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Dialectical behavior therapy skills use as a mediator and outcome of treatment for borderline personality disorder

Andrada D. Neacsiu [a,*], Shireen L. Rizvi [b], Marsha M. Linehan [a]

[a] University of Washington, Behavioral Research and Therapy Clinics, Department of Clinical Psychology, Box 351525, Seattle, WA 98195-1525, USA
[b] Rutgers University Graduate School of Applied and Professional Psychology, 152 Frelinghuysen Road, Piscataway, NJ 08854-8020, USA

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ABSTRACT

A central component of Dialectical Behavior Therapy (DBT) is the teaching of specific behavioral skills with the aim of helping individuals with Borderline Personality Disorder (BPD) replace maladaptive behaviors with skillful behavior. Although existing evidence indirectly supports this proposed mechanism of action, no study to date has directly tested it. Therefore, we examined the skills use of 108 women with BPD participating in one of three randomized control trials throughout one year of treatment and four months of follow-up. Using a hierarchical linear modeling approach we found that although all participants reported using some DBT skills before treatment started, participants treated with DBT reported using three times more skills at the end of treatment than participants treated with a control treatment. Significant mediation effects also indicated that DBT skills use fully mediated the decrease in suicide attempts and depression and the increase in control of anger over time. DBT skills use also partially mediated the decrease of nonsuicidal self-injury over time. Anger suppression and expression were not mediated. This study is the first to clearly support the skills deficit model for BPD by indicating that increasing skills use is a mechanism of change for suicidal behavior, depression, and anger control.

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Dialectical Behavior Therapy (DBT) is a cognitive–behavioral treatment program originally developed to treat suicidal individuals with Borderline Personality Disorder (BPD). The model of BPD that informs DBT suggests that: 1) BPD is a disorder of emotion dysregulation stemming from important deficits in interpersonal, emotion-regulation (including regulation of mood dependent behaviors), and distress tolerance skills, 2) adaptive behavioral skills that individuals do have in their repertoire are often inhibited or interfered with by maladaptive behavior, and 3) maladaptive behaviors (that constitute many of the criteria of BPD) such as suicidal behaviors or other impulsive behaviors are strengthened through processes of reinforcement. For example, suicidal behavior is viewed as maladaptive problem-solving behavior resulting from a deficit in alternative, adaptive problem solving skills and is reinforced by either an immediate reduction in emotional arousal and/or by the environment's response (Linehan, 1993a). Thus, DBT focuses on teaching new behavioral skills and facilitating the replacement of maladaptive behaviors with skillful behavior.

A growing body of research on individuals with BPD supports the DBT skills deficit model. Evidence suggests that BPD individuals experience difficulties in emotion regulation (Linehan, Bohus, & Lynch, 2007), interpersonal relationships (Kremers, Spinhoven, Van der Does, & Van Dyck, 2006), and distress tolerance (Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006). Furthermore, suicidal BPD individuals often report that suicidal behaviors function to relieve negative emotions (Brown, Comtois, & Linehan, 2002). Intense negative emotions, and the inability to modulate them, are important precipitators in self-injurious behavior (Nixon, Cloutier, & Aggarwal, 2002). In addition, imagery of both self-injurious and suicidal behaviors is associated with immediate reductions in physiological and subjective measures of negative emotions (Welch, Linehan, Sylvers, Chittams, & Rizvi, 2008).

Additional support for the model comes from evidence suggesting that DBT is an efficacious intervention in reducing suicidal behavior and emotional problems in individuals with BPD. DBT treatment, which includes weekly behavioral skills training, has been shown effective across a wide variety of behavioral outcomes, including suicidal behavior, and emotional distress indicators such as depression and anger (Lynch, Trost, Salsman & Linehan, 2007). With highly suicidal BPD clients, DBT has been shown effective in two randomized control trials (Linehan,

* Corresponding author.
E-mail addresses: andrada@u.washington.edu (A.D. Neacsiu), slrizvi@rci.rutgers.edu (S.L. Rizvi), linehan@u.washington.edu (M.M. Linehan).

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Armstrong, Suarez, Allmon, & Heard, 1991; Linehan, Comtois, Murray, et al., 2006). Compared to treatment-as-usual (TAU) and treatment by community experts (TBE), DBT participants were significantly less likely to attempt suicide or self-injure, had less medically severe intentional self-injury episodes over the year, lower treatment drop-out, tended to enter psychiatric units less often and had fewer inpatient psychiatric days (Linehan et al., 1991; Linehan, Comtois, Murray, et al., 2006). McMain et al. (2009) also compared DBT with medication tapering to general psychiatric management (psychodynamic therapy, symptom-targeted pharmacotherapy, and suicide risk management) for highly suicidal BPD clients. They found significant reductions following treatment in suicidal behavior, health care utilization, depression, borderline psychopathology and anger, but no difference between the two conditions. Treatment gains were also maintained throughout one year of follow up for both groups. Among less severe patients (i.e., those with suicide risk but not necessarily a recent history of self-inflicted injury), DBT reduces anger (Linehan, McDavid, Brown, Sayrs, & Gallop, 2008), suicide ideation, hopelessness and depression (Koons et al., 2001; Lynch, Morse, Mendelson, & Robins, 2003; Verheul et al., 2003).

Furthermore, DBT skills training alone appears to be an effective intervention. Koons et al. (2006) provided only skills training to a group of 12 BPD participants. The eight completers improved significantly from pretreatment to six months follow-up on anger expression, control of anger expression, work role satisfaction and on number of hours worked weekly (Koons et al., 2006). Miller, Wyman, Huppert, Glassman, and Rathus (2000) interviewed suicidal adolescents with BPD features undergoing DBT on the usefulness of skills training. Mean subject ratings for each skill module suggested a high perceived efficacy of DBT skills (Miller et al., 2000).

In other populations, DBT skills training alone was a feasible treatment for oppositional-defiant adolescents (Nelson-Gray et al., 2006), adult ADHD patients (Hesslinger et al., 2002), treatment resistant major depressive disorder (Harley, Sprich, Safren, Jacobo, & Fava, 2008), women with binge eating disorder (Telch, Agras, & Linehan, 2000), difficult to manage correctional populations (Shelton, Sampl, Kesten, Zhang, & Trestman, 2009) and families of suicidal patients (Rajalin, Wickholm-Pethrus, Hursti, & Jokinen, 2009). DBT-skills-only outperformed standard group therapy in improving drop-out, depression, anger and affect instability among BPD clients (Soler et al., 2009). Lastly, a DBT skills only program, modified for a group of women who were victims of domestic abuse, yielded a reduction in depression, hopelessness and general distress (Iverson, Shenk, & Fruzzetti, 2009).

Despite this growing body of evidence, no study to date has examined whether DBT skills use is indeed one of the mechanisms of change associated with treatment efficacy. Relatedly, two studies have examined the frequency of skills practice in DBT. Lindenboim, Comtois, and Linehan (2007) and Stepp, Epler, Jahng, and Trull (2008) used DBT diary cards, a daily self-monitoring record on which clients were asked to circle the skills that they practiced on any given day, as the measure of frequency of skills used. Use of skills was assessed every week throughout one year of treatment. Both groups reported that participants in DBT practiced increasingly more skills over time (Lindenboim et al., 2007; Stepp et al., 2008). However, neither of these studies examined whether increase in skills use had an effect on treatment outcome.

The present study had two aims. The first aim was to evaluate the effectiveness of DBT versus control treatments in increasing DBT skills use. We hypothesized that DBT would increase behavioral skills use significantly more than control treatments. The second aim was to determine whether DBT skills use mediated primary treatment outcomes of suicide attempts, non-suicidal self-injury, anger and depression. Based on the DBT skills deficit model, we hypothesized that DBT skills use would fully mediate changes in suicidal behavior (suicide attempts and self inflicted injury) and in indicators of emotional distress (anger and depression).

Method

Participants & procedure

Participants for the current study were drawn from three larger outcome studies on DBT in which DBT skills use was measured. Participants included 63 recurrently suicidal BPD women (Linehan, Comtois, Murray, et al., 2006) and 45 BPD women with drug dependence (Linehan et al., 1999; Linehan et al., 2002) for a total of 108 women with BPD. Demographic information is provided in Table 1. There were no significant differences in demographic characteristics between the suicidal group and the drug dependent group.

Participants met criteria for BPD on both the International Personality Disorders Examination (Loranger, 1995) and Structured Clinical Interview for DSM-IV Axis II Personality Disorders (First, Spitzer, Gibbons, Williams, & Benjamin, 1996). Exclusion criteria included any psychotic disorder, epilepsy or other severe seizure disorder requiring antiseizure medications, other additional problems requiring immediate attention, or court referral. The most prevalent co-occurring Axis I disorders were major depression (60.2%), substance dependence (55.6%), PTSD (41.7%), panic disorder (26.9%), and social phobia (14.8%). See Table 1 for participant characteristics per treatment condition.

In each of the larger studies, participants provided informed consent and were randomly assigned to a treatment condition. Participants were placed in either a DBT condition ($n = 52$) or one of

Table 1
Participant characteristics break down per condition.

	Total Sample	DBT sample	Control treatment sample
N	108	54	54
Mean age (SD)	31.44 (7.39)	31.54 (6.94)	31.33 (7.88)
% Caucasian	77.8%	75.9%	79.6%
% African-American	10.2%	11.1%	9.3%
% Asian-American	2.8%	1.9%	3.7%
% Latino/Chicano	1.8%	1.8%	0.0%
% Other ethnicity	7.4%	11.1%	7.4%
% Less than college degree	82.2%	81.5%	83%
% Single, divorced or separated	89.8%	87.0%	93.0%
% <$15,000/year	88.3%	86.5%	90.2%
# of Suicide attempts at pre-treatment (SD; Range)	0.89 (1.26; 0–10)	0.72 (0.90; 0–4)	1.06 (1.52; 0–10)
# of Self-injury acts at pre-treatment (SD)	19.77 (65.50; 0–582)	11.98 (29.85; 0–158)	27.56 (87.45; 0–582)
Average # of current Axis I (SD)	3.04 (1.82)	2.89 (1.75)	3.19 (1.89)
Average # of lifetime Axis I (SD)	4.02 (1.93)	3.92 (1.93)	4.11 (1.95)
Mean DBT-WCCL DSS pretreatment score (SD)	1.50 (0.49)	1.45 (0.51)	1.55 (0.46)