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Dialectical Behavior Therapy Group Skills Training for Bipolar Disorder

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Abstract

There is growing evidence that the capacity for emotion regulation is compromised in individuals with bipolar disorder. Dialectical behavior therapy (DBT), an empirically supported treatment that specifically targets emotion dysregulation, may be an effective adjunct treatment for improving emotion regulation and residual mood symptoms in patients with bipolar disorder. In this open, proof-of-concept pilot study, 37 participants engaged in a 12-week DBT group skills training program, learning mindfulness, emotion regulation, and distress tolerance skills. Repeated measures mixed models revealed skill acquisition in the areas of mindfulness, emotion regulation and distress tolerance, as well as improved psychological well-being and decreased emotion reactivity. The results of this study support a burgeoning literature that DBT is a feasible adjunct intervention for patients with bipolar disorder.

Keywords

bipolar disorder; dialectical behavior therapy; emotion regulation; group skills training

THE CAPACITY TO REGULATE emotion through conscious and unconscious psychological and physiological processes is essential for effective psychosocial functioning (Gross, 2002; Thompson, 1994). Growing evidence suggests that this capacity may be compromised in bipolar disorder (e.g., Green, Cahill, & Mahli, 2007; Johnson, Gruber, & Eisner, 2007; Murphy et al., 1999; Phillips, Ladouceur, & Drevets, 2008). Difficulties regulating emotion may be exacerbated by the tendencies of individuals with bipolar disorder to experience more intense emotional responses compared to those without bipolar disorder (Johnson et al., 2007), and to interpret neutral stimuli as negative (Gur et al., 1992; McClure, Pope, Hoberman, Pine, & Liebenluft, 2003). Although specific neurological mechanisms have yet to be elucidated, compared to controls, individuals with bipolar disorder have shown greater limbic system activation in response to emotional stimuli (Phillips et al., 2008) and while appraising emotional material (Chen et al., 2006), and they have demonstrated greater difficulty inhibiting emotional responses (Murphy et al., 1999). Additionally, there is a growing and robust literature that suggests bipolar disorder involves

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maladaptive exaggerated responses to emotional stimuli and diminished use of adaptive responses to regulate strong emotions (Johnson, Tharp, Peckham, & McMaster, 2016; Phillips et al., 2008).

Notably, following treatment for a mood episode, most patients with bipolar disorder continue to experience persistent subthreshold mood symptoms (Fagiolini et al., 2005; Keck et al., 1998), which put them at greater risk for the recurrence of subsequent mood episodes (Perlis et al., 2006). While pharmacotherapy can be effective for maintaining mood stability, for most patients, medication fails to achieve sustained, full symptom remission (Keck et al., 1996). For this reason, adjunctive psychosocial group interventions such as psychoeducation and mindfulness-based cognitive therapy have been used to complement pharmacotherapy for individuals with bipolar disorder. However, deficits in emotion regulation, a core component of this disorder, are not directly addressed in these interventions.

Dialectical behavior therapy (DBT) is an empirically supported treatment for borderline personality disorder that specifically targets emotion dysregulation. In DBT, emotion dysregulation is understood as a consequence of emotional vulnerability coupled with inadequate, or maladaptive, affective modulation strategies (Linehan, 1993a). Emotional vulnerability is characterized as high negative affect at baseline, sensitivity to emotional stimuli, and intense emotional responding to stressors, usually with a slow return to affective baseline. DBT teaches mindfulness as well as interpersonal effectiveness, emotion regulation, and distress tolerance skills to improve emotion regulation, reduce vulnerability to negative emotions, and reduce maladaptive coping behaviors associated with strong emotions (McMain, Korman, & Dimeff, 2001).

Because of DBT's well-established utility for addressing emotion regulation challenges in borderline personality disorder, it has been suggested that DBT might also be used to target emotion regulation problems in bipolar disorder (Goldstein, Axelson, Birmaher, & Brent, 2007). In a preliminary trial of adolescent-focused DBT (Miller, Rathus, & Linehan, 2006) adapted for bipolar disorder, Goldstein and colleagues (2007) determined that incorporating family group skills training (conducted with individual family units), and individual DBT therapy could be successfully delivered to adolescents with bipolar disorder. The authors found that those receiving DBT were more adherent to treatment and experienced greater reductions in depressive symptoms when this intervention was delivered as an adjunct to pharmacotherapy. Later, in a randomized trial of DBT versus treatment as usual (TAU) for adolescents with bipolar disorder, Goldstein and colleagues (2015) found that those receiving DBT attended significantly more therapy sessions over the course of treatment than did adolescents receiving TAU. Study participants receiving individual DBT +family group skills training demonstrated significantly less severe depressive symptoms, as well as improvements from pre- to posttreatment in manic symptoms and emotion dysregulation compared to participants receiving TAU. Additionally, those receiving DBT were also nearly three times more likely to demonstrate reductions in suicidal ideation.

Standard DBT, as it was originally designed and tested, consists of four components: individual therapy, group skills training, between-session coaching, and a consultation team for DBT therapists. Standard DBT has been well studied and found to be effective for

treating a range of psychiatric disorders. However, due to feasibility and resource challenges commonly faced by treatment outlets, there is a growing trend toward offering stand-alone DBT skills groups to complement TAU (Neacsu, Eberle, Kramer, Weissmann, & Linehan, 2014). Such DBT skills groups have been found to reduce negative affect, emotion dysregulation, aggression, and impulsivity across psychiatric presentations including borderline personality disorder, depression, bipolar disorder, attention-deficit disorder, problem drinking, incarcerated women with histories of trauma, while also reducing number of hospitalizations, and improving social adjustment and global functioning (see Valentine, Bankoff, Poulin, Reidler & Pantalone, 2015, for review).

To date, however, only one study has examined DBT skills group training as an adjunct treatment for adults with bipolar disorder. Concurrent to the present investigation, Van Dijk and colleagues (2013) ran a small, 12-week randomized controlled trial of DBT skills group that combined psychoeducation for bipolar disorder and DBT skills training in addition to TAU compared to wait-listed controls receiving TAU only. DBT + TAU resulted in a trend toward greater reductions in depression symptoms, compared to TAU only. Additionally, DBT group skills training led to greater mindful awareness and lower fear of and need for control over emotional states. Participants receiving DBT group skills training also had fewer emergency room visits and mental health-related admissions in the 6 months following treatment.

Using an open-trial design intended to test proof of concept, we explored the feasibility and efficacy of a brief DBT skills group for adults with bipolar disorder with residual mood symptoms. To gauge treatment efficacy, we assessed changes in mood and well-being, as well as associations between psychosocial change and measures of skill acquisition that correspond to the modules taught in the DBT. We hypothesized that participants receiving 12 weeks of DBT group skills training would show decreases in mood symptoms and improvements in global well-being, and that these improvements would be associated with increases in mindfulness, emotion regulation, and distress tolerance.

Methods

PARTICIPANTS

Thirty-seven participants ages 18–65 who met *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 2000) criteria for bipolar I disorder were recruited from the Bipolar Clinic and Research Program at Massachusetts General Hospital. Prior to participation, all participants provided written informed consent. Psychiatric diagnoses were made using the Mini-International Neuropsychiatric Interview (MINI; Lecrubier et al., 1997). Participants with bipolar I disorder were included in the study if they were able to read and understand English, were under the care of a psychiatrist who was prescribing mood-stabilizing medication, and were participating in minimum bimonthly individual psychotherapy in the community. Participants were permitted to continue their existing psychotropic medication(s) throughout the study. Participants were excluded from the study based on the following criteria: (1) suicidal ideation with a plan or intent to harm self assessed by the study clinician; (2) history of seizure disorder, brain injury, or known neurological disease (multiple sclerosis, degenerative disease such as ALS,

Parkinson disease and any movement disorders, etc.); (3) history, or current diagnosis of organic mental disorder, schizophrenia, schizoaffective disorder, delusional disorder, psychotic disorders not otherwise specified, major depressive disorder, and patients with mood-congruent or mood-incongruent psychotic features; (4) active substance dependence, including alcohol, within the last 12 months; (5) electroconvulsive therapy (ECT) in the past 6 months; or (6) current major depressive, manic, or mixed episode.

PROCEDURE

Once a participant was deemed eligible for the study, he/she completed a baseline assessment that included both clinician-rated and self-report measures of depression, mania, mindfulness, emotion dysregulation, emotion reactivity, distress tolerance, and overall well-being/functioning (see assessments section below). Participants then completed 12 sessions of DBT skills for bipolar disorder, followed by a posttreatment assessment and a 3-month follow-up assessment using the clinician-rated and self-report assessments administered at baseline.

Group DBT skills for bipolar disorder was delivered by a postdoctoral-level psychologist with extensive DBT training and experience. Twelve, 105-minute, group sessions were conducted weekly over a 3-month period. Mindfulness, emotion regulation, and distress tolerance skills were drawn from the first edition of the DBT group skills training manual (Linehan, 1993b). The interpersonal effectiveness module was not included, as the goal of this study was to specifically target emotion regulation. The modules were administered in the following sequence:

1. Mindfulness (Sessions 1–4)

Mindfulness is a core component of DBT and was thus covered first. The first group session covered the format of the group, group etiquette, confidentiality, the goals of the program, the goals of the group members, a suicide worksheet and traditional mood monitoring standard to cognitive behavioral treatments for bipolar disorder. Sessions 2 through 4 covered mindfulness skills. Through the mindfulness module participants learned skills to increase awareness of thoughts, emotions, physical sensations, and actions, without judgment or criticism. Using mindfulness, participants were taught how to identify and label current emotions.

2. Emotion Regulation (Sessions 5–8)

Emotion regulation skills are designed to help participants cope with overwhelming feelings in new and effective ways. Participants learned how to identify and label emotions, what the functions of emotions are, how to reduce their vulnerability to strong negative emotions, how to increase positive emotions, and how to act opposite to an emotional urge. Emotion avoidance was also addressed by teaching mindfulness to one's current emotional state.

3. Distress Tolerance (Sessions 9–12)

Distress tolerance skills address impulsive behavior that may result from an inability to tolerate intense emotions. Distress tolerance skills teach participants coping strategies for tolerating distress and accepting life as it is in the moment.

Participants were taught to identify triggers for suicide attempts and learned crisis-management strategies, including distraction techniques, self-soothing, improving the moment, and reality acceptance.

Group skills training was provided free of charge to participants. As is customary in DBT, each group opened with a mindfulness exercise. Participants were assigned skills practice home work weekly, which was reviewed at the end of the following group session. In addition, participants were given the option to participate in once a week scheduled telephone check-ins (up to 20 minutes) initiated by the group leaders as needed for help with troubleshooting difficulties with skills practice, completing homework assignments, or using skills in the context of their daily lives. Twenty-three participants participated in at least 3 or more check-in phone calls throughout their time in group. As a requirement of participating in the DBT skills group, participants were also expected to be in ongoing individual treatment (minimum twice a month) with a therapist, though restrictions were not placed on the type of individual treatment participants were receiving.

MEASURES

The pretreatment assessment consisted of structured clinical interviews administered by a doctoral-level clinician using the MINI and the Structured Clinical Interview for DSM-IV Axis II Personality Disorders– Borderline Personality Disorder Module (First, Gibbon, Spitzer, Williams, & Benjamin, 1997). Research assistants with extensive training and experience in clinical assessment from the Bipolar Clinic and Research Program administered clinician-rated mood assessments at baseline. These research assistants had no involvement in delivering the treatment to the participants, and thus were not aware of how participants presented during weekly group sessions. Participants also completed a self-report battery of well-validated questionnaires. The MINI, clinician-rated mood assessments, and self-report battery were administered again at the end of treatment and at 3-month follow-up.

CLINICIAN-RATED STRUCTURED INTERVIEWS

Mini-International Neuropsychiatric Interview (MINI)—The MINI (Lecrubier et al., 1997) is a structured interview, administered by a clinician, which assesses 17 current Axis I diagnoses and lifetime diagnoses when clinically relevant (e.g., previous manic episode for a diagnosis of bipolar disorder). Diagnoses can be ruled out by answering no to one or two screening questions. Positive responses to screening questions are followed by further exploration of other diagnostic criteria. The MINI shows good interrater reliability and test-retest reliability. Specificity and sensitivity for most psychiatric diagnoses and concordance with other structured diagnostic interviews are good (Sheehan et al., 1998). For lifetime manic episode it has shown acceptable sensitivity (.77) and excellent specificity (.92; Lecrubier et al., 1997). Internal consistency for the MINI in this study was acceptable (Cronbach's $\alpha = .78$).

Hamilton Depression Rating Scale (HAM-D)—The HAM-D (Hamilton, 1960) is a 17-item clinician-rated structured interview that assesses depressive symptoms. Scores range from 0–66, with the following cutoffs: not depressed (0–7), mildly depressed (7–15),

moderately depressed (16–25), and severely depressed (N 25). A decrease of 50% or more in the HAM-D score is considered to be a positive response to treatment, while a score of 7 or less is considered characteristic of remission. In a recent meta-analysis of the scale, the HAM-D was found to have good internal consistency across studies (0.79) and high test-retest reliability (ranging from .87–.94), with a longer time interval between interviews being associated with lower test-retest reliability (Trajković et al., 2011). The HAM-D's internal consistency in the present study was acceptable ($\alpha = .75$).

The Young Mania Rating Scale (YMRS)—The YMRS (Young, Biggs, Ziegler, & Meyer, 1978) is a clinician-rated instrument that consists of 11 items covering the core symptoms of the manic phase over the past week. Scores range from 0–60, with higher scores indicating greater mania. YMRS scores greater than 25 are suggestive of severe illness (Lukasiewicz et al., 2013). The scale has good psychometric properties including high interrater reliability and good concurrent validity with other scales. In the present investigation the YMRS demonstrated good internal consistency (Cronbach's $\alpha = .83$).

Structured Clinical Interview for DSM-IV Axis II Personality Disorders—Borderline Personality Disorder Module—The SCID-II (First, et al., 1997) is a semistructured interview, which assesses for all DSM-IV personality disorders. Items are scored on a 3-point scale (1 = *absent*, 2 = *sub-threshold*, 3 = *present*). Fifteen questions are used to assess the nine criteria for borderline personality disorder (BPD). A diagnosis of BPD requires endorsement of a minimum of five out of nine criteria. The SCID-II has demonstrated adequate interrater and internal consistency in other studies (Maffei et al., 1997), and in this study, internal consistency was acceptable (Cronbach's $\alpha = .77$).

SELF-REPORT ASSESSMENTS

Five Facet Mindfulness Questionnaire (FFMQ)—The FFMQ (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) is a 39-item questionnaire that assesses elements of mindfulness: observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience. The five facets were constructed from an exploratory factor analysis of five previously developed mindfulness questionnaires. This measure has shown satisfactory convergent and discriminant validity as well as good sensitivity to change (Carmody & Baer, 2008). Consistent with previous studies, the FFMQ demonstrated excellent internal consistency (Cronbach's $\alpha = .91$).

Difficulties in Emotion Regulation Questionnaire (DERS)—The DERS (Gratz & Roemer, 2004) assesses six possible areas for difficulties with emotion regulation, including: lack of awareness of emotional responses, lack of clarity of emotional responses, nonacceptance of emotional response, limited access to emotion regulation strategies perceived as effective, difficulties controlling impulses when experiencing negative emotions, and difficulty engaging in goal-directed behaviors when experiencing negative emotions. Items are rated on a 1 (*almost never*) to 5 (*almost always*) scale with higher scores indicative of greater difficulties with emotion regulation. Mean scores individuals with PTSD have been reported to be 100–105 (McDermott et al., 2009; Tull et al., 2007) while healthy college samples report DERS scores in the 75–80 range (Gratz & Roemer, 2004;

Salters-Pedneault, Roemer, Tull, Rucker & Mennin, 2006; Vujanovic, Zvolensky, & Bernstein, 2008).

The DERS has a clear factor structure, demonstrates good test-retest reliability (.88) across periods ranging from 4 to 8 weeks, and shows adequate construct and predictive validity (Gratz & Roemer, 2004). Consistent with previous studies, the internal consistency of the DERS was excellent (Cronbach's $\alpha = .93$; Gratz & Roemer).

Emotion Reactivity Scale (ERS)—The ERS (Nock, Wedig, Holmberg, & Hooley, 2008) is a 21-item self-report inventory that assesses three aspects of emotion reactivity: sensitivity, arousal and intensity of emotions, and persistence of emotions. Each item is rated on a 0 to 4 scale (0 = *not at all like me*; 4 = *completely like me*) and scores can range from 0–84. The ERS demonstrates convergent validity, correlating with measures of similar constructs such as depressed mood, fear, frustration and aggression as well as divergent validity, showing negative relationships with measures related to attention and behavioral control. With regards to criterion validity, elevations on the ERS are not merely due to the presence of psychopathology in general. In the present sample, the ERS demonstrated excellent internal consistency (Cronbach's $\alpha = .96$).

Distress Tolerance Scale (DTS)—The DTS (Simons & Gaher, 2005) is a 15-item self-report questionnaire that assesses tolerance of distress, appraisal of distress, attention absorbed by negative emotions, and regulation efforts to alleviate distress. Items are rated on a 1 to 5 scale (1 = *strongly agree*; 5 = *strongly disagree*) with lower scores indicating poorer tolerance of distress. The DTS scale has demonstrated good test-retest reliability. In the current study the internal consistency of the DTS was excellent (Cronbach's $\alpha = .92$).

Psychological Well-Being Scale (PWB)—The PWB (Ryff & Keyes, 1995) is an 84-item self-report questionnaire designed to examine six dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Items are scored on a 6-point Likert scale (*strongly agree to strongly disagree*) and higher scores are indicative of greater well-being. The scale has demonstrated high internal consistency and good test-retest reliability and has been translated into many languages and used cross-culturally. In the present study, internal consistency for the PWB was excellent (Cronbach's $\alpha = .95$).

Client Satisfaction Questionnaire (CSQ)—A 7-item version of the CSQ (Nguyen, Attkisson, & Stegner, 1983) was used to assess client satisfaction with the intervention. In addition we asked participants to answer several qualitative questions to provide us with additional feedback about their experience in the program. Items are scored on a scale of 1 (*quite dissatisfied*) to 4 (*very satisfied*), with a total possible score of 28 and higher scores indicating greater satisfaction.

ANALYSES

Preliminary visual inspection and univariate analysis were used to check for normality for each psychological measure. All measures were found to be normally distributed. A priori hypotheses were tested using repeated measures mixed models with an unstructured

covariance matrix (Wolfinger & Chang, 1995) to examine changes in depression (HAM-D), mania (YMRS), psychological well-being (PWB), mindfulness (FFMQ), emotion dysregulation and reactivity (DERS and ERS), and distress tolerance (DTS), from baseline assessment to end of treatment and to 3-month follow-up. For repeated measures designs, mixed models are preferable to traditional ANOVA because they do not require pairwise deletion of missing data points. Thus, all available data is retained and considered in the analyses. When indicated by significant main effects, post hoc least square means difference tests were conducted with pairwise Tukey-Kramer correction to control for alpha level inflation. Effect sizes are reported in Cohen's d , with $d = .20$ interpreted as a small effect, $d = .50$ interpreted as a medium effect, and $d = .80$ interpreted as a large effect (Cohen, 1988).

In addition, Spearman's correlation coefficients were calculated to test whether changes in depression (HAM-D), mania (YMRS), and psychological well-being (PWB) were related to DBT treatment objectives that include increasing mindfulness (FFMQ), distress tolerance (DTS), as well as decreasing emotion dysregulation and reactivity (DERS and ERS). Change scores on each measure were calculated by regressing end-of-treatment scores for each measure onto their respective score at pretreatment baseline (i.e., residuals). Residualized change scores are preferable to raw change scores because they account for effects of regression to the mean. Spearman's correlation coefficient is expressed as rho (ρ). Interpretation of Spearman's ρ is comparable to Pearson's r , but is robust to inflated population estimates due to skewed variables, because it uses ranks instead of the ratio-scaled data.

Results

STUDY SAMPLE

The sample ($N = 37$) was predominantly female ($n = 27$) and was on average 41.3 years old ($SD = 11.2$; range = 22–65). Two participants identified themselves as of Asian or Pacific Islander, 3 as African American, 29 as European American, and 3 declined to report their race. Participants had an average of 16.4 ($SD = 3.5$) years of education. Fifteen participants were employed (11 full-time, 4 part-time), while 2 were retired, 2 were students, 6 were unemployed, 11 were on disability, and 1 participant was on leave from work.

All participants in the sample met criteria for bipolar I disorder. The average age of the first depressive episode for participants was 15.74 ($SD = 9.33$) and the first manic episode was 23.86 ($SD = 9.60$). The majority of the sample had been in psychiatric treatment for greater than 10 years. The mean number of psychiatric hospitalizations was 5.50 ($SD = 6.07$) and the mean number of psychiatric hospitalizations for a suicide attempt specifically was .28 ($SD = 0.45$). Participants had an average of .44 ($SD = .84$) comorbid Axis I diagnoses, with the most common being anxiety disorders (GAD, $n = 3$; Panic, $n = 3$) and attention-deficit/hyperactivity disorder ($n = 4$). Five participants reported past treatment for substance use. Four participants met diagnostic criteria for border line personality disorder in addition to bipolar disorder.

Baseline measures of psychiatric symptoms, mindfulness, emotion regulation, and distress tolerance are presented in detail in Table 1. Briefly, at baseline, HAM-D ($M = 12.7$, $SD =$

6.0) scores suggested the sample was experiencing, on average, mild depressive symptoms. Scores on the YMRS ($M=6.1$, $SD=6.2$) were low, suggesting the sample was not currently experiencing pronounced manic symptoms. Baseline DERS scores were suggestive of major difficulties regulating emotion ($M=107.6$, $SD=24.0$). Thirty-seven participants completed baseline assessment measures. Participants were assigned to four different DBT groups, conducted sequentially. The groups consisted of 9, 11, 9, and 8 members. Three participants who enrolled in the study never attended a group. The mean number of groups attended by the remaining sample was 7.85 ($SD=3.55$). Nine participants dropped out before completing the full 12 weeks of DBT group skills training. Standard DBT attendance guidelines were adhered to such that participants missing four groups in a row were asked to step out of group skills training. We addressed attendance issues by problem solving with those participants who did not necessarily miss four groups in a row but were missing groups. Four participants were hospitalized briefly for worsening depression and increasing suicidal ideation over the course of the study, with one participant being hospitalized twice. These were reported to the IRB as minor protocol deviations that were not directly caused by the intervention itself. Two of the four participants who were hospitalized did not complete the 12-week group sessions. Of the participants who completed treatment ($n=25$), all but one completed posttreatment assessments ($n=24$), and all but two completed the 3-month follow-up ($n=23$). Participants who completed treatment had more years education ($M=17.8$, $SD=2.1$) than noncompleters ($M=14.1$, $SD=4.3$), $t(27)=3.07$, $p<.05$. Treatment completers also scored higher on the DERS ($M=113.4$, $SD=23.5$) than noncompleters ($M=96.3$, $SD=21.5$), $t(34)=2.17$, $p<.05$, although this difference was not significant after Bonferroni correction. No other differences between completers and noncompleters were observed on other baseline demographic or psychosocial measures.

TREATMENT

Scores of clinician-rated and self-report scales at pretreatment, posttreatment, and 3-month follow up, main effects, least square differences tests, and effect sizes are shown in Table 1. As predicted, participants demonstrated significant increases in mindfulness (FFMQ; $d=1.25$), distress tolerance (DTS; $d=1.12$) and psychological well-being (PWB; $d=1.02$), as well as decreases in emotion dysregulation (DERS; $d=1.34$), and emotion reactivity (ERS; $d=0.97$) from pre- to posttreatment. However, contrary to predictions, participants did not exhibit significant reductions in clinician-rated depression (HAM-D) or clinician-rated mania (YMRS).

There were no significant changes on any measure between posttreatment and 3-month follow-up, suggesting that for participants that completed DBT group skills training, their condition remained stable following treatment. Critically, mania symptoms (YMRS) remained low from posttreatment to 3-month follow-up (Table 1).

Results also demonstrated increases in mindfulness measured by the FFMQ, $t(36)=4.35$, $p=.0003$, $d=1.45$, and decreases in emotion reactivity (ERS), $t(36)=-2.83$, $p=.02$, $d=0.94$, and emotion regulation difficulties (DERS) $t(36)=-4.40$, $p<.0001$, $d=1.47$ from pretreatment baseline to 3-month follow-up, suggesting lasting improvements in mindfulness and emotion regulation.

ASSOCIATIONS BETWEEN CHANGES IN PSYCHOSOCIAL MEASURES FROM BASELINE TO END OF TREATMENT

Correlations between change scores of primary treatment outcomes and measures of DBT treatment objectives are shown in Table 2. Increases in mindfulness (FFMQ) from pre- to posttreatment were associated with decreases in clinician-rated depression (HAM-D), emotion dysregulation (DERS) and reactivity (ERS), as well as increases in distress tolerance (DTS). Further, decreases in emotion dysregulation (DERS) from beginning to end of treatment predicted decreases in emotion reactivity (ERS), increases in distress tolerance (DTS), as well as greater change in overall well-being (i.e., increases in PWB scores). Reductions in emotion reactivity (ERS) were related to increases in distress tolerance (DTS). Contrary to our predictions, however, increases in distress tolerance (DTS) from beginning to end of treatment were not significantly associated with changes in depression (HAM-D) or overall well-being (PWB). There were no significant associations between measures of DBT treatment objectives and clinician rated mania (YMRS).

CLIENT SATISFACTION RATINGS

Participants who responded to the anonymous Client Satisfaction Questionnaire ($N = 22$; Nguyen et al., 1983) rated the intervention positively, with an average total satisfaction rating of 25.3 ($SD = 3.4$; range = 17–28).

Discussion

This study explored the feasibility of delivering dialectical behavior therapy (DBT) skills for adults with residual symptoms of bipolar disorder and assessed changes in mood and well-being over the course of treatment and at 3-month follow-up. Results of this study provide continuing evidence for the feasibility of adjunctive DBT group skills training delivered in a group format. The majority (88%) of those who completed 12-week group skills training reported high levels of satisfaction with the program and reported they had benefited from participating.

Clinician-rated measures of depression and mania were unchanged from pre- to posttreatment. Failure to effect significant reductions in clinician-reported depression may be attributable to low levels of depression at baseline. Similarly, baseline floor effects were observed on mania measures. Low baseline levels of depressive and manic symptoms are explained by the exclusion of participants who were experiencing a major depressive or manic episode at baseline evaluation. What is noteworthy is that for participants who remained in treatment, symptoms of mania remained low to the end of treatment and through 3-month follow-up. It is possible that DBT group skills training may have buffered the recurrence of manic symptoms in these participants.

This study also examined measures of skill acquisition that correspond to the modules taught in the DBT group sessions. Participants showed increases (large effect sizes) in mindfulness and distress tolerance and decreases in emotion dysregulation and emotion reactivity from pre- to posttreatment. For completers, improvements in mindfulness, distress tolerance, emotion regulation, and emotion reactivity were maintained at 3-month follow-up. This is

consistent with findings for DBT applied to borderline personality disorder (Kleindienst et al., 2008; van den Bosch, Koeter, Stijnen, Verheul, & van den Brink, 2005).

We also examined the relationship between changes in treatment targets and primary outcome measures and found that increases in mindfulness were related to reductions in clinician-rated depression. Reductions in emotion dysregulation were related to improvements in well-being. Teaching patients skills to regulate their emotions more effectively may contribute to an improved sense of mastery and control over their environment. Changes in distress tolerance, however, were not related to changes on measures of mood or well-being. Taken together, these results provide preliminary evidence that the primary treatment targets of DBT can be acquired by patients with bipolar disorder and may be beneficial in improving mood, well-being and psychosocial functioning. This is consistent with evidence from other mindfulness-based interventions among patients with bipolar disorders (Deckersbach et al., 2012; Williams et al., 2008). It is also consistent with a growing body of evidence of randomized controlled and nonrandomized trials that support DBT group skills training as an effective intervention for depressed and anxious transdiagnostic adults (Neacsiu et al., 2014).

This study has several limitations. This was an open trial. Without a randomized control group, we cannot reliably say whether the effects observed were due to DBT itself, or whether they were attributable to other factors including medication, individual therapy, the natural course of bipolar disorder, or nonspecific elements of therapy that cut across psychological treatments. Further, as this was an open trial designed to establish proof of concept, and test *as-received* treatment effects, an intent-to-treat design was not employed. Future clinical trials of DBT skills training for bipolar disorder will benefit from employing control groups and an intent-to-treat design. Although DBT group skills training was delivered according to Linehan's training manual, treatment fidelity checks were not conducted. Notably, approximately a third of the sample did not complete treatment or the participant's satisfaction measure, due to a variety of factors including scheduling difficulties of attending a weekly skills group, the group not meeting the needs of the participant, and some participants requiring a higher level of care over the course of the study. It is not clear how this may have inadvertently affected results. While treatment completers and noncompleters were similar on most psychosocial measures, noncompleters did report significantly less emotion dysregulation at baseline, although after Bonferroni correction this difference was no longer significant. Nevertheless, it is possible that lower baseline emotion regulation difficulty may in part explain treatment dropout, as acquiring new skills may not have felt as important or relevant for these participants.

Overall, the present findings support previous work (Goldstein et al., 2007; Goldstein et al., 2015; van Dijk et al., 2013) suggesting it is feasible to adapt and implement DBT into bipolar disorder TAU and that this intervention has real potential as an adjunctive treatment for this disorder. Taken together, the present results warrant further investigation in larger randomized controlled trials that investigate treatment outcome moderators such as participant emotion dysregulation severity. Identifying factors that predict response to treatment and further examining the role of skill acquisition in predicting outcomes will be important to consider in future research.

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Table 1

Mean Psychosocial Measures at Baseline, at End of Treatment, and at 3-month Follow-Up Showing Main Effect of Time, and Post-Hoc, Least Square Differences (LSD) Tests From Baseline to End of Treatment, and End of Treatment to 3-Month Follow-Up With Cohen's d Effect Sizes

	Baseline ^a n= 37	End of Treatment ^b n= 24	3-month Follow-up ^c n= 23	df	Main Effect Time (F)	t ^{a-b}	t ^{b-c}
FFMQ	110.8 (19.9)	123.4 (19.1)	127.0 (17.9)	36	9.56 *	3.76 * [1.25]	0.46 [0.15]
DERS	107.6 (24.0)	92.8 (23.2)	92.1 (19.0)	36	8.96 *	-4.02 * [1.34]	0.47 [0.16]
ERS	52.2 (22.0)	44.1 (21.4)	43.0 (19.6)	36	4.42 *	-2.91 * [0.97]	0.16 [0.05]
DTS	36.9 (11.8)	44.5 (11.5)	43.3 (10.3)	36	5.69 *	3.37 * [1.12]	-0.82 [0.27]
HAM-D	12.7 (6.0)	11.5 (5.7)	11.0 (4.3)	36	0.92	-0.83 [0.28]	-0.44 [0.15]
YMRS	6.1 (6.2)	5.7 (4.0)	5.2 (5.7)	36	0.13	-0.49 [0.16]	0.01 [0.01]
PWB	307.2 (56.1)	326.7 (50.2)	330.3 (51.1)	36	5.10 *	3.11 * [1.02]	-0.02 [0.01]

Note. Standard deviations are presented in parentheses. Cohen's d effect sizes are presented in brackets.

FFMQ= Five Facet Mindfulness Questionnaire,

DERS= Difficulties in Emotion Regulation Scale,

ERS= Emotion Reactivity Scale,

DTS= Distress Tolerance Scale,

HAM-D= Hamilton Depression Rating Scale,

YMRS= The Young Mania Rating Scale,

PWB= Psychological Well-Being Scale.

*
p < .05

Table 2

Spearman's Correlation Coefficients Between Change in Psychosocial Measures From Baseline to End of Treatment (2-Tailed)

	FFMQ	DERS	ERS	DTS	HAM-D	YMRS
DERS	-.68 **					
ERS	-.49 *	.57 **				
DTS	.73 **	-.62 **	-.73 **			
HAM-D	-.54 **	.27	.14	-.32		
YMRS	-.30	.21	-.12	-.23	.31	
PWBS	.38	-.43 *	-.36	.39	-.16	-.19

Note. Change scores (N=37) were derived by regressing end of treatment scores for each measure onto their respective score at pre-treatment baseline.

FFMQ= Five Facet Mindfulness Questionnaire,

DERS= Difficulties in Emotion Regulation,

ERS= Emotion Reactivity Scale,

DTS= Distress Tolerance Scale,

HAM-D= Hamilton Depression Rating Scale,

YMRS= The Young Mania Rating Scale,

PWB= Psychological Well-Being Scale.

**
 $p < .01$,

*
 $p < .05$