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Comparing the Effectiveness of Dialectical Behavior Therapy Combined with Lithium Carbonate on Illness Perception and Patient Treatment Adherence in Women with Bipolar I Disorder

Fatemeh. Abedi[1], Mehryar. Anasseri[1*]

1 Department of Psychology, Ash.C., Islamic Azad University, Ashtian, Iran.
*Correspondence: dr.anasseri1969@iau.ac.ir

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ABSTRACT

The present study aimed to compare the effectiveness of dialectical behavior therapy combined with lithium carbonate on illness perception and patient treatment adherence in women with Bipolar I Disorder. The present study employed a quasi-experimental method using a pretest–posttest design with a control group. The statistical population consisted of all women with Bipolar I Disorder in Tehran in 2026 who were referred to the Missing Piece Psychological Services and Counseling Center. In the present study, 28 participants from the target population were selected using a purposive non-random sampling method based on the inclusion criteria. Subsequently, they were randomly assigned into an experimental group (n = 14) and a control group (n = 14). Following participant attrition, 12 participants successfully completed the intervention. The Brief Illness Perception Questionnaire (Broadbent et al., 2006) and the Patient Treatment Adherence Questionnaire (Khodapanahi, 2016) were used in this study. The experimental group participated in 10 sessions of dialectical behavior therapy, each lasting 120 minutes, while receiving lithium carbonate; whereas the control group received no intervention. The collected data were analyzed using multivariate and univariate analysis of covariance models. The results indicated a significant difference between the posttest mean scores of the experimental and control groups ($P < 0.01$). The findings suggest that dialectical behavior therapy combined with lithium carbonate may be used as an effective therapeutic approach for improving illness perception and patient treatment adherence in women with Bipolar I Disorder.

Keywords: Dialectical behavior therapy, lithium carbonate, illness perception, patient treatment adherence, Bipolar I Disorder.

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Introduction

Bipolar I Disorder is one of the most severe and chronic psychiatric disorders characterized by recurrent episodes of mania, depression, emotional instability, impaired cognitive functioning, and substantial psychosocial dysfunction. The disorder significantly affects interpersonal relationships, occupational functioning, quality of life, and adherence to treatment processes. Women with Bipolar I Disorder often experience more severe emotional fluctuations, greater vulnerability to psychological distress, and increased difficulties in maintaining treatment adherence compared to other clinical populations. In recent decades,

researchers and clinicians have increasingly emphasized the importance of combining pharmacological interventions with psychological therapies in order to achieve sustainable symptom management and functional recovery in bipolar disorders (1, 2). Although pharmacotherapy remains the cornerstone of bipolar disorder treatment, evidence suggests that medication alone is often insufficient for addressing emotional dysregulation, maladaptive cognitions, interpersonal instability, and poor treatment adherence, all of which contribute to relapse and chronic impairment (3, 4).

Among pharmacological treatments, lithium carbonate continues to be recognized as one of the most effective mood stabilizers for Bipolar I Disorder. Lithium has demonstrated substantial efficacy in reducing manic episodes, preventing relapse, stabilizing mood fluctuations, and decreasing suicide risk among patients with bipolar disorders (1, 5). Research has consistently shown that lithium treatment contributes to long-term stabilization and improves clinical prognosis in patients with severe bipolar symptomatology. Moreover, lithium has been identified as an important protective factor against suicidal behaviors and recurrent hospitalizations in bipolar populations (5, 6). Nevertheless, despite its therapeutic advantages, adherence to lithium treatment remains a major challenge among patients with Bipolar I Disorder. Many patients discontinue treatment due to medication side effects, emotional instability, lack of illness awareness, or poor understanding of the necessity for long-term treatment adherence. Consequently, researchers have emphasized that psychological interventions capable of improving emotional regulation and illness perception may enhance medication adherence and overall treatment effectiveness (2, 7).

Illness perception refers to the cognitive and emotional representations individuals develop regarding their illness, including beliefs about causes, duration, controllability, consequences, and treatment effectiveness. In patients with Bipolar I Disorder, distorted illness perception is frequently associated with treatment noncompliance, denial of symptoms, emotional distress, and poor therapeutic outcomes. Patients who possess inadequate awareness or maladaptive beliefs about their disorder are less likely to follow pharmacological and psychological treatment recommendations consistently. Conversely, positive illness perception has been associated with increased treatment engagement, greater psychological adjustment, and reduced relapse rates (2, 8). Therefore, improving illness perception is considered an essential therapeutic target in interventions designed for bipolar populations.

Another critical factor in the management of Bipolar I Disorder is patient treatment adherence. Treatment adherence encompasses patients' willingness and commitment to follow prescribed therapeutic recommendations, including medication use, psychotherapy participation, lifestyle modifications, and clinical follow-up. Low adherence rates in bipolar disorders have been associated with relapse, hospitalization, suicidality, and functional deterioration. Emotional impulsivity, cognitive distortions, and difficulties in emotional regulation often interfere with patients' ability to maintain consistent treatment behaviors (6, 9). Consequently, interventions aimed at strengthening emotional regulation and self-awareness may significantly improve treatment adherence among individuals with bipolar disorders.

Dialectical Behavior Therapy (DBT), originally developed by Marsha Linehan for individuals with borderline personality disorder, has increasingly been adapted for a wide range of psychiatric conditions involving emotional dysregulation, impulsivity, and maladaptive coping strategies. DBT is grounded in cognitive-behavioral principles and integrates mindfulness, acceptance, emotional regulation, distress tolerance, and interpersonal effectiveness skills. The primary objective of DBT is to help individuals develop

adaptive emotional and behavioral responses while reducing psychological vulnerability and impulsive reactions (10, 11). Over the past decade, substantial evidence has supported the effectiveness of DBT in improving emotional functioning and reducing psychopathological symptoms across different clinical populations.

Several studies have demonstrated that DBT effectively improves emotional regulation, cognitive flexibility, mindfulness, and interpersonal functioning in individuals with mood disorders and emotional instability. For instance, Afshari et al. reported that DBT significantly enhanced executive functioning among patients with bipolar disorder (12). Similarly, Feldman et al. found that DBT-based skills training contributed to meaningful improvements in emotional processing and adaptive coping strategies among individuals with depressive disorders (13). These findings suggest that DBT interventions may address core emotional and cognitive deficits underlying severe psychiatric conditions.

Recent empirical evidence has increasingly supported the application of DBT specifically in bipolar disorder populations. Goldstein et al. conducted a randomized clinical trial demonstrating that DBT significantly reduced emotional dysregulation and improved psychological functioning among adolescents with bipolar disorder (3). Şahin also reported that DBT effectively enhanced emotional regulation capacities among women with bipolar disorder, leading to improved emotional stability and psychosocial functioning (8). Likewise, Khashaba found that DBT-based interventions significantly reduced bipolar symptoms and enhanced adaptive coping mechanisms among university students experiencing bipolar symptomatology (9). These studies collectively indicate that DBT may serve as a promising adjunctive intervention for bipolar disorder treatment.

In addition to its effectiveness in mood disorders, DBT has demonstrated substantial therapeutic value in various psychological and behavioral conditions associated with emotional dysregulation. For example, Zompa et al. reported that group DBT significantly improved emotional dysregulation and alexithymia among patients with binge eating disorder (14). Whitener et al. demonstrated the acceptability and effectiveness of school-based DBT interventions in improving emotional and behavioral functioning among adolescents (15). Furthermore, Weiner et al. highlighted the broad applicability of DBT in neurodevelopmental and psychiatric conditions characterized by emotional instability and maladaptive coping (16). These findings reinforce the transdiagnostic utility of DBT in addressing emotional and behavioral dysregulation across clinical populations.

Research has also emphasized the benefits of DBT in group-based interventions aimed at mindfulness and interpersonal functioning. Setiani and Ratnasari demonstrated that group DBT programs significantly improved mindfulness skills and interpersonal relationships among patients with bipolar disorder (17). Mindfulness training, a core component of DBT, facilitates nonjudgmental awareness of emotional experiences and enhances patients' capacity to regulate distressing emotions effectively. These mechanisms are particularly important in Bipolar I Disorder, where emotional instability and impulsivity frequently interfere with treatment adherence and illness awareness.

The integration of DBT with pharmacological interventions has recently emerged as an important area of clinical interest. Hosseini and Nasri compared the effectiveness of combined DBT and lithium carbonate treatment with pharmacotherapy alone and found that the combined approach produced superior improvements in emotional regulation, self-control, and cognitive flexibility among patients with bipolar

disorder (7). Similarly, Shirzad and Khatibi reported that DBT combined with medication was more effective than pharmacotherapy alone in controlling bipolar symptoms among women with bipolar disorder (4). These findings support the growing perspective that psychological interventions may enhance the effectiveness of pharmacological treatments by targeting psychosocial and emotional dimensions that medications alone cannot fully address.

The theoretical foundations of DBT further explain its relevance for Bipolar I Disorder treatment. According to the biosocial theory underlying DBT, emotional dysregulation results from the interaction between biological vulnerability and invalidating environmental experiences. Individuals with bipolar disorder often exhibit heightened emotional sensitivity, intense emotional reactions, and delayed emotional recovery, which contribute to impulsive behaviors and poor treatment adherence (11). DBT seeks to modify these maladaptive emotional processes through structured skills training and therapeutic validation. By improving emotional awareness, distress tolerance, and cognitive flexibility, DBT may positively influence patients' perceptions of illness and increase their motivation to adhere to treatment protocols.

Furthermore, DBT-based interventions have shown benefits in enhancing social and emotional development across diverse populations. Mohammadi Bajgirani et al. demonstrated that dialectical friendship training improved socio-emotional development and reduced loneliness among rejected children (18). Although conducted in a different population, such findings emphasize the broader emotional and interpersonal benefits of dialectical interventions, which may also extend to women with bipolar disorder experiencing social dysfunction and emotional isolation.

Despite the growing body of evidence supporting DBT in mood disorders, relatively limited research has specifically investigated the simultaneous effects of DBT combined with lithium carbonate on illness perception and patient treatment adherence among women with Bipolar I Disorder. Existing studies have primarily focused on symptom reduction, emotional regulation, or cognitive functioning, while fewer studies have examined how integrated treatment approaches influence patients' understanding of their illness and commitment to therapeutic follow-up. Considering the chronic and recurrent nature of Bipolar I Disorder, improving illness perception and treatment adherence represents a critical clinical objective for reducing relapse and enhancing long-term functioning.

Therefore, the present study aimed to compare the effectiveness of dialectical behavior therapy combined with lithium carbonate on illness perception and patient treatment adherence in women with Bipolar I Disorder.

Methods and Materials

Study Design and Participants

The present study was applied in nature and employed a quasi-experimental pretest–posttest design with a control group, consisting of one intervention group and one control group. The statistical population of the present study included all women with Bipolar I Disorder in Tehran who referred to the Missing Piece Psychological Services and Counseling Center for psychological treatment during 2026. To select the study sample, 28 participants were initially chosen from the target population using purposive non-random sampling based on the inclusion criteria. Subsequently, 14 participants were randomly assigned to the experimental group and 14 participants to the control group. The experimental group participated in 10

sessions of dialectical behavior therapy, each lasting 120 minutes, while receiving lithium carbonate. Following participant attrition, 12 participants successfully completed the treatment process. The control group received no intervention. It should be noted that, in order to maintain equivalence between the experimental and control groups, a number of participants equal to the attrition rate in the experimental group were randomly removed from the control group as well. The inclusion criteria for the therapeutic intervention included informed consent for participation and cooperation in the study, minimum educational attainment with the ability to read and write, absence of concurrent psychiatric medication treatment or psychotherapy outside the sessions of the present study, and a diagnosis of Bipolar I Disorder confirmed by a psychiatrist or psychologist. The exclusion criteria included unwillingness to continue participation in the study, the prediction of psychological harm to participants, and absence from more than two treatment sessions.

Data Collection

The Brief Illness Perception Questionnaire (BIPQ) was developed by Howard Broadbent and colleagues in 2006 and measures individuals' perceptions and emotional responses toward their illness (Broadbent et al., 2006). Its validity was established through content validity and split-half reliability methods, demonstrating that it accurately measures the intended construct. The Cronbach's alpha coefficient of this questionnaire, assessed across six patient groups comprising 891 participants, ranged from 0.65 to 0.73 according to the researchers' findings. The questionnaire items are scored on a scale ranging from 0 to 10, from "no effect at all" to "extremely influential." The questionnaire consists of 9 items. The first five items assess cognitive representations of illness (Item 1 = consequences, Item 2 = timeline, Item 3 = personal control, Item 4 = treatment control, and Item 5 = identity). Two items focus on emotional responses (Item 6 = concern and Item 8 = emotions). Item 7 measures illness comprehensibility and awareness of disease progression. Item 9 is an open-ended question asking respondents to identify the three main factors they believe caused their illness. This item specifically challenges the patient's cognitive representations regarding the illness. Responses to this item may include stress, lifestyle, heredity, and related factors.

The Patient Treatment Adherence Scale was developed by Mohammad Ehsan Taghizadeh in 2017 (Khodapanahi, 2016). Its validity was established through content validity and split-half reliability methods, indicating that it accurately measures the intended construct. The statistical population for the validation study consisted of 30 clients from the Rad Psychology and Counseling Center. The reliability coefficient of the scale was reported as 0.80. The scale is scored using a five-point Likert format ranging from "strongly disagree" (1 point) to "strongly agree" (5 points). The cut-off score for the scale is 60. The score ranges were categorized as follows: unwillingness toward treatment (20–36), low willingness toward treatment (37–52), moderate willingness toward treatment (53–68), high willingness toward treatment (69–84), and very high willingness toward treatment (85–100).

Intervention

The dialectical behavior therapy intervention was conducted in 10 sessions of 120 minutes each on a weekly basis for the participants in the experimental group while they continued treatment with lithium carbonate under psychiatric supervision. The intervention protocol was designed based on the core

principles of dialectical behavior therapy, including mindfulness, emotional regulation, distress tolerance, and interpersonal effectiveness. During the initial sessions, participants were introduced to the therapeutic framework, treatment goals, emotional awareness, and mindfulness skills aimed at increasing present-moment awareness and reducing emotional impulsivity. The middle sessions focused on identifying maladaptive emotional and cognitive patterns associated with Bipolar I Disorder, improving distress tolerance during periods of mood instability, enhancing emotional regulation skills, and developing adaptive coping strategies for managing stressful situations. Participants were also trained in interpersonal effectiveness skills to improve communication patterns, assertiveness, treatment cooperation, and social functioning. In the final sessions, emphasis was placed on relapse prevention, strengthening commitment to treatment adherence, recognizing early warning signs of mood episodes, consolidating acquired skills, and preparing participants for independent application of therapeutic techniques in daily life. Homework assignments, emotional monitoring exercises, behavioral practice, and group discussions were used throughout the intervention process to reinforce skill acquisition and facilitate the generalization of learned behaviors into real-life situations.

Data Analysis

For data analysis, descriptive statistical indices including mean, variance, and standard deviation were used. In addition, multivariate analysis of covariance (MANCOVA) and univariate analysis of covariance (ANCOVA) were employed as parametric statistical models appropriate for the research objectives.

Findings and Results

The findings of the present study are presented in the following section. First, descriptive statistics related to illness perception and patient treatment adherence in the experimental and control groups are reported. Subsequently, the assumptions of covariance analyses, including homogeneity of covariance matrices, homogeneity of variances, and homogeneity of regression slopes, were examined. Finally, the results of multivariate and univariate covariance analyses and Tukey post-hoc comparisons are presented.

Table 1. Descriptive Statistics for the Illness Perception and Patient Treatment Adherence Scales in Women with Bipolar I Disorder

Variables	Treatment Pattern	Mean	Standard Deviation	N
Illness Perception Scale (Posttest)	Control Group	54.75	2.99	12
	Experimental Group	58.23	2.93	12
	Total	56.49	3.40	24
Patient Treatment Adherence Scale (Posttest)	Control Group	71.67	1.97	12
	Experimental Group	74.64	2.55	12
	Total	73.16	2.70	24

The results presented in Table 1 indicate that the experimental group obtained higher posttest mean scores than the control group on both the Illness Perception Scale and the Patient Treatment Adherence Scale. Specifically, the posttest mean score for illness perception in the experimental group was 58.23 (SD = 2.93), compared with 54.75 (SD = 2.99) in the control group. Furthermore, the posttest mean score for patient treatment adherence in the experimental group was 74.64 (SD = 2.55), whereas the control group obtained a mean score of 71.67 (SD = 1.97). These findings suggest that dialectical behavior therapy

combined with lithium carbonate improved illness perception and treatment adherence among women with Bipolar I Disorder.

The assumptions underlying multivariate analysis of covariance were examined prior to conducting the main analyses. The results of Box's M test demonstrated that the covariance matrices were homogeneous across groups (Box's M = 0.769, F = 0.231, p > 0.05). In addition, Levene's test indicated that the variances of illness perception and patient treatment adherence were homogeneous between groups, as the obtained significance levels were greater than 0.05. Moreover, the regression slope homogeneity assumption was confirmed, indicating that the relationship between pretest and posttest scores was consistent across groups. Therefore, the assumptions required for conducting MANCOVA and ANCOVA were satisfied.

Table 2. Results of Univariate Analysis of Covariance for the Illness Perception and Patient Treatment Adherence Scales in Women with Bipolar I Disorder

Source of Variance	Variables	Sum of Squares	df	Mean Square	F	p	Eta²
Experimental and Control Groups	Illness Perception Scale	72.08	1	72.08	13.90	.001	.771
Experimental and Control Groups	Patient Treatment Adherence Scale	59.53	1	59.53	12.43	.001	.726

The results presented in Table 2 demonstrate that dialectical behavior therapy combined with lithium carbonate had a statistically significant effect on illness perception among women with Bipolar I Disorder, $F(1, 22) = 13.90$, $p < .01$, $\eta^2 = .771$. Furthermore, the intervention had a statistically significant effect on patient treatment adherence, $F(1, 22) = 12.43$, $p < .01$, $\eta^2 = .726$. The obtained effect sizes indicate that a substantial proportion of the variance in illness perception and treatment adherence was explained by the intervention.

Table 3. Regression Slope Coefficients for the Illness Perception and Patient Treatment Adherence Scales

Dependent Variable (Posttest)	Covariate (Pretest)	B	Standard Error	t	Significance
Illness Perception	Illness Perception	.929	.116	7.99	.001
Patient Treatment Adherence	Patient Treatment Adherence	.962	.128	7.54	.001

The results shown in Table 3 indicate that pretest scores significantly predicted posttest scores for both illness perception and patient treatment adherence. Specifically, a one-unit increase in the pretest illness perception score predicted an average increase of 0.929 units in the posttest score. Similarly, a one-unit increase in the pretest patient treatment adherence score predicted an average increase of 0.962 units in the posttest score. These findings support the assumption of regression slope homogeneity and demonstrate the predictive stability of the measured variables across testing phases.

Table 4. Results of Tukey Post-Hoc Test for the Illness Perception and Patient Treatment Adherence Scales in Women with Bipolar I Disorder

Variables	Groups	Mean	Mean Difference (i-j)	Standard Error	p	Result
Illness Perception Scale	Control Group	54.74	-3.51	.44	.001	Significant

	Experimental Group	58.25				
Patient Treatment Adherence Scale	Control Group	71.56	-3.19	.45	.001	Significant
	Experimental Group	74.75				

The results of the Tukey post-hoc test presented in Table 4 indicate significant differences between the experimental and control groups on both outcome variables. The mean difference for illness perception was statistically significant in favor of the experimental group (Mean Difference = -3.51, $p < .01$). Likewise, the mean difference for patient treatment adherence was statistically significant in favor of the experimental group (Mean Difference = -3.19, $p < .01$). These findings further confirm the effectiveness of dialectical behavior therapy combined with lithium carbonate in improving illness perception and treatment adherence among women with Bipolar I Disorder.

Table 5. Results of Wilks' Lambda Test for Illness Perception and Patient Treatment Adherence in Women with Bipolar I Disorder

Source of Variance	Test	Value	F	Hypothesis df	Error df	p	Eta²
Experimental and Control Groups	Pillai's Trace	.796	16.13	2	19	.001	.796
	Wilks' Lambda	.204	16.13	2	19	.001	.796
	Hotelling's Trace	3.91	16.13	2	19	.001	.796
	Roy's Largest Root	3.91	16.13	2	19	.001	.796

The results presented in Table 5 demonstrate that the combined dependent variables, including illness perception and patient treatment adherence, were significantly influenced by dialectical behavior therapy combined with lithium carbonate, Wilks' Lambda = .204, $F(2, 19) = 16.13$, $p < .01$, $\eta^2 = .796$. Based on the obtained eta squared value, approximately 79.6% of the variance in the combined dependent variables was attributable to the intervention. These findings indicate a strong multivariate effect of the therapeutic intervention on illness perception and patient treatment adherence in women with Bipolar I Disorder.

Discussion and Conclusion

The present study aimed to investigate the effectiveness of dialectical behavior therapy combined with lithium carbonate on illness perception and patient treatment adherence in women with Bipolar I Disorder. The findings demonstrated that the intervention significantly improved both illness perception and treatment adherence among participants in the experimental group compared with the control group. The results of multivariate and univariate covariance analyses indicated that dialectical behavior therapy combined with lithium carbonate produced statistically significant effects on the dependent variables, and the obtained effect sizes suggested a substantial therapeutic impact. These findings support the growing body of evidence emphasizing the importance of integrating psychological interventions with pharmacological treatment in managing Bipolar I Disorder.

One of the principal findings of the present study was that dialectical behavior therapy combined with lithium carbonate significantly enhanced illness perception among women with Bipolar I Disorder. This finding suggests that participants who received the intervention developed more adaptive cognitive and emotional representations regarding their illness, treatment process, and ability to manage symptoms effectively. Individuals with bipolar disorder often experience distorted beliefs regarding the chronicity,

controllability, and consequences of their condition, which may contribute to denial, emotional resistance, and treatment discontinuation. Dialectical behavior therapy appears to facilitate a more realistic and accepting understanding of illness through mindfulness training, emotional awareness, and cognitive restructuring strategies. These therapeutic processes likely helped participants recognize the importance of continuous treatment and increased their insight into the nature of bipolar disorder.

The present finding is consistent with previous studies demonstrating the effectiveness of dialectical behavior therapy in improving emotional and cognitive functioning among individuals with mood disorders. For instance, Şahin reported that DBT significantly improved emotional regulation among women with bipolar disorder, thereby contributing to better psychological adjustment and illness awareness (8). Similarly, Goldstein et al. found that DBT interventions improved emotional functioning and reduced psychological instability among adolescents with bipolar disorder (3). Emotional dysregulation is closely associated with maladaptive illness perceptions because emotionally overwhelmed individuals may interpret their illness through catastrophic or avoidant cognitive frameworks. By improving emotional regulation capacities, DBT likely contributed to healthier interpretations of illness experiences among the participants in the present study.

The findings may also be explained through the mindfulness component of DBT. Mindfulness training encourages individuals to observe their thoughts, emotions, and bodily experiences without judgment or avoidance. Patients with Bipolar I Disorder frequently struggle with emotional impulsivity, denial of symptoms, and unstable self-perceptions, all of which interfere with realistic illness understanding. Mindfulness-based skills may reduce emotional reactivity and increase cognitive clarity, thereby allowing patients to evaluate their illness more objectively. Previous research has shown that DBT-based mindfulness interventions improve emotional awareness and interpersonal functioning among bipolar patients (17). The enhancement of mindful awareness may therefore have strengthened participants' acceptance of their disorder and improved their perception of treatment necessity.

Another important finding of the present study was the significant improvement in patient treatment adherence among women receiving dialectical behavior therapy combined with lithium carbonate. Treatment adherence represents one of the most challenging aspects of bipolar disorder management because many patients discontinue medication or psychotherapy due to emotional instability, impulsivity, side effects, or limited insight into illness severity. The findings suggest that DBT may increase motivation for treatment continuation by improving emotional regulation, distress tolerance, and self-control. Participants who acquired adaptive coping strategies may have become more capable of tolerating emotional discomfort and maintaining long-term engagement with therapeutic recommendations.

This finding is consistent with the results reported by Hosseini and Nasri, who demonstrated that integrating DBT with lithium carbonate was more effective than pharmacotherapy alone in improving emotional regulation, self-control, and cognitive flexibility among patients with bipolar disorder (7). Improved cognitive flexibility may enable patients to reconsider maladaptive beliefs regarding medication use and treatment engagement. Furthermore, DBT emphasizes behavioral commitment and accountability, which may strengthen patients' willingness to follow structured treatment plans consistently.

The findings also align with the study conducted by Shirzad and Khatibi, who reported that DBT combined with pharmacotherapy produced greater symptom control among women with bipolar disorder compared

with medication alone (4). Patients who experience reductions in emotional instability and psychological distress are more likely to perceive treatment as beneficial and worthwhile, thereby increasing adherence. The therapeutic relationship established within DBT may additionally contribute to stronger treatment engagement because validation and collaborative problem-solving foster trust and emotional safety in participants.

The role of lithium carbonate in the present study should also be considered when interpreting the findings. Lithium remains one of the most effective pharmacological treatments for Bipolar I Disorder and has demonstrated substantial efficacy in mood stabilization and relapse prevention (1). Research has consistently shown that lithium treatment decreases suicidal ideation and recurrent mood episodes among bipolar patients (5, 6). However, the effectiveness of lithium largely depends on sustained treatment adherence. DBT may enhance the therapeutic effectiveness of lithium by addressing the psychological barriers that frequently interfere with medication compliance. Through emotional regulation training and cognitive restructuring, participants may have become more capable of recognizing the long-term benefits of pharmacological treatment despite temporary emotional discomfort or medication side effects.

The substantial effect sizes observed in the present study indicate that the combined intervention exerted a strong influence on the dependent variables. These findings support the theoretical foundations of DBT, particularly the biosocial theory emphasizing the interaction between biological vulnerability and environmental invalidation in emotional dysregulation (11). Women with Bipolar I Disorder often experience heightened emotional sensitivity and interpersonal difficulties, which may intensify emotional instability and reduce treatment commitment. DBT specifically targets these vulnerabilities through emotional validation, skills training, and behavioral change strategies. Consequently, participants may have developed greater emotional stability and stronger confidence in their capacity to manage illness-related challenges.

The findings are also compatible with broader evidence regarding the transdiagnostic effectiveness of DBT. Previous studies have demonstrated that DBT improves emotional processing, coping strategies, and psychological functioning across a wide range of psychiatric conditions. Feldman et al. reported that DBT-based skills training significantly improved emotional processing among individuals with depressive disorders (13). Similarly, Whitener et al. found that adapted DBT interventions enhanced emotional and behavioral functioning among adolescents in educational settings (15). Zompa et al. also demonstrated that DBT reduced emotional dysregulation and alexithymia in patients with binge eating disorder (14). These studies collectively indicate that DBT possesses broad therapeutic utility for conditions involving emotional instability and maladaptive coping patterns.

The present findings additionally support the notion that DBT contributes to improvements in interpersonal functioning and socio-emotional development. Mohammadi Bajgirani et al. found that dialectical friendship training significantly improved socio-emotional functioning and reduced loneliness among rejected children (18). Interpersonal difficulties and social isolation are common among women with Bipolar I Disorder and frequently contribute to treatment nonadherence and emotional distress. By improving interpersonal effectiveness skills, DBT may strengthen patients' social support systems and enhance their capacity to seek help and maintain therapeutic engagement.

Another possible explanation for the observed findings relates to the distress tolerance component of DBT. Individuals with Bipolar I Disorder often struggle to tolerate intense emotional states, leading to impulsive decisions such as medication discontinuation or avoidance of treatment participation. Distress tolerance skills teach individuals to endure emotional discomfort without engaging in maladaptive behaviors. As participants became more capable of managing distress adaptively, they may have experienced greater psychological resilience and increased willingness to continue treatment consistently. Previous evidence has suggested that DBT-based interventions improve adaptive coping and reduce emotional avoidance across psychiatric populations (16, 19).

Furthermore, the present findings may be interpreted in light of the growing emphasis on integrated treatment approaches in bipolar disorder management. Perich's meta-analysis highlighted the importance of psychological interventions for improving psychosocial functioning and treatment outcomes among women with bipolar disorder (2). Pharmacological treatment alone may stabilize mood symptoms, but it often fails to address emotional, cognitive, and interpersonal difficulties that contribute to relapse and chronic impairment. The integration of DBT with lithium carbonate may therefore provide a more comprehensive therapeutic approach capable of addressing both biological and psychosocial dimensions of Bipolar I Disorder.

The findings of the present study also reinforce the practical relevance of DBT skills training. According to McKay et al., DBT skills such as mindfulness, emotional regulation, interpersonal effectiveness, and distress tolerance provide individuals with practical tools for managing intense emotions and maintaining adaptive behaviors (10). Women with Bipolar I Disorder frequently experience difficulties regulating emotions during manic or depressive episodes, which may impair decision-making and treatment adherence. The acquisition of DBT skills may therefore have enabled participants to respond more adaptively to emotional challenges and maintain greater consistency in treatment engagement.

Overall, the present study provides empirical support for the effectiveness of dialectical behavior therapy combined with lithium carbonate in improving illness perception and patient treatment adherence among women with Bipolar I Disorder. The findings highlight the importance of combining pharmacological treatment with structured psychological interventions aimed at emotional regulation, mindfulness, cognitive flexibility, and interpersonal functioning. Such integrated approaches may contribute to more stable long-term recovery and improved quality of life among individuals with bipolar disorder.

One of the limitations of the present study was the relatively small sample size, which may limit the generalizability of the findings to broader populations of women with Bipolar I Disorder. In addition, the study was conducted only among women in Tehran, and therefore the findings may not be fully applicable to men or individuals from different cultural and social contexts. Another limitation was the use of self-report questionnaires, which may be influenced by response bias or participants' subjective interpretations. Furthermore, the absence of long-term follow-up prevented evaluation of the durability and stability of treatment effects over time.

Future research is recommended to examine the long-term effectiveness of dialectical behavior therapy combined with lithium carbonate through follow-up assessments across different time intervals. Researchers may also compare DBT with other evidence-based psychological interventions in bipolar populations to identify the most effective integrated treatment models. Expanding the sample to include male participants,

adolescents, and culturally diverse populations would improve the generalizability of findings. Additionally, future studies may investigate mediating variables such as emotional regulation, mindfulness, interpersonal functioning, and cognitive flexibility in order to better understand the mechanisms underlying therapeutic change.

From a practical perspective, the findings of the present study suggest that integrating dialectical behavior therapy with pharmacological treatment may substantially improve therapeutic outcomes among women with Bipolar I Disorder. Mental health professionals may benefit from incorporating DBT skills training into routine psychiatric treatment programs in order to enhance emotional stability, illness awareness, and treatment adherence. Clinical centers and counseling services may also develop structured DBT-based group interventions tailored specifically for bipolar populations. Furthermore, educating patients and families regarding the importance of emotional regulation skills and continuous treatment adherence may contribute to relapse prevention and improved psychosocial functioning.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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