short-term cognitive-behavioral therapy is a summary of CBT-related content, with 4 to 8 therapy sessions focusing on a specific treatment for a limited range of patients' problems.7 However, the effectiveness of the two approaches relies on different behavior dimensions specific to those with drug abuse, including reduce tendency to drink alcohol and use of drugs. [9,13]

In regard of importance of psychiatric disorders such as depression and anxiety in cannabis users, this study investigated the efficacy of CBT on depression and anxiety in chronic cannabis users in Tehran.

Methods

The current study is a semi experimental study of pretest and posttest measurements.

Among patients who referred to addiction rehabilitation centers in Tehran, those with 2-years cannabis consumption were selected based on the inclusion and exclusion criteria. Of them, 36 members with depression and anxiety but without personality disorder were selected for this study. We did interview with them for selecting personality disorders then we select

18 persons without personality disorders for each group.

Inclusive criteria for this study included, having at least an eighth grade education, ranging from 20 to 40 years and have 2 year past history of Cannabis use, having anxiety and depression due to Cannabis use and lack of personality disorders with the Structured Clinical Interview for Personality Disorders (SCID-II) .Exclusion criteria included lack of Psychotic disorders, delusional disorders, bipolar disorders, impulse control disorders, and using antipsychotic drugs or drugs that reduce symptoms of withdrawal. Thirty-six participants were randomly selected from this group divided into two groups of 18 people. Experimental group received 12 sessions of CBT intervention while control group were in waiting list. We evaluated both groups in baseline, after the sixth session, twelve - session and a three - month follow - up. Addicted patients referred by psychiatrist and a clinical psychologist did interview for screening of personality disorders and did intervention by group format. Data were analyzed using SPSS-22 software to analyze variance with repeated measurements, ANOVA, two - factor variance analysis and paired t - tests.

this study was approved by the Ethics Committee of Iran university of Medical sciences (153).

The CBT protocol was adopted from the textbook of cognitive techniques for addiction [14] . The first session introduced Cognitive Behavior therapy and addiction disorder. The second session discussed external and internal triggers such as situations, addicted people, and Physical sensations, negative emotions, and thoughts. The third session taught participants to cope with the internal triggers in the fourth to sixth session participants were taught to cope with craving by relaxation techniques, activation and engagement in pleasure activities, distress tolerance and distraction techniques . We thought problem solving seventh sessions. The 8 to 10 sessions we taught techniques for identifying and correcting false positive beliefs about substances and correct negative beliefs about self-control and self-competency. In the twelfth session, all the therapeutic sessions were reviewed and participants give their feedback.

Structured Clinical Inventory (SCID-II)

This tool is a semi-structured inventory for diagnosis personality disorders based on DSM-IV criteria. The SCID-II includes 119 questions and the researcher directs the interview according to the patient's responses. The validity and reliability of this scale has been approved in a foreign country.[15] .Also, this scale has Iranian validity version.[16]

Beck's Depression Inventory-II

The Beck Depression Inventory - II (BDI II) is a scale of 21 items and one of the self - report measurements most widely used. The original BDI's psychometric properties are well established and psychometrically robust is the BDI - II. The Persian version of this inventory has a validity coefficient of 70%, reliability coefficient of 77%and an internal consistency of 91%. The internal consistency of

the BDI-II for Iranian papulation has been found to be 87%, and the test-retest reliability is73%. [17]

Beck's Anxiety Inventory

The Beck Anxiety Inventory is a 21-item scale that was developed to discriminate anxiety from depression .Each item on the scale describes a symptom of anxiety. In a 4-point scale ranging from 1 to 3, the respondent should rate each symptom over the past week. The items yield a total score of between 0 and 63. The BAI has high internal consistency and total item correlations ranging from 0.30 to 0.71[median = 0.60] and studies show its convergent and discriminatory validity, Studies show that BAI's validity and reliability are robust. This tool's consistency coefficient was found to have a 92 percent alpha coefficient, it is 75 percent son week test - retest reliability, and its correlation varied from 30 to 76 percen.[18] Kaviani and Moosavi.[19] reported a validity coefficient of the BAI equal to 0.72 and validity coefficient of test-retest equal to 0.83 within one month and Cronbach's alpha equal to 0.92.

Results

Data analysis was carried out using descriptive statistical methods such as mean, standard deviation and mixed repeated measures, correlated t - test, and chi - square tests. The statistical analysis was carried out using the software SPSS-24. Comparison was made of the demographic features of experimental and control groups. The mean age of the experimental group (24.67 ± 6) and the mean age of the control group (24.23 ± 5) did not differ significantly.

Participants included 36 persons,18 persons in control and 18 persons in experimental group . The mean age of all participants was 32.15 years (S.D = 5.36, range of 20-40 years). Chi-squares and independent t-tests were performed to identify possible differences in demographic variables between the Cognitive Behavioral Therapy (CBT) group and control groups. No significant between–group differences were found for demographic variables include age and job status. Demographic variables are demonstrated in Table 1.

Comparisons of paired-ness based on demographic characteristics across groups had confirmed based on age and job status. Repeated measures ANOVA were conducted to examine differences between the CBT and control groups on the depression and anxiety. Group (CBT vs. control) as between-subject and assessment time (pre-test, sixth session, post-test, follow-up) as within-subject were tested. Similarities were found between the two groups at pretest (see Table 2 and Figures 1–2). A significant between-subject by within-subject interaction effect (TIME*GROUP) was found. Consequently, a within-subject effect (TIME) repeated measure ANOVA was run in both CBT and control groups, with post-hoc pairwise comparisons of pre-test, sixth session, post-test, follow-up scores (see Table 2). Independent t-tests were then done for baseline, sixth session, post-intervention, and follow-up comparisons between CBT and control groups to assess group differences in depression and anxiety before and after CBT intervention.

Table 1. Comparisons of Demographic Characteristics across intervention and control Groups

	CBT ($n=18$)	control ($n=18$)	Statistical Analyses
Job status(unemployed-part time-employed)	(6-8-4)	(5-10-3)	$\chi^2(2)=.46$, n.s.
Age years (S.D)	24.67 (4.57)	24.23 (5.46)	t(34) = .59, n.s.

Means of the depression and anxiety in experimental and control groups at four assessment times were compared by independent t-tests. Note: for comparison of CBT and control groups by independent t-test, the significant level was considered as ** < .01.

Hypothesis one: CBT is effective in reduction of depression

Following the significant interaction effect (TIME*GROUP), result of within-subject effect (TIME) in ANOVA repeated measures confirmed the decreasing trend from time-1 to time-4 assessment point in depression, respectively for CBT [F (3, 51) = 324.9, P = .001, partial η2 = .95], and control [F (3, 51) = 1.29, P = .28, partial η2 = .07] groups. One group, independent t-test of CBT and control groups at baseline [t(34) = -.1, P = .9 (two-tailed)], sixth session -intervention [t(34) = -6.65, P = .001 (two-tailed)], post -test [t(34) = -11.66, P = .001(two-tailed)], and follow-up [t(34) = -26.97, P = .001(two-tailed)], yielded a significant reduction in depression in the CBT group with large magnitude of effect size (Figure 1).

Hypothesis Two: CBT is effective in reduction of anxiety

Following the significant interaction effect (TIME*GROUP), result of within-subject effect (TIME) in ANOVA repeated measures confirmed the decreasing trend from time-1 to time-4 assessment point in anxiety, respectively for CBT [F (3, 51) = 713.88, P = .001, partial η2 = .97], and control [F (3, 51) = 1.29, P = .049, partial η2 = .14] groups. One group, independent t-test of CBT and control groups at baseline [t(34) = 1.04, P = .30 (two-tailed)], sixth session-intervention [t(34) = -10.95, P = .001 (two-tailed)], post-test [t(34) = -19.16, P = .001(two-tailed)], and follow-up [t(34) = -28.61, P = .001(two-tailed)], yielded a significant reduction in depression in the CBT group with large magnitude of effect size (Figure 2).

Discussion

The main aim of this study was the efficacy of Cognitive Behavioral Therapy (CBT) on anxiety and depression in chronic cannabis users in Tehran.

Our results showed that Cognitive Behavior Therapy (CBT) could significantly reduce depression and anxiety in chronic Cannabis users, So they could enable cope with internal triggers and craving.

Table 2. Linear ANOVA repeated measure for depression and anxiety following the cognitive behavioral Therapy

		PR/SS/PO/F0-Mean	TIME	TIME*GROUP	within-subject†	Post Hoc ††	
Depression	CBT	24.16/18.44/11.83/8.77	F(3, 102)=125.06, p=.001, η2=.78	F(3, 102)=103.42, p=.001, η2=.75	F(3, 51)=324.9, p=.001, η2=.95	PR>SS * PR>PO * PR>FO*	SS>PO * SS>FO*
	Control	24.22/22.83/23.16/23.33			F(3, 51)=1.29, p=.28, η2=.07	PR=SS PR=PO PR=FO	SS=PO SS=FO
Anxiety	CBT	24.56/16.44/11.11/7.39	F(3, 102)=281.83, p=.001, η2=.89	(3, 102)=202.11, p=.001, η2=.85	F(3, 51)=713.88, p=.001, η2=.97	PR>SS * PR>PO * PR>FO*	SS>PO * SS>FO*
	Control	24.18/23.94/23.28/22.72			F(3, 51)=2.81, p=.049, η2=.14	PR=SS PR=PO PR=FO	SS=PO SS=FO

Note: PR=pre-test; SS=sixth session; PO=post-test; FO=follow-up; Intervention (n=18); Control (n=18), **<.01.
†=following the significant interaction effect (TIME*GROUP), within-subject ANOVA reappeared measure as simple effect, separately was done in both groups.
††=pairwise comparison for three assessment time, Bonferroni was used as the post-hoc test; significant pairwise showed by ''>''and non-significant ones by ''=''.

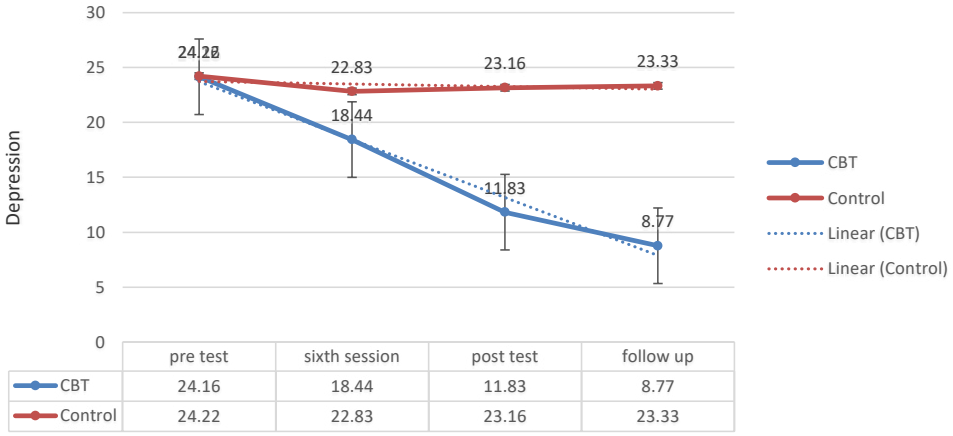
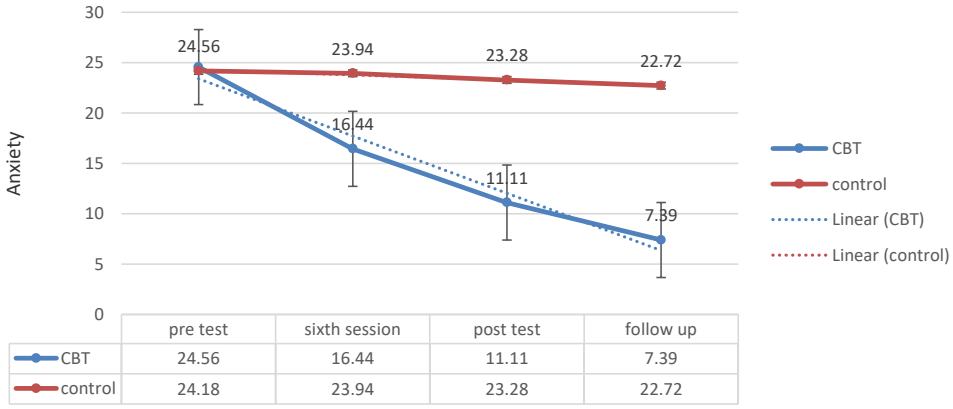


Figure 1. Depression



Figures 2. Anxiety

This major our current study is a line with some studies in Iran and the world about the efficacy of Cognitive Behavior Therapy (CBT) in reduction of mood symptoms in addicted persons .[19,20.]

CognitiveBehavior Therapy (CBT) is the most widely studied form of psychotherapy, 269 meta-analytic reviews showed that this is the most treatment of addiction and substance use disorder, the effect sizes of CBT ranged from small to medium, Depending on the type of the substance of abuse. CBT was highly effective for treating cannabis and nicotine dependence, and is effective for reduction of depression and anxiety in this patients.[20, 21.]

The results of this study is a line with the another studies that they confirm the effctivness of CBT in treatment of mood disorders and addictions. [22- 24] Several studies showed that the effectiveness of CBT in reducing cravings and improving the coping skills in addicted people. They showed that Cognitive Behavior Therapy (CBT) could to enable patients and help them to cope with external triggers and internal triggers that craving is the one of them. [23, 24] the improvement of self-control and reduction of depression and anxiety was the important treatment

outcome in these studies. [6,7,8, 24]

Patients with Cognitive Behavior Therapy (CBT) could change negative beliefs about self-such as (I am weak, I cannot resistant with cannabis), and false positive beliefs about substances such as (Cannabis could me enable, I could cope with problems by using cannabis). These beliefs could vulnerable people for using cannabis. [22,23, 24,.]

Several studies showed that Cognitive Behavior Therapy (CBT) would lead to reduction anxiety and depression symptoms in addicted patients. [23,24, 25.]Such reduction in anxiety and anxiety could leads to reduction in craving, improvement of self-control and prevention of lapse and relapse Also, CBT could improve coping mechanisms in addicted patients; therefore, they could cope with internal and external triggers, deal with craving and major stressors. This finding could be explained that Cognitive Behavior Therapy (CBT) is an effective psychological treatment for mood disorders and addictions. With behavioral and cognitive strategies in CBT patients learned manage their negative mood and this management improve their coping mechanisms for deal with craving, lapse and prevent of relapse.

This study has some limitation such as: all of participants were male, some of participants have negative attitude about homework, we did not know about their demographic characteristic correctly.

We suggest for research in future that they include addicted women and compare another psychology treatments with CBT for addicted patients.

Conclusion

Based on the findings of the present study, Cognitive Behavior Therapy (CBT) leads to reduction in anxiety and depression in chronic cannabis user's. This outcome could reinforcement coping ability to encounter with internal and external triggers, change negative thoughts and beliefs about self and positive beliefs about substances. In this case, it is suggested to use Cognitive Behavior Therapy (CBT) as one of the psychological therapies for management of mood symptoms in cannabis users.

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Authors' Contribution

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Competing Interests

Authors have no conflict of interests.

Ethical Approval

This project has been approved by the Iran University of Medical Sciences (Thesis code: 158; 1385).

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