Addiction & Health

https://ahj.kmu.ac.ir
doi:10.34172/ahj.1646
AHJ. 2026;18:1646

Original Article

The Effect of Group Cognitive-Behavioral Therapy on Mood Symptoms and Substance Cravings in Men with Bipolar Disorder and Substance Use Disorder: A Randomized Controlled Trial

Mohammad Akhoondi[1], Maryam Maddineshat[2,3], Erfan Ayubi[4], Efat Sadeghian[2,5*]

[1]Student Research Committee, Hamadan University of Medical Sciences, Hamadan, Iran
[2]Chronic Diseases (Home Care) Research Center, Institute of Cancer, Hamadan University of Medical Sciences, Hamadan, Iran
[3]Department of Nursing, School of Malayer Medical Sciences, Hamadan University of Medical Sciences, Hamadan, Iran
[4]Cancer Research Center, Institute of Cancer, Hamadan University of Medical Sciences, Hamadan, Iran
[5]Department of Nursing, School of Nursing and Midwifery, Hamadan University of Medical Sciences, Hamadan, Iran

***Corresponding Author:** Efat Sadeghian, Email: sadeghianefat@gmail.com

Abstract

Background: Many patients with bipolar disorder also experience substance use disorder, along with frequent mood swings and substance cravings. It appears that traditional medication treatments may not be sufficient for these individuals. This study sought to examine how cognitive-behavioral group therapy could impact mood symptoms and substance cravings in male patients dealing with both bipolar disorder and substance abuse.

Methods: A randomized controlled clinical trial was conducted in the psychiatric departments of Sina Educational and Medical Center in Hamadan in 2023. Forty individuals were allocated to two distinct groups. The intervention group participated in eight sessions of group cognitive-behavioral therapy. Data were collected using a demographic questionnaire, the Hirschfeld Mood Disorder questionnaire, the Beck Depression Inventory, and the Craving Beliefs Questionnaire. The data were analyzed using SPSS 22.

Findings: Prior to the intervention, there were no significant differences between the intervention and control groups ($P>0.05$). Following the intervention, both groups experienced a decrease in mood symptoms and craving, with the intervention group showing a significantly greater reduction ($P<0.001$). However, one and three months after discharge, the patients in both groups experienced a gradual recurrence of mood symptoms and cravings. Despite this, patients in the intervention group consistently showed better outcomes than the control group at each time point ($P<0.001$).

Conclusion: The intervention group successfully managed mood symptoms and substance cravings in bipolar patients with a history of substance dependence. This non-pharmacological method is recommended for initial use as part of a comprehensive treatment course, followed by incorporation as an intermittent maintenance strategy.

Keywords: Cognitive behavioral therapy, Mood disorders, Bipolar disorder, Substance-related disorders, Craving

Citation: Akhoondi M, Maddineshat M, Ayubi E, Sadeghian E. The effect of group cognitive-behavioral therapy on mood symptoms and substance cravings in men with bipolar disorder and substance use disorder: a randomized controlled trial. Addict Health 2026;18:1646. doi:10.34172/ahj.1646

Received: December 16, 2024, **Revised:** September 27, 2025, **Accepted:** January 28, 2026, **ePublished:** February 16, 2026

Introduction

Bipolar disorder is a mental health condition marked by recurrent manic episodes (bipolar I disorder) or hypomanic episodes alternating with distinct periods of depression (bipolar II disorder).[1] The prevalence of this disorder throughout life, both internationally and in Iran, is approximately 1% of the general population.[2,3] Individuals with this disorder experience manic and depressive symptoms episodically and intermittently.[4] The frequent episodes of mania and depression impact personal, familial, social, and cultural aspects of life.[4] This disorder imposes a substantial financial and human toll.[5] Many of these patients resort to substance use for symptom relief and stress management.[6] Substance use disorder is highly prevalent in patients with bipolar disorder, with an estimated 56% experiencing it at some point in their lives.[7]

Additionally, a study by Kenneson et al. (2013) demonstrated that alcohol and substance craving increases the likelihood of developing bipolar disorder.[8] There is a substantial overlap between bipolar disorder and substance

use disorder. Despite this, research on individuals affected by both conditions remains scarce, as these patients are often excluded from clinical studies.[9] Substance use leads to these patients experiencing more severe phases of the illness, more frequent relapses, increased hospitalizations, and lower treatment adherence compared to bipolar patients who do not use substances.[7] Substance craving is a key factor in maintaining substance use or experiencing relapse post-treatment.[10] It involves a strong desire to use substances or feeling cravings to do so.[11] This craving is now recognized as part of the diagnostic criteria for substance use disorder (SUD) and is crucial for both early and sustained recovery.[12] Cognitive-behavioral therapy (CBT) has been proven to be a successful strategy for controlling and diminishing substance cravings [13]. This psychological approach focuses on addressing negative thought patterns and emotions that may lead to detrimental psychological consequences.[14]

CBT is considered the most effective psychological treatment for improving mood symptoms in treating addiction. The cognitive-behavioral approach to depression focuses on how individuals perceive themselves and their environment. According to CBT, individuals develop patterns of thinking based on their experiences, which can influence their cognitive organization. By recognizing and adjusting these patterns, CBT can be effective in patients' recovery.[15]

In the study by Gregory et al. (2020), group cognitive-behavioral therapy (GCBT) was found to be more effective than individual CBT in patients with opioid use disorder.[16] Severe et al. (2022) found that patients with bipolar disorder receiving integrated group counseling showed increased mania and depression symptoms compared to those on medication alone, but their addiction severity decreased.[17] Arman et al. (2018) found that GCBT combined with maintenance medication effectively reduced depressive symptoms in bipolar patients but did not affect manic symptoms or relapse rates.[18] In Iran, treatments often focus on biological aspects and medication, with limited implementation of psychosocial approaches. Given the high prevalence and comorbidity of bipolar disorder and substance use disorder, research on the effectiveness of GCBT for patients with both conditions is limited and necessary.[19,20] In this study, psychiatric nurses delivered GCBT, which makes it a more cost-effective approach that enables broader implementation compared to using other psychiatric staff.[21] Therefore, this study aimed to investigate the impact of GCBT on mood symptoms and substance cravings in patients with comorbid bipolar and substance use disorders.

Method

Setting

The single-blind clinical trial was conducted at Sina Medical Education Center in Hamadan from May to September 2023. The present study was part of a research project approved by Hamadan University of Medical Sciences (code: 140205174050). Before initiating the study, ethical approval was obtained from the Research Deputy Ethics Committee at Hamadan University of Medical Sciences (ethical code: IR.UMSHA.REC.1402.082). Furthermore, approval was obtained from the Iranian Clinical Trials Center (number: IRCT20170411033378N11)(Link: https://irct.behdasht.gov.ir/trial/69974) before any intervention. All participants in the study entered with informed consent and signed the informed consent form. Participants were informed that they could withdraw at any time without adverse consequences. After the study, the content of the cognitive behavioral therapy group sessions was provided to the control group participants.

Participants

After reviewing similar studies and performing statistical analyses, 40 participants (20 per intervention and control group) were included in the study.

Inclusion Criteria

1) Bipolar disorder type I diagnosis by a psychiatrist based on the *DSM-5* criteria, 2) substance use disorder diagnosis according to the *DSM-5* guidelines, 3) Absence of psychiatric disorders other than bipolar disorder, 4) Willingness to participate in the study, 5) age 18–65, 6) Ability to communicate and respond to questionnaires, 7) Literacy in reading and writing, 8) Receiving usual care and medication treatments, 9 (Absence of physical disabilities that prevent participation in therapy sessions or severe cognitive or mental impairments (e.g., intellectual disability or dementia) that interfere with understanding or participating in CBT, and 10) Not receiving similar psychotherapy simultaneously.

Exclusion Criteria

1) Absence in more than two GCBT sessions and 2) Entering the acute phase of disease during the study.

Data Collection

In this study, individuals with bipolar disorder and substance use disorder who were referred to Sina Educational and Medical Center (Farshchian) in Hamadan and met the study criteria were randomly assigned to either the intervention or control groups using a block randomization method. Due to the large number of participants in the treatment group, two intervention groups of ten were created. This resulted in four blocks of ten individuals each, with five randomly assigned to the intervention group and five to the control group in each block. Group sessions were conducted in closed groups of ten individuals. The control group received standard medication care, while the intervention groups received standard medication care in addition to

eight weekly GCBT sessions led by a trained researcher (M.A.), accompanied by experienced psychiatric nursing faculty members specializing in CBT (Table 1). Each Session lasted an hour and a half, with approximately 10 minutes allocated to a break. The sessions were held in the psychiatry department consultation room. A previous study on cognitive-behavioral therapy also used sessions of similar length and number.[20] At the beginning of the study, questionnaires were administered via face-to-face interviews by a research assistant who was unaware of the participants' group status. After the intervention, the questionnaires (except for demographic information) were re-administered to both the intervention and control groups via face-to-face interviews. Participants from both groups were then followed up by telephone interviews 1 month and 3 months post-intervention. The questionnaires were filled out by a research assistant who was unaware of the participants' group status to prevent bias. Due to the nature of the intervention, participants could not be blinded in the study.

Data collection tools

Demographic information questionnaire

A researcher prepared this questionnaire, which collected patients' personal and clinical demographic information, including age, marital status, education, type of substance used, duration of use, and suicidal thoughts and attempts. The questionnaire's face and content validity were confirmed by ten members of the nursing faculty at Hamadan University of Medical Sciences.

Mood Disorder Questionnaire (MDQ)

The survey by Hirschfeld et al. (2000) consists of three parts. The first part includes 13 statements assessing manic or hypomanic symptoms over a patient's lifetime. The second part requires yes/no responses to determine whether these symptoms are currently present. The third part evaluates overall functioning. A diagnosis of bipolar disorder is indicated by more than six positive responses to the initial 13 questions, while the other two parts assess symptom severity and social dysfunction. Hirschfeld et al. reported a validity of 0.73 and a reliability of 0.90 for this questionnaire.[22] Barekatain et al. (2008) demonstrated good reliability ($r=0.79$, $P<0.01$) for the Persian-translated version.[23] This study used the questionnaire to measure manic symptoms, yielding a Cronbach's alpha coefficient of 0.81.

Table 1. Research intervention protocol

Session	Content of the Sessions and Assignments
Session 1	Content of the Session: Conducting an initial assessment (reviewing the entry criteria), introducing the therapist and group members, explaining the structure of the sessions, the number, and duration of each Session, and defining the nature of bipolar disease and its signs and symptoms, and members expressing their experiences of signs and symptoms. Creating and maintaining motivation for change. Assignments. Each week, patients documented any changes in mood and hours of sleep in the provided form. They paid close attention to any specific indicators that might suggest a recurrence of their illness or a shift in mood.
Session 2	Content of the Session: Promoting resistance and advocating for member disclosure, identifying and addressing triggering conditions (such as dangerous situations, emotions, and thoughts). Becoming familiar with common cognitive errors in periods of anxiety and depression and their relationship with emotions and behaviors. Assignments: Patients recorded any risky situations and thoughts in the daily report sheet, along with the strategies they planned to use to address them. They developed a list of coping skills and made a conscious effort to practice them regularly. Throughout the following week, they utilized their thought log to track and analyze their thoughts.
Session 3	Content of the Session: Dealing with cravings involves identifying triggers, practicing relaxation techniques, refocusing attention, using positive self-talk, and reflecting on the consequences of substance use. It is essential to address an individual's beliefs and attitudes towards substance, replacing negative thoughts with positive and realistic perspectives on substance use and its consequences. Assignments: The patient completed a daily craving log and practiced coping skills, identifying which were most effective. Members also explained the usage and side effects of medications.
Session 4	Content of the Session: Skills of refusal, managing social situations, and strengthening assertiveness are important. Continuing cognitive restructuring through learning to develop more accurate and realistic thinking, planning to incorporate pleasant and responsibility-based life activities. Assignments: This week, they had to participate in at least two scheduled activities (one skill-based and the other recreational). A weekly activity schedule table is crucial for monitoring and planning daily activities.
Session 5	Content of the Session: Making informed decisions when making decisions, analyzing instances of members slipping or resisting slipping (how did they come to their decision?), and honing the skill of recognizing apparently inconsequential decisions. Assignments: Participants were encouraged to reflect on recent significant choices and distinguish between healthy and risky decisions. They were tasked with documenting examples of both types of decisions and assessing the overall impact on their lives. This exercise would help individuals become more aware of their decision-making patterns and strive for healthier choices in the future.
Session 6	Content of the Session: The issue of problem-solving skills and their relationship with substance abuse or addiction craving, familiarity with the problem-solving stages, anger management, stress management, emotional control, problem-solving, and conflict resolution in interpersonal problems. Assignments: Members had to choose a problem they were facing in their lives and outline five steps to solve it.
Session 7	Content of the Session: Lifestyle modification includes managing triggering behaviors, enhancing positive behaviors, dealing with fatigue, and addressing feelings of boredom. Assignments: Patients had to complete a profit-and-loss matrix, identify changes or lack of lifestyle changes, prepare a list of postponed tasks, prioritize them, and plan to fill their time with beneficial, therapeutic activities incompatible with the previous lifestyle.
Session 8	Content of the Session: promoting calmness, regulating breathing, preventing relapse, maintaining stability, and completing treatment. Therapists must regularly provide feedback on group members' progress, while members should also share what they find most helpful and least effective in their treatment. Furthermore, all participants were expected to complete questionnaires as part of the process.

Beck Depression Inventory (BDI)

In this study, the symptoms of depression were assessed using the Beck Depression Inventory (1972).[24] This tool is a widely used scale that covers all symptoms of depression defined by the *DSM-5*. It has also been shown to have good psychometric properties.[25] The scale consists of 13 items, each with four statements; each statement is scored from 0 to 3. A score of 0 represents the lowest level of depression, whereas a score of 3 represents the highest.

In Ariapooran et al.'s (2022) research, the Cronbach's alpha coefficient for this tool was found to be 0.78,[26] while Dadfar et al. (2016) reported a coefficient of 0.85.[27] In our current study, the Cronbach's alpha coefficient for this tool was 0.80.

Craving Beliefs Questionnaire

In 2003, Wright developed a 20-item questionnaire to evaluate substance craving. Participants provide their responses on a 7-point Likert scale, where 1 indicates total disagreement, and 7 indicates total agreement. The overall score is obtained by summing all item scores, yielding a possible range of 20 to 140. Higher scores reflect greater substance craving, whereas lower scores indicate weaker craving.[28] In Chang et al.'s (2011) study, the tool had a Cronbach's alpha coefficient of 0.95,[29] whereas in Mohammadkhani et al.'s (2010) study, it was 0.77.[30] In our current study, Cronbach's alpha for this tool was 0.90.

Data analysis

Data were analyzed using SPSS software version 22. A significance level of 0.05 was considered. Descriptive statistics were used to describe quantitative and qualitative variables within study groups, reporting frequencies (percentages) and means (standard deviations). Data normality was evaluated using the Kolmogorov–Smirnov test. To compare depression, mania, and substance craving scores in the two groups at different time points, repeated measures analysis of variance was used. For comparing the intervention and control groups on qualitative variables, the chi-square test and Fisher's exact test were used. An independent two-sample *t*-test was used for quantitative variables. The study considered a *P* value of 0.05 or lower as indicative of statistical significance.

Results

At the beginning of the study, 40 participants were randomly assigned to the intervention and control groups. Following hospital discharge, two individuals from the intervention group and three from the control group declined to complete the questionnaire, resulting in their exclusion from the study. As a result, the analysis was conducted on data from 35 participants (18 in the intervention group and 17 in the control group) (Figure 1).

The demographic information, including age, marital status, education, duration of substance use, number of serious quit attempts, and suicidal thoughts and attempts, was assessed in the intervention and control groups. Analysis revealed no notable demographic variations between participants in the intervention and control groups. ($P>0.05$) (Table 2). The mean scores of mania ($P=0.992$), depression ($P=0.713$), and substance use cravings ($P=0.577$) among participants in the intervention and control groups did not differ significantly before the intervention. However, immediately after the intervention, as well as 1 month and 3 months post-intervention, the mean scores of mania ($P=0.004$), depression ($P<0.001$), and substance use cravings ($P<0.001$) were markedly lower in the intervention group compared to the control group (Table 3) (Figures 2-4).

In the analysis of the variance test, it was found that there was a significant group effect ($P<0.001$) on the scores of mania, depression, and substance craving. There was no significant time effect ($P>0.05$), but there was a significant group and time interaction ($P<0.001$) (Table 4).

Discussion

This study aimed to examine how GCBT affects mood symptoms (mania and depression) and substance cravings in individuals with both bipolar disorder and substance use disorder. To accomplish this, we analyzed these aspects in three distinct sections.

Mania

Prior to the intervention, participants in both the intervention and control groups showed no significant difference in terms of the severity of manic symptoms. After the intervention, we observed a reduction in manic symptoms in both the intervention and control groups, but the reduction was greater in the intervention group. Both groups were hospitalized and undergoing treatment with mood-stabilizing medications, so the reduction of symptoms may appear natural. However, patients in CBT learn and practice skills such as increasing sleep duration, enhancing money management, slowing down decision-making in critical situations, reducing impulsivity, and regulating stimuli, which are very helpful in controlling manic symptoms.[31]

After one and three months, manic symptoms resurfaced in the intervention group, but they were less severe compared to the control group. Patients in the intervention group consistently exhibited lower symptom severity at all time points. These results align with Ye et al.'s (2016) study, which demonstrated that CBT initially reduces the recurrence of bipolar disorder and manic symptoms. However, the effectiveness of this therapy diminishes over time.[32] Several possible reasons for this issue include forgetfulness, not practicing the techniques learned in CBT sessions, and not following medication instructions. It is crucial to remember that this condition

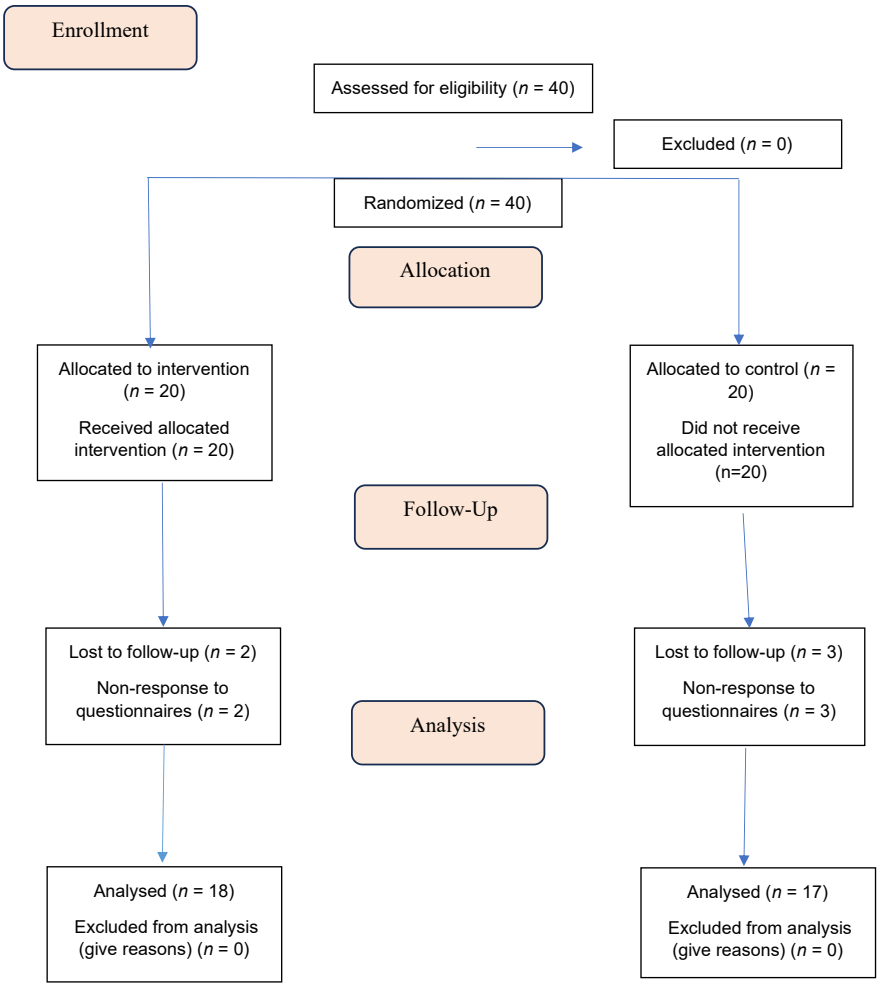

Figure 1. Consort flowchart

Table 2. Demographic information of the samples studied

Variables	Sub Variables	Intervention Mean ± SD, *n* (%)	Control M ± SD, *n* (%)	Test Statistics	*P* Value
Age	-	34.06 ± 10.20	37.76 ± 10.08	–1.08*	0.281
Marital status	Single	9 (50)	7 (41.2)	0.69**	0.703
	married	5 (27.8)	7 (41.2)		
	Widowed or divorced	4 (22.2)	3 (17.6)		
Education level	Primary school	1 (5.6)	5 (29.4)	4.19**	0.264
	Middle school and high school	8 (44.4)	4 (23.5)		
	High school diploma	7 (38.9)	7 (41.2)		
	University	2 (11.1)	1 (5.9)		
Duration of substance use disorder (years)	-	12.89 ± 8.46	14.47 ± 7.03	–0.6*	0.552
Number of serious quitting attempts	-	4.28 ± 4.57	7.70 ± 7.19	–1.69*	0.104
History of suicidal ideation	Yes	13 (72.2)	10 (58.8)	0.70**	0.403
	No	5 (27.8)	7 (41.2)		
History of suicidal attempts	Yes	9 (50)	6 (35.3)	0.77**	0.385
	No	9 (50)	3 (64.7)		

* Independent sample *t*-test; ** Chi-square test

often recurs. For example, a study by Belete et al. (2020) found that 71% of patients with bipolar disorder in Ethiopia experienced a recurrence of symptoms within one month.[33] It is recommended that future studies investigate the long-term sustainability of GCBT through booster sessions or maintenance programs, assess the

Table 3. Comparison of mood disorders, depression, and craving for substance use in intervention and control groups over time periods

Variable	Group	Pre- Intervention Mean ± SD	*t** (*P* value)	Post- Intervention Mean ± SD	*t** (*P* value)	After 1 Month Mean ± SD	*t** (*P* value)	After 3 Months Mean ± SD	*t** (*P* value)
Mania	Intervention	25.55 ± 2.45	−0.01 (0.992)	16.78 ± 1.48	3.22 (0.004)	17.55 ± 3.05	3.89 (<0.001)	19.94 ± 3.75	3.86 (<0.001)
	Control	25.35 ± 3.85		19.17 ± 2.60		21.76 ± 2.38		26.70 ± 1.83	
Depression	Intervention	12.22 ± 7.14	−0.37 (0.713)	2.22 ± 2.34	−4.90 (<0.001)	2.89 ± 3.14	−5.41 (<0.001)	5.83 ± 4.29	−6.32 (<0.001)
	Control	13.18 ± 7.90		9.29 ± 5.63		13.06 ± 7.12		18.35 ± 7.15	
Craving for substance use	Intervention	96.11 ± 18.91	0.58 (0.577)	50.28 ± 10.68	−3.97 (<0.001)	58.28 ± 10.49	−7.34 (<0.001)	66.55 ± 13.58	−10.25 (<0.001)
	Control	91.59 ± 26.42		76.29 ± 24.92		100.88 ± 21.65		116.88 ± 15.43	

*Independent sample *t*-test

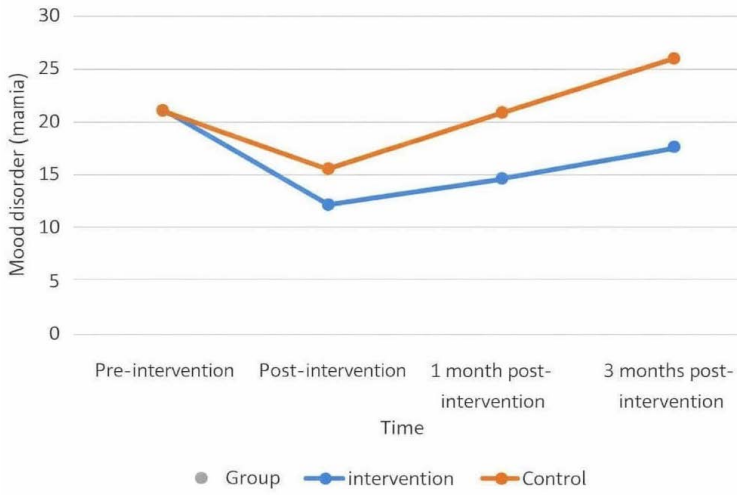

Figure 2. The average mood disorder (mania) of participants in the test and control groups Pre-intervention, Post-intervention, 1 month post-intervention and 3 months post-intervention

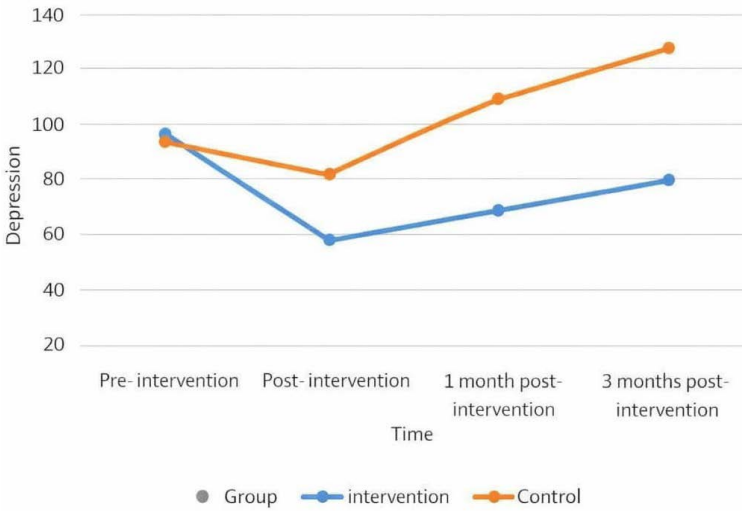

Figure 3. The average depression of participants in the test and control groups Pre-intervention, Post-intervention, 1 month post-intervention and 3 months post-intervention

impact of session number and duration, and explore combined interventions (e.g., CBT integrated with digital tracking tools or family-based therapy) to improve relapse prevention and symptom management.

Depression

Prior to the intervention, both the intervention and control groups exhibited similar levels of depressive symptoms. However, following the intervention, the individuals who underwent CBT demonstrated a significant decrease in depressive symptoms. While both groups experienced a reduction in depression severity compared to their initial state, it is not surprising that the average depression score decreased after one month of hospitalization

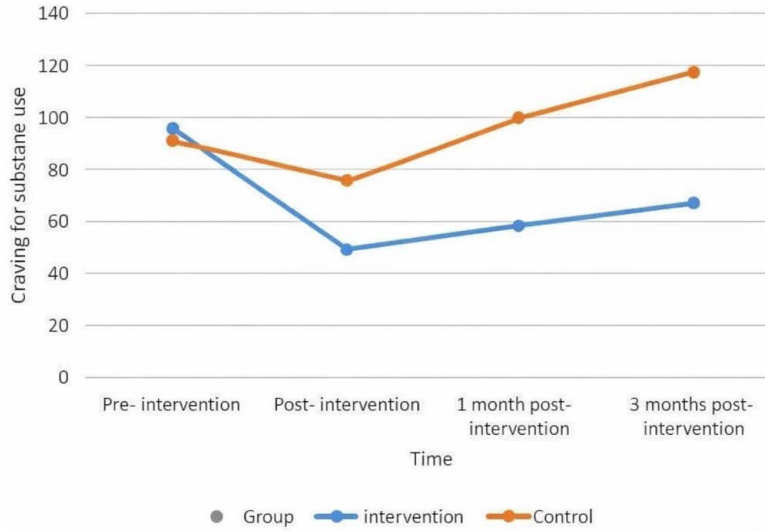

Figure 4. The average craving for substance use of participants in the test and control groups Pre-intervention, Post-intervention, 1 month post-intervention and 3 months post-intervention

Table 4. The effect of group and time on mania, depression, and craving for substance use

Variable	*F*-Statistic* of Group Effect (*P* value)	*F*-Statistic* of Time Effect (*P* value)	*F*-Statistic* of Group×Time Effect (*P* value)
Mania	24.04 (<0.001)	3.18 (0.083)	18.54 (<0.001)
Depression	16.56 (<0.001)	0.05 (0.822)	123.02 (<0.001)
Craving for substance use	24.88 (<0.001)	1.27 (0.275)	106.23 (<0.001)

*The repeated measures ANOVA test

in a psychiatric ward under the care of a psychiatrist and receiving psychiatric medications. Nonetheless, consistent participation in group sessions resulted in a more pronounced reduction in depressive symptoms. Additionally, despite a slight increase in depressive symptoms at one-month and three-month intervals post-intervention, the participants who engaged in CBT group sessions continued to experience significantly lower severity of depressive symptoms. In an investigation performed by Watkins et al. (2011), the effectiveness of GCBT for patients with persistent depressive symptoms in substance abuse treatment was evaluated. Following sixteen two-hour group sessions of cognitive behavioral therapy for depression, the intervention group showed significantly reduced depressive symptoms and fewer days of substance use three and six months post-intervention.[34] Chiang et al. (2017) recommended the use of CBT as a supplement to pharmacological treatment to reduce the risk of recurrence and the emergence of depressive symptoms in bipolar disorder based on a meta-analysis of several studies.[35] In a study, Boschloo et al. (2019) stated that for specific depressive symptoms such as low mood, feelings of guilt, suicidal thoughts, and physical symptoms, antidepressant medications are more effective than CBT. According to this study, before initiating treatment, a personalized, symptom- and sign-based approach should be used to determine whether the individual benefits from medication alone or a combination of medication and CBT.[36] Based on findings from a study by Weitz et al. (2015), pharmacotherapy was shown to be more effective than CBT in improving depressive symptoms.[37] While the study did demonstrate the effectiveness of CBT in reducing depressive symptoms, it is important to recognize that CBT should be viewed as a supplement to pharmacotherapy rather than a substitute, offering a complementary approach that can be utilized in conjunction with medication.

Craving for substance use

The participants in both the intervention and control groups initially had similar levels of substance craving before the intervention. However, after completing the intervention, there was a noticeable decrease in substance craving in both groups. While factors such as hospitalization in a psychiatric setting and the use of psychiatric medications may have contributed to this decrease, it was evident that GCBT sessions played a significant role in lowering substance cravings in the intervention group compared to the control group. Following discharge from the hospital, both groups experienced an increase in substance craving, but this increase was more gradual in the intervention group. In the one-month and three-month follow-ups after the intervention, substance craving was significantly reduced in the participants who had received the intervention compared to those in the control group.

Shahzadi and Abbas (2020) found CBT to be a practical approach to dealing with substance cravings. This treatment is considered a primary intervention for preventing substance use disorder relapse, especially when combined with maintenance therapy.[38] Trick et al. (2023) applied a group combination of CBT and motivational enhancement therapy for patients with cannabis use disorder, resulting in a significant reduction in cannabis use and increased abstinent days. However, the effects are short-term, and strategies to enhance long-term sustainability should be explored.[39] In conclusion, GCBT successfully addressed cognitive errors by influencing thoughts about substances and their consequences. Through interventions like identifying motivators, focusing attention, positive self-talk, and reminding individuals of the consequences of substance use, the group effectively managed substance craving. While the effectiveness of this approach decreased over time, it remained a valuable complementary method. Patients in the intervention group showed significantly better outcomes than those in the control group who received only pharmacotherapy. Regular GCBT sessions at intervals may help maintain treatment effectiveness by reinforcing learned skills and revisiting cognitive patterns. Further studies should evaluate strategies to strengthen long-term effects, such as integrating periodic reminder sessions, mobile-based CBT applications, or motivational enhancement techniques. Research with larger samples and diverse populations, as well as comparative studies of individual versus group CBT, may clarify the most effective models for sustaining craving reduction.

One of the strengths of the current study is its innovative nature. No research conducted in Iran has examined the combined impact of GCBT on mood symptoms and substance cravings in individuals with co-occurring bipolar disorders and substance use. Another strength is the randomization and blinding of the research assistants who administered the questionnaires assessing participants' group assignments (intervention or control). As for the limitations of the current study, due to the difficulty of accessing patients after hospital discharge, GCBT was conducted in a short, intensive course. It is possible that better results would be observed if the sessions were held with lower intensity and over a longer duration.

Conclusion

The study demonstrated the effectiveness of GCBT in managing mood symptoms, such as mania and depression, as well as reducing substance cravings in patients with bipolar disorder and substance use disorder. Patients with bipolar disorder and substance use disorder who participated in these therapy sessions alongside standard pharmacotherapy and psychiatric treatments (intervention group) showed fewer symptoms and cravings compared to those who did not (control group). The intervention group also experienced milder and less severe symptom recurrences. Based on these findings, CBT is recommended to be used alongside usual pharmacotherapy treatments in hospitals and healthcare centers to improve mood symptoms and control substance cravings in patients with bipolar disorder and substance use disorder. Additionally, it is suggested that similar studies be conducted with more sessions or with reminder sessions at different time intervals.

Acknowledgements

This article is the outcome of a research project with the approval code 140205174050. The researchers express their gratitude to the Research Deputy of Hamadan University of Medical Sciences, the staff of the psychiatric departments at Sina Hospital, and the study participants who generously completed the questionnaire and actively engaged in the GCBT program.

Authors' Contribution

Conceptualization: Mohammad Akhoondi, Maryam Madineshat, and Efat Sadeghian
Data curation: Mohammad Akhoondi and Maryam Madineshat
Formal analysis: Erfan Ayubi
Investigation: Mohammad Akhoondi, Efat Sadeghian, and Maryam Madineshat
Methodology: Mohammad Akhoondi, Efat Sadeghian, Maryam Madineshat, and Erfan Ayubi
Project administration: Efat Sadeghian, Maryam Madineshat, and Erfan Ayubi
Supervision: Efat Sadeghian
Writing–original draft: Mohammad Akhoondi, Efat Sadeghian, Maryam Madineshat, and Erfan Ayubi
Writing–review & editing: Mohammad Akhoondi and Efat Sadeghian

Competing Interests

The authors declared no conflict of interest.

Ethical Approval

The present study results from a research project with the approval code 140205174050 at Hamadan University of Medical Sciences. Prior to the study, ethical approval was obtained from the Research Deputy Ethics Committee of Hamadan University of Medical Sciences (ethical code: IR.UMSHA.REC.1402.082). Furthermore, approval was obtained from the Iranian Clinical Trials Center (IRCT20170411033378N11) prior to any intervention. This study was conducted in accordance with the 1964 Helsinki Declaration and its subsequent revisions. All participants in the study entered with informed consent and signed the informed consent form. The participants were assured they could withdraw at any time without negative consequences.

Funding

This project has received funding from the Vice-Chancellor for Research of Hamadan University of Medical Sciences (grant No.: 140205174050).

References

1. Carvalho AF, Firth J, Vieta E. Bipolar Disorder. N Engl J Med. 2020;383(1):58–66. doi:10.1056/NEJMra1906193
2. Rowland TA, Marwaha S. Epidemiology and risk factors for bipolar disorder. Ther Adv Psychopharmacol. 2018;8(9):251–69. doi:10.1177/2045125318769235

3. Mohammadi MR, Davidian H, Noorbala AA, Malekafzali H, Naghavi HR, Pouretemad HR, et al. An epidemiological survey of psychiatric disorders in Iran. Clin Pract Epidemiol Ment Health. 2005;1:16. doi:10.1186/1745-0179-1-16
4. Jeste PDV, Lieberman PEJA, Fassler TD, Peele SR. Diagnostic and statistical manual of mental disorders. Washington, DC: American Psychiatric; 2013. doi:10.1176/appi.books.9780890425596
5. Dembek C, Mackie D, Modi K, Zhu Y, Niu X, Grinnell T. The economic and humanistic burden of bipolar disorder in adults in the United States. Ann Gen Psychiatry. 2023;22(1):13. doi:10.1186/s12991-023-00440-7
6. Canham SL, Mahmood A, Stalman MN, King D, O'Rourke N. Personal theories of substance use among middle-aged and older adults with bipolar disorder. Aging Ment Health. 2018;22(6):813–8. doi:10.1080/13607863.2017.1299689
7. Preuss UW, Schaefer M, Born C, Grunze H. Bipolar Disorder and Comorbid Use of Illicit Substances. Medicina (Kaunas). 2021;57(11). doi:10.3390/medicina57111256
8. Kenneson A, Funderburk JS, Maisto SA. Substance use disorders increase the odds of subsequent mood disorders. Drug Alcohol Depend. 2013;133(2):338–43. doi:10.1016/j.drugalcdep.2013.06.011
9. Lieberman DZ, Kolodner G, Massey SH, Williams KP. Antidepressant-induced mania with concomitant mood stabilizer in patients with comorbid substance abuse and bipolar disorder. J Addict Dis. 2009;28(4):348–55. doi:10.1080/10550880903182994
10. Cavicchioli M, Vassena G, Movalli M, Maffei C. Is craving a risk factor for substance use among treatment-seeking individuals with alcohol and other drugs use disorders? A meta-analytic review. Drug Alcohol Depend. 2020;212:108002. doi:10.1016/j.drugalcdep.2020.108002
11. Waters AJ, Schoenmakers TM, Snelleman M, Szeto EH, Franken IHA, Hendriks VM, et al. Affect, motivation, temptation, and drinking among alcohol-dependent outpatients trying to maintain abstinence: An Ecological Momentary Assessment study. Drug Alcohol Depend. 2020;206:107626. doi:10.1016/j.drugalcdep.2019.107626
12. Substance A, Mental Health Services A. CBHSQ Methodology Report. Impact of the DSM-IV to DSM-5 Changes on the National Survey on Drug Use and Health. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 2016.
13. Magill M, Ray L, Kiluk B, Hoadley A, Bernstein M, Tonigan JS, et al. A meta-analysis of cognitive-behavioral therapy for alcohol or other drug use disorders: Treatment efficacy by contrast condition. J Consult Clin Psychol. 2019;87(12):1093–105. doi:10.1037/ccp0000447
14. Beck AT. Cognitive therapy and the emotional disorders. 2 ed. New York, NY: International Universities Press; 1976.
15. Robertson D. The philosophy of cognitive-behavioural therapy (CBT): Stoic philosophy as rational and cognitive psychotherapy. 2st edition ed. US: Routledge; 2020.
16. Gregory VL, Jr., Ellis RJB. Cognitive-behavioral therapy and buprenorphine for opioid use disorder: A systematic review and meta-analysis of randomized controlled trials. Am J Drug Alcohol Abuse. 2020;46(5):520–30. doi:10.1080/00952990.2020.1780602
17. Severe J, Pfeiffer PN, Palm-Cruz K, Hoeft T, Sripada R, Hawrilenko M, et al. Clinical Predictors of Engagement in Teleintegrated Care and Telereferral Care for Complex Psychiatric Disorders in Primary Care: a Randomized Trial. J Gen Intern Med. 2022;37(13):3361–7. doi:10.1007/s11606-021-07343-x
18. Arman S, Golmohammadi F, Maracy M, Molaeinezhad M. Efficacy of Group Cognitive-behavioral Therapy in Maintenance Treatment and Relapse Prevention for Bipolar Adolescents. Adv Biomed Res. 2018;7:41. doi:10.4103/abr.abr_168_16
19. Merikangas KR, Akiskal HS, Angst J, Greenberg PE, Hirschfeld RM, Petukhova M, et al. Lifetime and 12-month prevalence of bipolar spectrum disorder in the National Comorbidity Survey replication. Arch Gen Psychiatry. 2007;64(5):543–52. doi:10.1001/archpsyc.64.5.543
20. Haghighat S, Mohammadi A. Comparison of the Effectiveness of Cognitive Behavioral Therapy and Acceptance and Commitment Therapy on Reducing Mood Symptoms in Patients With Substance Abuse. International Clinical Neuroscience Journal. 2018;5:158–63. doi:10.15171/icnj.2018.28
21. Yoshinaga N, Nosaki A, Hayashi Y, Tanoue H, Shimizu E, Kunikata H, et al. Cognitive Behavioral Therapy in Psychiatric Nursing in Japan. Nurs Res Pract. 2015;2015:529107. doi:10.1155/2015/529107
22. Hirschfeld RM, Williams JB, Spitzer RL, Calabrese JR, Flynn L, Keck PE, Jr., et al. Development and validation of a screening instrument for bipolar spectrum disorder: the Mood Disorder Questionnaire. Am J Psychiatry. 2000;157(11):1873–5. doi:10.1176/appi.ajp.157.11.1873
23. Barekatain M, Maracy M R, Kheirabadi G R. A Study of Factor Structure of the Mood Disorder Questionnaire in a Sample of Iranian Pregnant Women.Iran J Psychiatry Behav Sci.2008;2(2):30-34.
24. Beck AT, Beck RW. Screening depressed patients in family practice. A rapid technic. Postgrad Med. 1972;52(6):81–5. doi:10.1080/00325481.1972.11713319
25. Aalto AM, Elovainio M, Kivimäki M, Uutela A, Pirkola S. The Beck Depression Inventory and General Health Questionnaire as measures of depression in the general population: a validation study using the Composite International Diagnostic Interview as the gold standard. Psychiatry Res. 2012;197(1-2):163–71. doi:10.1016/j.psychres.2011.09.008
26. Ariapooran S, Ahadi B, Khezeli M. Depression, anxiety, and suicidal ideation in nurses with and without symptoms of secondary traumatic stress during the COVID-19 outbreak. Arch Psychiatr Nurs. 2022;37:76–81. doi:10.1016/j.apnu.2021.05.005
27. Dadfar M, Kalibatseva Z. Psychometric Properties of the Persian Version of the Short Beck Depression Inventory with Iranian Psychiatric Outpatients. Scientifica (Cairo). 2016;2016:8196463. doi:10.1155/2016/8196463
28. Wright FD. Craving Beliefs Questionnaire. In: Beck AT, Wright FD, Newman CF, Liese BS, editors. Cognitive Therapy of Substance Abuse. New York: Guilford Press; 1993.
29. Chang CW, Huang CW, Wu WH, Wang BE, Liu YL, Shen HC, et al. Psychometric properties of the Chinese craving beliefs questionnaire for heroin abusers in methadone treatment. BMC Psychiatry. 2011;11:39. doi:10.1186/1471-244x-11-39
30. Mohammadkhani S, Sadeghi N, Farzad V. The causal model of relationships of negative emotions, core beliefs, substance-related beliefs, craving and emotion regulation with substance abuse relapse. Journal of Modern Psychological Researches. 2011;6(23):155–81.
31. Özdel K, Kart A, Türkçapar MH. Cognitive Behavioral Therapy in Treatment of Bipolar Disorder. Noro Psikiyatr Ars. 2021;58(Suppl 1):S66–s76. doi:10.29399/npa.27419
32. Ye BY, Jiang ZY, Li X, Cao B, Cao LP, Lin Y, et al. Effectiveness of cognitive behavioral therapy in treating bipolar disorder: An updated meta-analysis with randomized controlled trials. Psychiatry Clin Neurosci. 2016;70(8):351–61. doi:10.1111/pcn.12399

33. Belete H, Ali T, Legas G. Relapse and Clinical Characteristics of Patients with Bipolar Disorders in Central Ethiopia: A Cross-Sectional Study. Psychiatry J. 2020;2020:8986014. doi:10.1155/2020/8986014
34. Watkins KE, Hunter SB, Hepner KA, Paddock SM, de la Cruz E, Zhou AJ, et al. An effectiveness trial of group cognitive behavioral therapy for patients with persistent depressive symptoms in substance abuse treatment. Arch Gen Psychiatry. 2011;68(6):577–84. doi:10.1001/archgenpsychiatry.2011.53
35. Chiang KJ, Tsai JC, Liu D, Lin CH, Chiu HL, Chou KR. Efficacy of cognitive-behavioral therapy in patients with bipolar disorder: A meta-analysis of randomized controlled trials. PLoS One. 2017;12(5):e0176849. doi:10.1371/journal.pone.0176849
36. Boschloo L, Bekhuis E, Weitz ES, Reijnders M, DeRubeis RJ, Dimidjian S, et al. The symptom-specific efficacy of antidepressant medication vs. cognitive behavioral therapy in the treatment of depression: results from an individual patient data meta-analysis. World Psychiatry. 2019;18(2):183–91. doi:10.1002/wps.20630
37. Weitz ES, Hollon SD, Twisk J, van Straten A, Huibers MJ, David D, et al. Baseline Depression Severity as Moderator of Depression Outcomes Between Cognitive Behavioral Therapy vs Pharmacotherapy: An Individual Patient Data Meta-analysis. JAMA Psychiatry. 2015;72(11):1102–9. doi:10.1001/jamapsychiatry.2015.1516
38. Shahzadi M, Abbas Q. Individualised cognitive behaviour therapy in patients of substance use disorders: three case studies. J Pak Med Assoc. 2020;70(9):1657–60. doi:10.5455/jpma.38839
39. Trick L, Butler K, Bourgault Z, Vandervoort J, Le Foll B. Implementation and Preliminary Evaluation of a 12-Week Cognitive Behavioural and Motivational Enhancement Group Therapy for Cannabis Use Disorder. Subst Abuse. 2023;17:11782218231205840. doi:10.1177/11782218231205840