

Effectiveness of Cognitive-Behavioral Therapy in the Clinical Indicators of Patients with Bipolar Disorder Type I

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Abstract

Introduction: Bipolar disorder is one of the most worrisome mental illnesses, with grave consequences. This study aimed to evaluate the effectiveness of cognitive-behavioral therapy in patients with bipolar disorder type I.

Methods: This was a pre-test-post-test, quasi-experimental study with a control group and a 3-month follow-up. The statistical population of the study consisted of patients who were referred to the Delaram Rehabilitation Center for Chronic Mental Patients in Gorgan (the capital city of Golestan Province, Iran) in 2019. The sample included 16 patients with bipolar disorder who were referred to the center. They were chosen using the purposive sampling method and then divided into two groups of eight subjects each. In addition to medication, the experimental group received cognitive behavioral therapy for ten 70-minute sessions. The control group received only medical treatment and did not receive any psychological treatment during the study. The two groups were followed for three months. The bipolar depression scale was administered in groups at the beginning and end of treatment sessions. Data were analyzed using repeated measures mixed analysis of variance and Spss-23 software.

Results: addition of cognitive-behavioral therapy to drug therapy has shown further improvement in clinical indicators. Furthermore, according to the follow-up period, the effects of cognitive behavioral therapy were more stable in all clinical indicators.

Conclusion: Based on the findings of this study, it is possible to conclude that cognitive-behavioral therapy, in conjunction with drug therapy, can be an effective factor in reducing and stabilizing clinical symptoms of bipolar disorder type I.

Keywords: Bipolar Disorder Type I, Cognitive-Behavioral Therapy, Clinical Indicators

Received: 26/October/2021 **Accepted:** 21/February/ 2021

Citation: Mehrdad Rasooli, Afsaneh Khajevand, Javanshir Asadi.. Effectiveness of Cognitive-Behavioral Therapy in the Clinical Indicators of Patients with Bipolar Disorder Type I, Family and health, 2022; 12(2): 161-172

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Introduction:

Bipolar disorder is one of the most worrisome mental illnesses, with grave consequences (1). It is the world's fifth most debilitating mental disorder, with a lifetime prevalence of 1 to 1.5 percent (2-3). Bipolar disorder is associated with impaired cognition (4-5), decreased function (6), decreased health (7), and increased suicidal behavior (8), and has a significant impact on patients' and others' lives.

Bipolar disorder is classified into two types: type I and type II. In general, the absence of thorough manic periods in type II, as opposed to type I, is regarded as the primary distinction between the two types (9). In addition to the difficulty in diagnosing and overlapping bipolar disorder with other disorders, such as borderline personality disorder (10), the findings show that treatment of bipolar disorder is recognized as one of the major challenges (11), so that despite 58 percent improvement in Bipolar patients, nearly half of whom experienced relapses over two years (12).

Pharmacological interventions are now regarded as the first-choice treatment for bipolar disorder (13). Most psychiatrists believe that bipolar disorder medication treatment is divided into three stages: acute (the goal is to control the most severe symptoms of mania, depression, or a combination of the two), stabilization (the goal is to complete recovery from the acute stage), and maintenance (prevention of Recurrence). Although antipsychotic and antidepressant medications are used to treat bipolar disorder, psychotherapy interventions are recognized as one of the best treatment methods that play an important role in the improvement of this disorder, particularly during the maintenance and prevention stages (14).

In clinical settings, cognitive-behavioral therapy is recognized as one of the selected non-pharmacological interventions that is widely used for disorder and depression. Beck founded and developed the cognitive-behavioral model nearly 50 years ago (15). This treatment is regarded as one of the best options for mood stabilization, as it can prevent recurrence and relieve clinical symptoms (16-17-18-19). However, recent meta-analyses have called into question the efficacy of cognitive-behavioral therapy in treating the clinical symptoms of bipolar disorder. In fact, due to data limitations in this field, there is limited, incomplete, and contradictory evidence regarding the efficacy of cognitive-behavioral therapy (21-20). Some findings also suggest that cognitive-behavioral interventions are effective in reducing clinical symptoms and periods of bipolar disorder in the short term (22). Some researchers, such as Lopez and Basco, demonstrated in a study that people who receive cognitive-behavioral therapy improve more than controls in terms of reducing depressive symptoms (23).

According to some studies, cognitive deficits are recognized as one of the major problems in bipolar patients (4-6). As a result, cognitive therapies should only be used to reduce the clinical symptoms of these patients, if they are supported by clinical research. Hence, this study aimed to evaluate the effectiveness of cognitive-behavioral therapy in patients with bipolar disorder type I.

Method:

The study used a quasi-experimental design that included pre- and post-tests as well as a control group. The statistical population included all the patients referred to Delaram Center (a center for rehabilitating chronic mental patients, located in Gorgan city, Iran; 2019). The sample group was purposefully selected from the statistical population. Given the possibility of several subjects withdrawing from the study, a sample group of 16 people was chosen, and they were then randomly divided into experimental and control groups.

criteria for entering the study were: Psychiatric diagnosis of bipolar disorder Type I; Existence of a history of patient hospitalization; Not being in the acute phase of the disorder; Appropriate therapeutic collaboration; Being on drug treatment during and before the intervention; Age 25 to 55 years; No other acute or chronic physical, psychological, or substance or drug disorders. Participants would be excluded from the study if any of these criteria were not met.

The study was performed in several steps: first, eligible patients were interviewed. Then, the inclusion criteria were checked, and the final sample was selected from among the eligible individuals who were willing to cooperate. After that, the selected patients were randomly divided into two groups of 8 people each. In addition to medication, the experimental group received cognitive behavioral therapy for ten 70-minute sessions. The control group received only medical treatment and did not receive any psychological treatment during the study. Pre-tests were performed for both groups before the intervention and a post-test was performed one week after the end of the sessions. Finally, after a three-month follow-up period, the tests were performed on the two groups again.

Data were analyzed using repeated measures mixed analysis of variance and Spss-23 software. Research tools:

Bipolar Depression Rating Scale (BDRS): This scale is one of the most reliable scales for differential diagnosis of bipolar disorders and measures physical, psychological, and mixed symptoms of depression. The items of the BDRS are extracted from the phenomenological research on bipolar disorders, reviews of research literature on the nature of bipolar depression and its differences with unipolar depression, and the clinical experiences of members of the International Association for Bipolar Disorders. The BDRS has 20 items and three subscales and is scored by the examiner on a Likert scale. According to Berk et al (24), the BDRS has a high internal consistency ($\alpha=0.91$) for assessing physical, psychological, and mixed symptoms of depression and a favorable correlation between It and the Yang Mania Scale (0.75) has observed. In Ebrahimi et al (25), which was conducted to examine the psychometric properties of the Persian version of the BDRS in an Iranian population, the researchers reported a high internal correlation for the scale ($\alpha= 0.81$). Furthermore, its mixed subscale had a 0.69 correlation with the Young Mania Rating Scale. Also, the most appropriate clinical incision point was 18 with a sensitivity of 93% and a specificity of 94%.

Ten sessions of cognitive-behavioral therapy were used. Each week, two 70-minute sessions were held. Taylor et al. (26) created the cognitive therapy method used in this study, which was validated by Golshani (27) and is widely used by many researchers.

Table 1. Summary of the content of cognitive-behavioral therapy sessions

Meetings	Purpose	Content	Expected Change	Homework
1	familiarize members with each other, explain the purpose and meaning of the treatment	Introduce group members to each other and the therapist, familiarize members with group rules, answer questions and possible ambiguities, explain the purpose and necessity of meetings and form medical alliances, help members determine specific goals related to the symptoms of the disorder	Motivate to engage in sessions and be aware of the treatment process	Continue to practice specific purposes related to the symptoms of the disorder
2	Learn more about the disorder and its theoretical patterns	Review of homework assignments; education on the nature of the disorder; familiarity with existing theoretical models of the disorder, and how to adapt the theoretical models to personal experiences of the disorder.	Increase motivation and knowledge about the theoretical model of the treatment	Identify situational stimuli, excitement, and related thoughts
3	Awareness of the cognitive-behavioral model	Review of homework assignments; Introduce members to the conceptual model of cognitive-behavioral therapy for the bipolar disorder	Explain symptoms of the disorder in the framework of the cognitive-behavioral model	Re-address the identification of situational stimuli, excitement, and related thoughts
4	Investigate the role of emotions in the primary understanding of the disorder-related experience cycle	Review of homework assignments, examine the role of emotions in experiencing the symptoms of the disorder	Increase clients' awareness of the role of emotions in the first stage of triggering the cycle of experience	Focus on the role of emotions In unpleasant mental states associated with the disorder
5	Control negative emotions; identify how the unhealthy experience cycle continues	Review of homework assignments; describe the experience cycle in the continuation of the symptoms of the disorder by the clients	Better identification of emotions; increase emotional self-regulation, early understanding of compensatory behavioral	emotional self-regulation and identify situations that perpetuate the

		themselves; familiarize members with the techniques of managing negative emotions, practice them, and provide feedback to members	reactions, and how to control them	cycle of unhealthy experiences
6	Awareness of how dysfunctional negative thoughts and cognitions affect the continuation of the unhealthy experience cycle	Review of homework assignments; Familiarity of members with the role of cognitions in experiencing negative emotions, behavioral patterns, and experiencing the symptoms of the disorder	Identify early spontaneous thoughts in unpleasant situations	Record negative automatic thoughts in unpleasant situations
7	Reduce the value of continuing a cycle of incompatible experience	Review of homework assignments; evaluate advantages and disadvantages of a maladaptive experience cycle; review evidence for the validity of a maladaptive experience cycle; group practice; and review members' feedback	Find evidence of inefficiency that continues the cycle of inconsistent experience	Practice the advantages and disadvantages of the experience cycle associated with the symptoms of the disease
8	Investigate the role of environmental factors and adverse behavioral reactions in the onset and persistence of symptoms of the disorder	Review of homework assignments; Familiarity of members with the role of lifestyle and behavioral patterns in experiencing the symptoms of the disorder; Introducing important triggers for the onset of disorders; examining the behavioral patterns of members in response to symptoms of the disorder; and Introduce members to behavioral management techniques	Identify the triggers of the disorder cycles and increase behavioral management	Practice the behaviors linked to the management of triggers of the disorder episodes
9	Identify current patterns of behavior in response to symptoms of the disorder, and use appropriate alternative patterns of behavior	Review of homework assignments; examine members' behavioral patterns in response to symptoms of the disorder; familiarity with behavior management techniques; and examine	Increase the power of management of behavior and make the right choice in any situation	Exercises related to the use of alternative behaviors

			alternative thoughts and behaviors	
10	Integrate and consolidate what has been learned by considering a compatible and efficient experience cycle	and	Review of homework assignments; behavioral skills, practice techniques in the session, final evaluation	Identify elements of an incompatible experience cycle and challenge such elements; And adopt appropriate patterns to establish a healthy experience cycle

A summary of cognitive behavioral therapy sessions is shown in Table 1.

Results:

The mean age of patients in the experimental and the control groups were 39.38 and 37.88, respectively. Men made up 75% of the experimental group, while women made up 25%. In addition, 88% of the control groups were men, while 22% were women. In terms of educational degree, 12.5% of members of the experimental group had an elementary degree, 31.25% had a middle school degree, 31.25% had a diploma degree, and 25% had a degree higher than a diploma. In the control group, 25% had an elementary degree, 25% had a middle school degree, 25% had a diploma degree, and 25% had a degree higher than a diploma.

To assess the normality of data distribution, the Shapiro-Wilk test was applied. The results of the test revealed that the variables had a normal distribution.

Table 2. Default results of sphericity and significance of analysis of variance

Variable	Wilks' lambda		Hoteling test		Mauchly's Sphericity Test	
	F	Sig	F	Sig	Statistic	Sig
Psychological symptoms	4.858	0.003	5.323	0.002	0.659	0.015
Mixed Symptoms	1.196	0.327	1.181	0.335	0.861	0.223
Physical Symptoms	2.832	0.037	2.7	0.045	0.895	0.331

Table 2 shows the default results of sphericity and significance of analysis of variance. To check the default sphericity, the Mauchly's Sphericity test was employed. Given that the value of Mauchly's Sphericity test is significant for the scores of psychological symptoms and physical symptoms, the sphericity default is not established. This result connotes that statistical corrections should be used in interpreting the results of statistical tests. For this reason, the Greenhouse-Geisser correction was used to analyze the hypotheses related to these symptoms. Because of its conservatism, this correction is ideal for studies with small sample sizes.

Table 3. Results of normality, homogeneity of variances, and covariance tests for clinical indicators

Variable	Normality	Box's M Test	Levene's Test
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	Z k-s	Sig	F	Sig	Statistic	Sig
Psychological Symptoms	0.636	0.813	1.084	0.369	1.118	0.346
Mixed Symptoms	1.429	0.034	0.682	0.77	0.73	0.494
Physical Symptoms	0.953	0.324	0.775	0.697	0.995	0.401

The Box's M test was done to test the assumption of homogeneity of co-variances. The Box's M test results for the assumption of covariance matrix homogeneity, as shown in Table 3, validate the establishment of this assumption. If this assumption is met, the analyst can apply Wilks's lambda. Both the Wilks' lambda and the Hotelling's test are used to evaluate the significance of multivariate analysis of variance. As shown in Table 3, when all of the conditions are met and the sample size is the same, the results of both tests are very close to each other. Levene's test is used to test the homogeneity of variance error of dependent variables in all groups. As Table 3 shows, the result of Levene's test verifies that the assumption of homogeneity of the matrix of variances is fulfilled.

Table 4. The mean and standard deviation of clinical indicators in the experimental and control groups

Variable	group	pre-test		post-test		Follow up	
		Mean	standard deviation	Mean	standard deviation	Mean	standard deviation
Psychological symptoms	Cognitive Behavior Therapy	12.88	4.291	10.00	5.782	3.50	2.449
	Control group	13.00	6.164	10.63	5.476	9.25	5.392
Mixed Symptoms	Cognitive-Behavioral Therapy	11.25	4.950	7.38	4.502	4.00	2.268
	Control group	10.88	4.853	9.25	4.062	7.13	2.997
Physical Symptoms	Cognitive-Behavioral Therapy	7.00	2.878	4.50	2.878	2.75	2.659
	Control group	6.00	2.268	5.50	2.619	4.50	2.726
Sum of clinical indicators	Cognitive-Behavioral Therapy	10.38	3.860	7.29	4.033	3.42	2.266
	Control group	9.66	3.942	8.46	3.222	6.96	3.493

Table 4 shows that, compared to the pre-test, all categories of psychological, physical, and mixed symptoms decreased in the post-test in both groups. However, the reduction in physical symptoms

in the control group was minor. When compared to the pre-test stage, symptoms continue to decrease in all indicators during the follow-up stage.

Table 5. Summary of results of repeated measures analysis of variance test for clinical indicators

Variable	Sum of squares	d f	Mean Square	Statistic value	Significance
Psychological symptoms	6086.722	1	6086.722	130.219	0.000
Mixed Symptoms	3886.681	1	3886.681	183.985	0.000
Physical Symptoms	1512.500	1	1512.500	107.125	0.000
Sum of clinical indicators	3750.125	1	3750.125	171.841	0.000

According to table 5, there is a significant difference between the cognitive-behavioral therapy and the control group groups in terms of the three stages of intervention, namely pre-test, post-test, and follow-up.

Discussion:

This study aimed to evaluate the effectiveness of cognitive-behavioral therapy in patients with bipolar disorder type I. According to the findings of the present study, it can be realized that there is a significant difference between the control and the experimental group in reducing the test subscales. According to the results, compared to the drug treatment merely, cognitive-behavioral therapy was more effective in improving the clinical symptoms of this disorder in the post-test and follow-up. Comparing the means revealed that the patients in the cognitive-behavioral therapy group showed a greater improvement in clinical indicators of the disorder (i.e., psychological, physical, and mixed symptoms) than the patients in the mere drug therapy group. Moreover, reducing the symptoms in the cognitive-behavioral therapy group continued even up to the post-test stage. A review of the research literature indicates that cognitive therapy is effective, which is consistent with the findings of Miklowitz (16), Hassani et al. (17), Bi-Yu et al. (18), and Zaretsky et al. (19).

Molavi et al. investigated the efficacy of cognitive-behavioral therapy in conjunction with drug therapy and discovered that cognitive therapy can be effective in reducing mania symptoms in bipolar patients (28). Chiang et al. conducted a meta-analysis on the effectiveness of cognitive-behavioral therapy on the symptoms of bipolar disorder. They discovered its effectiveness in reducing symptoms among bipolar patients (1).

A variety of factors can be attributed to explaining why cognitive therapy works better than medication. Negative feelings caused by only controlling symptoms until the use of drugs, loss of mania episodes, and side effects such as weight gain and hand tremors (14). However, combining cognitive therapy with drug therapy, as well as familiarity with theoretical models of bipolar

disorder, reduces a person's misunderstandings about using medications, leading to increased follow-up and adherence to therapy.

According to the stress vulnerability model, family and interpersonal conflicts can also trigger the bipolar disorder cycle (16). As a result, cognitive therapy's emphasis on emotion regulation methods and environmental factors that trigger emotion can help to moderate the environmental factors of bipolar disorder (26). As previously stated, drug therapies are the most commonly used methods in the early stages of treatment and mood stabilization, whereas psychological therapies are used to maintain the effects for an extended period of time (28).

in sum, based on the findings of this study, it is possible to conclude that cognitive-behavioral therapy, in conjunction with drug therapy, can be an effective factor in reducing and stabilizing clinical symptoms of bipolar disorder type 1.

Research Limitations:

The difficulty of working with bipolar disorder patients, as well as the small sample size, should be added to these limitations. As a result, it is likely that if these treatments are carried out for a long enough period of time, more reliable information about the efficacy of this type of treatment can be obtained. Other tools for measuring and evaluating bipolar disorder are suggested for research into the effects of this type of intervention. Furthermore, using a larger sample size is recommended to generalize the results to other populations.

Ethical considerations:

In this study, ethical standards such as obtaining informed consent, ensuring privacy and confidentiality were followed. Individuals were informed prior to the intervention that they could withdraw from the study at any time and that their information would be kept confidential.

Acknowledgements:

The current study is an excerpt from the first author's doctoral dissertation. All authors contributed to the research at every stage. The authors thank all the people who participated in this study.

Conflict of Interest:

The authors do not have any conflict of interest to declare.

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