The Use of Dialectical Behavior Therapy Skills Training as Stand-Alone Treatment: A Systematic Review of the Treatment Outcome Literature

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Objective: Dialectical behavior therapy (DBT) skills training is currently being administered as stand-alone treatment across a variety of clinical settings, serving diverse client populations. However, there is little empirical support for this use. **Method:** In this systematic review, we identified 17 trials employing a treatment that included DBT skills training in the absence of the other DBT modalities. **Results:** While the literature reviewed provides preliminary evidence of the utility of DBT skills training to address a range of mental health and behavioral problems, methodological limitations of published studies preclude us from drawing strong conclusions about the efficacy of skills training as a stand-alone treatment. **Conclusion:** We present an overview of the implementation of DBT skills training across clinical settings and populations. We found preliminary evidence supporting the use of DBT skills training as a method of addressing a range of behaviors. We provide recommendations for future research. © 2014 Wiley Periodicals, Inc. J. Clin. Psychol. 00:1–20, 2014.

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Dialectical behavior therapy (DBT) is a cognitive-behavioral therapy (CBT) originally developed to treat women with a history of chronic suicidal behavior who meet criteria for borderline personality disorder (BPD; Linehan, 1993a). Randomized controlled trials (RCTs) have found standard DBT to be an effective treatment for improving behavioral dyscontrol (i.e., suicidal behavior, therapy interfering behavior, hospitalizations, healthcare utilization, and anger expression) and social adjustment among women with BPD (e.g., Koons et al., 2001; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Linehan et al., 2006). Research supports the conceptualization of BPD as a disorder of emotion dysregulation (e.g., Linehan, Bohus, & Lynch, 2007); thus, some researchers posit that DBT may be an effective treatment for emotion dysregulation more generally (Neacsiu, Bohus, & Linehan, in press). If this is the case, then DBT may be useful in addressing emotion dysregulation symptoms (and the associated behavioral dyscontrol) that are common across a range of mental health disorders (Kring & Sloan, 2010).

Standard DBT includes multiple modes of treatment, including weekly individual therapy, weekly group skills training, and as-needed phone coaching to address skill and motivational problems common in people diagnosed with BPD (Linehan, 1993b). According to Linehan (1993b), these components, along with therapist consultation team meetings, address skills deficits (via group skills training modules and phone coaching), in addition to issues related to motivation for change (via individual therapy).

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Typically but not exclusively delivered in a group format, DBT skills training aims to teach skills to reduce dysfunctional behavior and facilitate the adoption of new behavioral, emotional, and thinking patterns (Linehan, 1993b). Four modules address skills deficits associated with BPD: (a) core mindfulness skills center on ways to strategically deploy attentional control; (b) emotion regulation skills teach clients to identify and influence emotions elicited by the environment; (c) interpersonal effectiveness skills help clients to learn to respond effectively to interpersonal demands and conflicts; and (d) distress tolerance skills teach clients to identify crisis situations and experience strong negative emotions while inhibiting dysfunctional behaviors that could serve to make the situation worse (Linehan, 1993b).

To date, little research has directly examined DBT skills training as a mechanism of change in DBT treatment for people diagnosed with BPD. The most promising preliminary evidence to date of the potency of DBT skills use comes from post hoc analyses of self-report data pooled from three previous RCTs conducted by the treatment developer (i.e., Linehan et al., 2006; Linehan et al., 1999; Linehan et al., 2002). Using hierarchical linear modeling, Neacsiu, Rizvi, and Linehan (2010) found that among women who met criteria for BPD, skills use *fully mediated* reductions in suicide attempts and depressive symptoms, and improvements in control of anger-related behaviors, at end of treatment (EOT) and at 4-month follow-up. While an instructive and important step forward, Neacsiu, Rizvi, and Linehan (2010) post hoc findings assess only the helpfulness of skills usage among BPD patients who were receiving standard DBT rather than the efficacy of skills usage as a stand-alone treatment.

Despite a lack of RCTs directly assessing the effectiveness of DBT skills training, the reality appears to be that DBT skills training is currently being conducted unsystematically across various clinical settings to address a range of treatment goals (e.g., Dimeff & Koerner, 2007). The popularity of DBT skills training as a treatment of choice in clinical practice is somewhat surprising, given that empirically supported treatments already exist for many disorders. It is, however, plausible that skills training alone may be suitable in certain settings, such as those that serve client populations uncomplicated by personality disorders. Further, skill training may be more desirable as a group-based intervention in resource-strapped settings. As a necessary response to current practices, a new avenue of research has begun to focus on the effectiveness of DBT skills training as a stand-alone treatment. Although DBT skills training may be effective when used in this way, few studies have examined this possibility empirically.

In this systematic review, we present literature on the feasibility, acceptability, and effectiveness of DBT skills training (i.e., taught in either group or individual formats) in the absence of other modes of DBT (e.g., phone consultation, standard DBT individual therapy). First, we will examine the ways in which the published studies have modified the skills or format from Linehan's original model (Linehan, 1993a). Then, we will report on the utility of DBT skills training in addressing a range of behavioral and mental health problems. Specifically, we will use the guidelines set forth by the Stage Model of Behavioral Therapies Research to critically evaluate study design elements and categorize studies into a specific stage of treatment development (see Rounsaville, Carroll, & Onken, 2001). Finally, we will provide specific recommendations for future research.

Method

We conducted this review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, which are consensus-generated best practices for reviews evaluating health interventions (Liberati et al., 2009). We included studies in which participants received at least one module of DBT skills training. Many studies we identified for potential consideration also included other treatment components. Thus, considering our aims, we included studies reporting on treatment packages that involved additional *non-DBT* treatment modalities (e.g., non-DBT individual therapy, individual treatment as usual [TAU]). While we recognize the inherent difficulty in knowing the exact nature of or skills taught in any TAU, we hoped to avoid including any studies that specifically included additional teaching of DBT skills outside of the formal skills training.

Studies that reported the use of a DBT consultation team were included in the present review, since this component of DBT does not involve clinician–client contact. In an attempt to review results indicative of skills acquired from DBT skills training alone, we excluded articles in which any participants received concurrent individual DBT and/or phone coaching (e.g., Lynch et al., 2007). Studies that included any DBT-oriented mental health treatment or case management outside of skills training were also excluded. Our goal was to provide findings regarding treatment of *individuals* participating in DBT skills training and thus we excluded articles related to the treatment of couples and families (e.g., Kirby & Baucom, 2007; Rajalin, Wickholm-Pethrus, Hursti, & Jokinen, 2009).

We searched various combinations of the words "skills," "skills group," "DBT," "dialectical behavior therapy," and "empirical studies" in PsycInfo, PubMed, Google Scholar, and CINAHL through June 2013. Each of these search engines yielded (the same) approximately 50 articles. In PubMed, for example, these terms yielded 52 references; from these, we examined 26 based on the relevance of the titles and abstracts, and then examined 21 articles in full text. A total of 17 articles met our inclusion criteria; as a check, we examined the reference lists of each of the articles to make sure that we had not missed other published work.

We developed a data extraction table that detailed each of the variables of interest for the present review. Using the extraction table as a template, each reviewer (three total reviewers) extracted data for one third of the articles. After completion of the initial data extraction, a second independent reviewer checked the accuracy of the extracted data. In the case of disagreements between two reviewers, a third reviewer examined the full article to make a determination. As some design elements were not reported across all trials, we systematically contacted all corresponding authors (and at least one co-author) via e-mail or telephone requesting the missing information. We received author responses accounting for 12 of the 17 studies in our review; three attempts over a 3-month period were made to reach each of these authors.

Results

For each of the 17 studies meeting our inclusion criteria, we extracted available information regarding the sample (i.e., sample size, basic demographics, and recruitment setting) and details on the treatment protocol (see Table 1), as well as any descriptive findings related to behavioral and mental health outcome variables.

DBT Implementation

The implementation of DBT skills training deviated markedly from the approach supported in RCTs for standard DBT (see Table 2). In general, these deviations reflect the researchers' (we would argue reasonable) attempts to adapt DBT skills training to their respective samples. The 17 trials in this review delivered DBT skills training to individuals with personality disorders (Long, Fulton, Dolley, & Hollin, 2011; Soler et al., 2009), mood disorders (Blackford & Love, 2011; Feldman, Harley, Kerrigan, Jacobo, & Fava, 2009; Harley, Sprich, Safren, Jacobo, & Fava, 2008), binge eating behaviors (Safer & Joyce, 2011; Safer, Robinson, & Jo, 2010; Telch, Agras, & Linehan, 2000; Telch, Agras, & Linehan, 2001), bulimia nervosa (Safer, Telch, & Agras, 2001), nonsuicidal self-injury (NSSI; Sambrook, Abba, & Chadwick, 2007), intellectual disability (Sakdalan, Shaw, & Collier, 2010), oppositional defiant disorder (ODD; Nelson-Gray et al., 2006), and attention deficit hyperactivity disorder (ADHD; Hirvikoski et al., 2011). Also, DBT skill training was delivered to samples of incarcerated individuals (Shelton, Kesten, Zhang, & Trestman, 2011; Shelton, Sampl, Kesten, Zhang, & Trestman, 2009) and people caring for adults with dementia who were at risk for elder abuse (Drossel, Fisher, & Mercer, 2011).

Of the 17 reviewed studies, 10 (59%) employed all four modules of DBT skills training, while seven (41%) omitted at least one module. Specifically, in a sample of inpatients diagnosed with personality disorders, Long and colleagues (2011) omitted the mindfulness module. All five studies assessing DBT skills training effectiveness for binge eating disorder (DBT-BED; Wiser & Telch, 1999) omitted the interpersonal effectiveness module (Safer et al., 2001; Safer at al., 2010; Safer & Joyce, 2011; Telch et al., 2000; Telch et al., 2001), both for the purpose of brevity and to

Table 1
Treatment Outcome Research on Stand-Alone DBT Skills Training

Article	Sample	Study design	Inclusion/exclusion criteria	Facilitators and training	Contact hours and completion definition (% completed)	Primary findings
			Stage IA: Therapy development/manual writing			
Sambrook et al. (2006)	$N = 34$ 6.3% Male Ethnicity not specified Ages: 20–53	Naturalistic study No control group Nonblind Pre-post measures No follow-up	(I) Parasuicidal behaviors (past 6 months)	2 DBT-trained psychologists	2-hour weekly for 18 weeks Completion: ≥50% attendance (76%)	Hospitalizations much lower 18 months posttreatment (30%) compared to 18 months pretreatment (61%).
Shelton et al. (2009)	$N = 124$ 72.6% Male Ethnicity not specified Age: ($M = 28$)	Quasi-experimental Nonequivalent control group Single-blind Pre-post measures 6- and 12-month follow-up	(I) Inmates deemed by officers to be difficult to manage (E) Unstable mental disorder; non-English speaking, <1 year left of sentence; psychopathy	2 research clinicians; facilitator training not described	Session length unavailable; twice-weekly for 16 weeks Completion: >50% of assessments (50%)	Significant improvement in behavior (i.e., number of discipline tickets from pre- to posttest). Significant improvement in overall psychiatric ratings, aggression, and anger.
Sakdalan et al. (2010)	$N = 9$ 77.8% Male Ethnicity no specified Age: ($M = 26$)	Pilot study No control group Nonblind Pre-post measures No follow-up	(I) Diagnosis of mild to moderate intellectual disability; prior charges or convictions for violent crimes	Facilitators not described; facilitator training not described; some training provided to case workers to support in homework completion	1.5-hour weekly for 13 weeks Completion: ≥80% attendance (67%)	Decrease in levels of risk behaviors and improvement in strengths across several domains. Improvement in global functioning.

Table 1
Continued

Article	Sample	Study design	Inclusion/exclusion criteria	Facilitators and training	Contact hours and completion definition (% completed)	Primary findings
Shelton et al. (2011)	$N = 38$ 100% Male 23% Caucasian 39% African American 35% Hispanic Age: ($M = 18$)	1 group design No control group Single-blind Pre-post measures No follow-up	(I) Youth in a correctional facility deemed to be "unpredictable" or "difficult to manage" (E) Unstable mental disorder; non-English speaking; <1 year from end of sentence; psychopathy	2 research clinicians; facilitator training not described	Session length unavailable; twice-weekly for 16 weeks Completion: ≥50% attendance (68%)	Significant improvements in physical aggression, impulsive behavior, and use of distancing as a coping strategy.
			Stage IB: Pilot trial (uncontrolled)			
Telch et al. (2000)	$N = 11$ 0% Men 91% Caucasian Age: ($M = 45$)	Uncontrolled trial Pre-post measures 3- and 6-month follow-up	(I) BED DSM-IV research criteria; Ages 18–65	2 female psychologists guided by a 20-session treatment manual developed for the purpose of this study; the lead therapist received 10-day intensive DBT training and the other was trained by lead therapist.	2-hour weekly for 20 weeks Completion: not specified (100%)	Eliminated binge eating in 82% of participants by EOT. Significant improvements related to weight, shape, and eating concerns.

Table 1
Continued

Article	Sample	Study design	Inclusion/exclusion criteria	Facilitators and training	Contact hours and completion definition (% completed)	Primary findings
Nelson-Gray et al. (2006)	$N = 32$ 85% Male 41% Caucasian 43% African American 3% Hispanic Age: ($M = 13$)	Quasi-experimental No control group Nonblind Pre-post measures No follow-up	(I) Outpatient adolescents with a diagnosis of ODD (E) Suicidal ideation	Master's-level therapists trained during a graduate behavior therapy class; "several therapists also attended workshops with certified instructors."	2-hour weekly session for 16 weeks Completion: ≥75% attendance (59%)	Per caregiver report, decrease in negative behaviors and increase in positive behaviors; per self-report, decrease in depression and externalizing and internalizing behaviors.
Blackford & Love (2011)	$N = 12$ 8% Men 100% Caucasian Age: ($M = 47$)	1 group design No control group Single-blind Pre-post measures No follow-up	(I) Adults with any Axis I diagnosis and/or BPD diagnosis (E) Previous DBT, active psychosis, or mental retardation	2 female therapists: 1 was an advanced registered nurse with formal training in DBT and 3.5 years of experience and the other was a licensed clinical social worker with formal training in DBT and 1.5 years of DBT group experience.	1.5-hour session weekly for 6 months Completion: outcome measures (70%)	Depression scores reduced by 30% from pre- to posttreatment.
Drossel et al. (2011)	$N = 24$ 21% Male Ethnicity not specified Ages: 38–87	Pilot study No control group Nonblind Pre-post measures 9- and 12-week follow-up	(I) Caregivers of adults with dementia with at least 5 hours/week of direct contact and met one or more risk factors for elder abuse	6 master's-level therapists who were affiliated with a graduate DBT clinical supervision team or had attended DBT workshops.	2.5-hour session weekly for 8 weeks Completion: 0 unexcused absences (67%)	Significant improvements in problem-focused coping, emotional well-being, and energy level. 40% of the participants evidenced ≥10% improvement in depressed mood.

Table 1
Continued

Article	Sample	Study design	Inclusion/exclusion criteria	Facilitators and training	Contact hours and completion definition (% completed)	Primary findings
Long et al. (2011)	$N = 44$ 0% Male Ethnicity not specified Age: ($M = 32$)	Pilot study No control group (compared completers v. noncompleters) Nonblind Pre-post measures No follow-up	(I) Personality disorder diagnosis; admitted to a medium security setting; history of disturbed behavior, self-harm, or emotional dysregulation	Accredited cognitive behavior therapist and a trained co-facilitator; facilitator DBT training not described	1.5-hour weekly for 17 weeks Completion: ≥70% attendance (66%)	Reductions in BPD symptoms and increased adaptive coping; completers were better able to engage in activities to recognize and reduce negative mood.
			Stage IB: Pilot trial (controlled)			
Safer et al. (2001)	$N = 31$ 0% men 87% Caucasian specified Age: ($M = 34$)	Randomized control trial Waitlist control group Pre-post measures	(I) At least one binge/purge episode per week in the previous 3 months Ages: 18–65 (E) BMI <17.5; psychosis; severe depression with suicidal ideation; active drug/alcohol abuse; concurrent psychotherapy or use of antidepressants or mood stabilizers	1 female psychiatrist delivered 20 sessions of individual psychotherapy aimed to teach emotion regulation skills based on skills manual adapted for BN.	50-minute individual sessions weekly for 20 weeks Completion: not specified (90%)	Decreased frequency of bingeing and purging, and fewer participants meeting criteria for BN, in DBT as compared to control group.
Telch et al. (2001)	$N = 44$ 0% Men 94% Caucasian Age: ($M = 50$)	Randomized control trial Waitlist control group Nonblind Pre-post measures 3- and 6-month follow-up	(I) BED DSM-IV research criteria; Ages: 18–65 (E) Current BED-related therapy; weight loss treatment; use of psychotropic medication; current substance abuse; suicidality; psychosis; pregnancy	2 female psychologists guided by a 20-session treatment manual developed for the purpose of this study; the lead therapist received 10-day intensive DBT training and the other was trained by lead therapist.	2-hour weekly for 20 weeks Completion: not specified (77%)	Decreased urge to eat when experiencing anger. More effective than no treatment in eliminating binge eating behaviors in reducing distress related to weight, shape, and eating concerns.

Table 1
Continued

Article	Sample	Study design	Inclusion/exclusion criteria	Facilitators and training	Contact hours and completion definition (% completed)	Primary findings
Harley et al. (2008)	$N = 24$ 25% Male 83% Caucasian Age: ($M = 42$)	Randomized control trial Waitlist control group Single-blind Pre-post measures 6-month follow-up	(I) Age 18–65; Diagnosis of MDD; stabilized on medication (6 weeks) (E) BPD; psychosis; suicidal; medical condition; CBT experience	2 experienced (7+ years) clinical psychologists who attended a 10-day workshop conducted by certified senior DBT trainers.	1.5-hour session weekly for 6 weeks Completion: ≥80% attendance (79%)	The DBT group had significantly less depression, greater life satisfaction, and better occupational functioning posttreatment compared to waitlist control group.
Feldman et al. (2009)	$N = 24$ 25% Male 83% Caucasian Age: ($M = 42$)	Randomized control trial Waitlist control group Single-blind Pre-post measures 6-month follow-up	(I) Ages: 18–65; Diagnosis of MDD; stabilized on medication (6 weeks) (E) BPD; psychosis; suicidal; unstable medical condition; CBT experience	2 experienced (7+ years) clinical psychologists who attended a 10-day workshop conducted by certified senior DBT trainers.	1.5-hour weekly session for 16 weeks Completion: ≥80% attendance (79%)	DBT group experienced significantly more improvement in depressive symptoms compared to controls.
Soler et al. (2009)	$N = 63$ 17% Male Ethnicity not specified Age: ($M = 29$)	Randomized control trial Treatment as usual (TAU) control group Single-blind Pre-post measures No follow-up	(I) Diagnosis of BPD; Age 18– 45 (E) Schizophrenia; psychosis; organic brain syndrome; substance dependence; bipolar disorder; mental retardation; MDD	Master's-level clinicians; DBT therapists trained by Behavioral Technology Transfer Group (BTech).	2-hour session weekly for 13 weeks Completion: ≤2 consecutive absences & 0 hospitalizations (48%)	DBT group had greater improvements in depression, anxiety, general psychiatric symptoms, irritability, anger, and affect instability relative to standard group therapy.

Table 1
Continued

Article	Sample	Study design	Inclusion/exclusion criteria	Facilitators and training	Contact hours and completion definition (% completed)	Primary findings
Safer et al. (2010)	$N = 101$ 15% Male 76% Caucasian 3% African American 13% Hispanic Age: ($M = 52$)	Randomized control trial TAU control group Single-blind Pre-post measures 3-, 6-, and 12-month follow-up	(I) BED DSM-IV research criteria; Age 18+; stable on medications (3 months) (E) BMI <17.5; concurrent BED-related therapy; purging; psychosis; substance abuse; suicidality; pregnancy	2 therapists (1 PhD/MD, 1 doctoral candidate) facilitated both conditions; facilitator DBT training not described.	2-hour weekly session for 20 weeks Completion: outcome measures completed (87% at 12-month follow-up)	Binge eating abstinence rates were 64% for the DBT-BED group and 36% for the control condition. There were no group differences at 12-month follow-up. The DBT-BED group condition had a lower dropout rate than the control condition.
Safer & Joyce (2011)	$N = 101$ 15% Male 71% Caucasian 13% Hispanic Age: ($M = 52$)	Randomized control trial TAU control group (compared rapid vs. nonrapid responders) Single-blind Pre-post measures 3-, 6-, and 12-month follow-up	(I) BED DSM-IV research criteria; Age 18+; stable on medications (3 months) (E) BMI <17.5; concurrent BED-related therapy; purging; psychosis; substance abuse; suicidality; pregnancy	2 therapists (1 PhD/MD, 1 doctoral candidate) facilitated both conditions; facilitator DBT training not described.	2-hour weekly session for 20 weeks Completion: outcome measures completed (87% at 12-month follow-up)	Significantly higher binge eating abstinence rates among DBT-rapid responders compared with DBT-nonrapid responders at both time points. Significantly higher percentages of rapid responders in DBT-BED condition (56%) compared to the control group (26%).

Table 1
Continued

Article	Sample	Study design	Inclusion/exclusion criteria	Facilitators and training	Contact hours and completion definition (% completed)	Primary findings
			Stage II: Efficacy trial			
Hirvikoski et al. (2011)	$N = 51$ 37% Male Ethnicity not specified Age: ($M = 39$)	Randomized control trial Semistructured control group Single-blind Pre-post measures No follow-up	(I) ADHD diagnosis; age 18+; stabilized on medication (3 months) (E) Substance abuse; mental retardation; organic brain injury; suicidality	2 CBT psychologists per group (total number of therapists not reported); "a few being trained in DBT as well."	2-hour weekly for 14 weeks Completion: ≤2 consecutive absences (80%)	DBT group had reductions in ADHD symptoms. No reductions observed for controls. DBT skills rated higher than control group in terms of treatment credibility.

Note. BPD = borderline personality disorder; MDD = major depressive disorder; ADHD = attention deficit hyperactivity disorder; ODD = oppositional defiant disorder; BED = binge eating disorder; BMI = body mass index; CBT = cognitive-behavioral therapy; DBT = dialectical behavior therapy; BN = bulimia nervosa; TAU = treatment as usual; EOT = end of treatment; (I) = inclusion criteria; (E) = exclusion criteria.

Table 2
Overview of Treatment Components, Concurrent Mental Health Services, and Inclusion Diagnoses

Article	All four modules	Omitted module(s)	Added module(s)	Consultation† team	Phone coaching	Case management	Non-DBT individual therapy	BPD	Suicidality/ severity
Blackford & Love (2011)	X						X		
Drossel et al. (2011)	X			NS	As needed[a]	As needed[a]	X		
Feldman et al. (2009)	X		X	X			X	Exclusion	Exclusion
Harley et al. (2008)	X		X	X			X	Exclusion	Exclusion
Hirvikoski et al. (2011)		IE/DT	X						Exclusion
Long et al. (2011)		CM/IE	X	NS				Axis II	X
Nelson-Gray et al. (2006)	X			NS					Exclusion
Safer & Joyce (2011)		IE	X						Exclusion
Safer et al. (2001)		IE							Exclusion
Safer et al. (2010)		IE	X						Exclusion
Sakdalan et al. (2010)	X								
Sambrook et al. (2006)	X								X
Shelton et al. (2009)	X					Follow-up			
Shelton et al. (2011)	X			NS					
Soler et al. (2009)	X							X	Exclusion
Telch et al. (2000)		IE							Exclusion
Telch et al. (2001)		IE							Exclusion

Note. X = included; BPD = borderline personality disorder; CM = Core Mindfulness Module; DT = Distress Tolerance Module; IE = Interpersonal Effectiveness Module.; NS = not specified.
[a]Authors did not measure use by participants.

allow for comparisons of these procedures with other interpersonal therapies for eating disorders (Wiser & Telch, 1999). More subtle additions were made across four studies (Feldman et al., 2009; Harley et al., 2008; Hirvikoski et al., 2011; Shelton et al., 2009), such as the inclusion of mindfulness exercises pulled from mindfulness-based cognitive therapy (MBCT; Feldman et al., 2009; Harley et al., 2008), CBT techniques to change maladaptive thoughts (Hirvikoski et al., 2011), and "DBT-style" case management during an 8-week follow-up period (Shelton et al., 2009).

Understandably, most studies attempted to adapt DBT skills training to address the specific needs of their respective samples. For example, eight studies explicitly described treatment modifications aimed to reduce particular behaviors or psychiatric symptoms present in their patient populations, namely, binge eating behaviors (Safer et al. 2001; Safer at al., 2010; Safer & Joyce, 2011; Telch et al., 2000; Telch et al., 2001), major depressive disorder (MDD; Feldman et al., 2009; Harley et al. 2008), and ADHD-related substance use and impulsivity (Hirvikoski et al., 2011). Since Drossel and colleagues (2011) aimed to assess the feasibility of DBT skills training in improving coping and self-care behaviors among caregivers of adults with dementia, they replaced references to behavior disorders or suicidal behaviors with more relevant examples of common stressors experienced by dementia caregivers. Four studies reported having made minor adjustments (primarily in terms of language) for individuals with below-average levels of cognitive functioning (Long et al., 2011), for adolescents (Nelson-Gray et al., 2006), and for incarcerated individuals (Shelton et al., 2011; Shelton et al., 2009).

The number and length of each session and the total number of hours of DBT skills training contact varied considerably across studies. The total number of hours of DBT training received across these studies is also less than the number of contact hours recommended in standard DBT (i.e., 24-week cycle of 2.5-hour weekly groups; Linehan et al., 1993a; Linehan et al., 1991). The number of sessions ranged from 9 to 32 (mode = 16 sessions). Studies were more consistent with respect to the length of each session (mode = 2 hours). Importantly, the total number of hours of DBT skills training during the course of the trials varied dramatically (17.5 hours to 47 hours), all of which is significantly shorter than the skills training in standard DBT, entailing 130 hours (2.5 hours per week, for 1 year). We were unable to make contact with the authors of two studies that did not report the length of each session (Shelton et al., 2011; Shelton et al., 2009).

The use of comparison groups varied widely as well, with a majority of studies using no comparison group at all. Specifically, eight studies had no comparison group during treatment (Blackford & Love, 2011; Drossel et al., 2011; Long et al., 2011; Nelson-Gray et al., 2006; Sakdalan et al., 2010; Sambrook et al., 2007; Shelton et al., 2009; Shelton et al., 2011; Telch et al., 2000), while four studies utilized waitlist controls (Feldman et al., 2009; Harley et al., 2008; Safer et al., 2001; Telch et al., 2001). Four studies used a range of comparison groups that involved either TAU or nonactive loosely structured discussion groups (Hirvikoski et al., 2011; Safer & Joyce, 2011; Safer et al., 2010; Soler et al., 2009).

Completion rates varied widely across studies, with rates ranging from 51% to 96% in DBT skills training groups. However, "completion" was operationalized variably across studies, which should be considered when interpreting these rates. In one study, participants needed to attend only 50% of sessions to be included in analyses (Sambrook et al., 2007); another study omitted completion requirements altogether (Telch et al., 2001). In some cases, there were significant differences between individuals who completed treatment and those who did not (Long et al., 2011; Nelson-Gray et al., 2006). For example, Nelson-Gray and colleagues (2006) found that noncompleters were more likely than completers to have psychiatric comorbidity at baseline.

Assessment of skills use. Most (14 of 17 or 82.4%) of the studies included some assessment of skill use. The most commonly reported behavioral outcomes used as proxies of skill development were related to social functioning, coping strategies, and emotional processing or regulation. One study (Sakdalan et al., 2010) developed a 10-item measure that assessed knowledge of basic DBT concepts (e.g., states of mind, coping skills); however, the authors did not publish these data (J. Sakdalan, personal communication, December 10, 2012). Only two studies explicitly assessed skills use (Telch et al., 2000; Telch et al., 2001). In both studies,

Telch and colleagues collected and extracted data on skills use from daily diary cards at each session (C. Telch, personal communication, December 18, 2012). Findings indicated that 89% of participants reported skills use at 6-month follow-up (Telch et al., 2001). Although most studies reported the use of diary cards in treatment, few coded data extracted from these reports of skills use.

Use of DBT consultation team. Three of the studies (17.6%) employed a DBT-style consultation team (Feldman et al., 2009; Harley et al., 2008; Sakdalan et al., 2010); this type of consultation team comprises multiple DBT treaters and is not hierarchical in structure. Given the nature of treatment outcome research and the importance of adherence to protocol, all of the other studies employed supervision that involved consultation with a DBT expert (often the study principal investigator); this style of supervision is not consistent with DBT-style consultation team due to its hierarchical structure.

Treatment Outcomes by Stage of Behavioral Therapy Research

The analysis below includes data derived from original articles, as well as unpublished information provided through personal communication with authors. Studies for which we did not receive additional information from the author were categorized based on the published description of study design elements.

Stage IA: Therapy development and manual writing. The goal of this stage of treatment development is feasibility testing, as well as development and refinement of treatment procedures. Of the 17 studies, four were in this stage of treatment development (Sakdalan et al., 2010, Sambrook et al., 2007; Shelton et al., 2009; & Shelton et al., 2011). These studies aimed to assess the feasibility of DBT skills training in new client populations, namely, individuals who are incarcerated and individuals with intellectual disability and a history of NSSI. We have provided a summary of findings pertaining to treatment feasibility.

Psychosocial functioning and coping. Improvements in global psychosocial functioning after DBT skills training were found in a sample of violent offenders with below-average cognitive abilities (Sakdalan et al., 2010). Also, significant improvements were observed in subjective well-being, perceived coping, and risk to self or others among people with NSSI behaviors, who may or may not have met criteria for an Axis II disorder (Sambrook et al., 2007). Among samples of incarcerated people, participants self-reported improvements in coping behaviors (Shelton et al., 2009), including an increase in the use of distancing as an effective coping technique (Shelton et al., 2011). Further, Shelton and colleagues (2011) found that the effect of DBT skills training on self-reported adaptive coping was significant for incarcerated adolescent men and women as well as adult women, but not for adult men.

Depressive symptoms. In a sample of adults reporting NSSI, Sambrook and colleagues (2007) found reductions in depressive symptoms at EOT. Mixed findings were reported among incarcerated samples. Namely, Shelton and colleagues (2011) found significant improvements in negative and positive affective symptoms for adults, but a second study failed to find significant improvement in scores of negative affect for youth (Shelton et al., 2011).

Behavioral dyscontrol. In a sample of adults with NSSI behaviors, Sambrook and colleagues (2007) found significant reductions in the number of psychiatric hospitalizations at 18 months posttreatment. The two studies that administered the DBT corrections modified skills group (DBT-CM; McCann, Ball, & Ivanoff, 2000) showed reductions in aggressive and impulsive behaviors at EOT, as evidenced by a reduction in disciplinary tickets (Shelton et al., 2009) and officer reports (Shelton et al., 2011) compared to baseline behavior. Similarly, in a sample of adult violent offenders with intellectual disability, Sakdalan and colleagues (2010) found global reductions in risk behaviors and improvements in prosocial behaviors.

Stage 1B: Pilot trial. The goal of this stage of treatment development is initial pilot testing of a developed protocol that has previously demonstrated feasibility. In addition, this phase aims to document clinically significant client improvement over the course of treatment. A majority of the articles we reviewed fell into this category (12 of 17 or 71.5%).

Psychosocial functioning and coping. Relative to control participants, improvements in global psychosocial functioning after DBT skills training were found in a sample of women with BED (Telch et al., 2001) and a sample of outpatients with BPD (Soler et al., 2009). In the only study to examine the effectiveness of DBT skills training (vs. standard group therapy) in men and women meeting criteria for BPD, Soler and colleagues (2009) found greater reductions in anxiety in the DBT group compared to the TAU group. Interestingly, although there was not a significant difference between these groups in global severity, both the DBT skills training group and the standard group therapy participants demonstrated significant reductions in BPD global symptom severity scores at EOT. Soler and colleagues (2009) also found reductions in anxiety among BPD outpatients in the DBT condition relative to TAU controls.

In studies lacking a comparison group, similar improvements in psychosocial functioning were reported. For example, improvements in self-reported global functioning from pre- to posttreatment were observed in a sample of caregivers of people living with dementia (Drossel et al., 2011); these improvements included enhanced emotional well-being and less fatigue. Another study found DBT skills training helpful in reducing anxiety (including posttraumatic symptoms) at EOT in women diagnosed with personality disorders (Long et al., 2011). Two studies that did not include a comparison group found participant-reported improvements in coping (Drossel et al., 2011; Long et al, 2011). Drossel and colleagues (2011) found a pre- to posttreatment increase in problem-focused coping in caregivers of people living with dementia. Similar improvements were noted among individuals with personality disorders, with participants reporting an increase from pre- to posttreatment in the use of coping skills, such as the ability to engage in activities to reduce negative mood and recognize one's own mood changes (Long et al., 2011). Findings from these uncontrolled studies provide preliminary evidence of the use of DBT skills training in improving overall functioning and coping skills.

Depressive symptoms. In a sample of individuals with MDD, Harley and colleagues (2008) found significantly greater improvement in depression scores at EOT for the DBT group compared to waitlist controls (Harley et al., 2008). In the same sample, Feldman and colleagues (2009) found an interaction in which an increase in self-reported emotion processing was associated with decreased depressive symptoms in the DBT group, but greater depressive symptoms in the waitlist control group. Reductions were also observed among BPD outpatients in the DBT group relative to controls in the TAU condition (Soler et al., 2009). Among studies lacking a comparison group, reductions in depressive symptoms were observed among adolescents with ODD (Nelson-Gray et al., 2006) and outpatients with mood disorders (Blackford & Love, 2011).

Behavioral dyscontrol. Relative to a psychodynamic group therapy comparison, Soler and colleagues (2009) found no differences in many core BPD features, such as self-harm or suicidality, in a sample of individuals with BPD. Further, Soler and colleagues (2009), found no difference between groups in the number of inpatient hospitalizations or NSSI at EOT.

Among studies lacking a control group, reductions in behavioral dyscontrol were observed. Specifically, in a study of mostly male adolescents diagnosed with ODD, Nelson-Gray and colleagues (2006) found overall decreases in antisocial, internalizing, and externalizing behaviors and an increase in prosocial behaviors. Further, caregiver reports of adolescents with ODD indicated improvement in interpersonal skills use (Nelson-Gray et al., 2006). Long and colleagues (2011) also found significant reductions in patient-reported suicidality in a sample of individuals with personality disorders at EOT.

Disordered eating. Five studies in the present review examined the effectiveness of DBT skills training on binge eating behaviors, although two of these articles report on the same sample. Authors of these five studies draw upon the theory that binge eating behavior is associated with

emotion dysregulation, and therefore reductions in binge eating behaviors are likely related to improvements in emotion regulation skills. Findings from studies that employed control groups suggest that DBT skills training appears to be effective at reducing binge eating behaviors at EOT compared to waitlist controls (Safer et al., 2001; Telch et al., 2001) and unstructured group therapy controls (Safer et al., 2010).

Further, posttreatment binge eating abstinence and reductions in binge eating frequency were achieved in both conditions, even though abstinence was achieved more quickly in the DBT group compared to the control group (Safer et al., 2010). Safer and Joyce (2011) found significantly higher binge eating abstinence rates at EOT and 1-year follow-up for DBT-rapid responders compared to DBT-nonrapid responders, but no difference in binge eating abstinence rates between control group rapid and nonrapid responders (Safer & Joyce, 2011). In their small, uncontrolled pilot study, Telch and colleagues (2000) found reductions in binge eating behavior at EOT and at 3- and 6-month follow-up.

Emotional processing and regulation. Among BPD outpatients, the DBT group showed greater reductions in anger, emptiness, and affect instability compared to an active treatment control group (Soler et al., 2009). In a sample of individuals with MDD, the DBT group experienced a greater increase in emotional processing compared to waitlist controls (Feldman et al., 2009). Similar reductions in anger at EOT, compared to baseline, were demonstrated among women with BED (Telch et al., 2001). Interestingly, Safer and colleagues (2010) found no sustained impact on emotion regulation at 3-, 6-, and 12-month follow-up assessments among participants with BED compared to an active therapy control group, again suggesting few differences in the posttreatment effect of DBT skills training compared to other modalities.

Treatment acceptability and retention. There was a trend for lower treatment expectations in the active therapy control group compared to the DBT group (Safer & Joyce, 2011). Significantly fewer participants dropped out of the DBT condition compared to active control conditions. For example, among individuals with BED, 34.5% dropped out of the DBT condition and almost twice as many (63.4%) participants dropped out of the active control condition (Telch et al., 2001). Both of these dropout rates are alarming and raise concern about treatment feasibility and acceptability.

Stage II: Efficacy trial. At this stage of treatment development, all of the 32 design elements required for an efficacy trial are present, including training manuals specifying techniques to be used or excluded, training programs for study clinicians, measures for evaluating therapist competence and adherence to protocol, and preliminary findings on the feasibility and acceptability of the therapy. From our review, only one study (Hirvikoski et al., 2011) included all of the Stage II design elements. Hirvikoski and colleagues (2011) sought to determine the efficacy of DBT skills training as a stand-alone treatment for ADHD in adults. They observed no differences between the DBT skills training group and the control group (i.e., loosely structured discussion group) in self-reported general well-being, sleep problems, stress, or disability in everyday life (Hirvikoski et al., 2011). Further, no differences in depressive symptoms between groups were found among adults with ADHD (Hirvikoski et al., 2011). The authors did find that participants in the DBT conditions reported improvements in their perceived ability to cope with ADHD-related deficits from pre- to posttreatment (Hirvikoski et al., 2011).

Discussion

DBT skills training as a stand-alone treatment is being applied across diverse clinical settings and populations, as a means of addressing an even wider array of problem behaviors and mental health concerns. Although there has been relatively little empirical support for the use of DBT skills training in this manner, post hoc analyses from RCT data have drawn attention to the importance of skills training in overall treatment effect (e.g., Neacsiu et al., 2010). In the present review, we examined the treatment outcome literature for DBT skills training as a stand-alone

treatment. Our review yielded 17 trials that explored the feasibility, acceptability, or efficacy of DBT skills training alone aimed at treating a range of psychosocial and behavioral problems.

The present review includes few studies deliberately designed to determine the efficacy of using standard DBT skills treatment. Rather, our review revealed findings from program evaluation efforts on the use of skills training to treat a particular group of participants (e.g., Seligman, 1995). The nascent stage of this research makes sense, given increased requirements for conducting clinical trials (e.g., manual development, therapist competency and fidelity, pilot evidence of treatment's promise) necessary to receive funding. Although these requirements have improved the methodological rigor of treatment outcome research, they have also greatly increased the burden on individual investigators, particularly investigators who are engaged primarily in clinical practice.

Eight published trials included both a DBT skills intervention group and a control group of some kind. From this group of studies, we can infer that DBT skills training alone may indeed be effective in addressing Axis I mental health symptoms (i.e., MDD, ADHD, and BED). These findings are consistent with results from post hoc analyses of combined data from all three original RCTs of standard DBT for individuals with BPD, showing a clinically significant reduction (or remission) in symptoms of Axis I disorders, even among participants who did not show reductions in BPD symptoms (Harned et al., 2008).

Additionally, from the only controlled study examining DBT skills training as a stand-alone treatment for BPD, findings are also consistent with Harned and colleagues' (2008) conclusions. Specifically, Soler and colleagues (2009) observed group differences in anxiety and depressive symptoms (DBT vs. standard group therapy), but not in BPD symptoms (e.g., suicidality, self-harm), at EOT. Taken together, these findings suggest that DBT skills training alone may be sufficient for addressing behaviors and symptoms of clients without Axis II features—and that DBT skills training alone is not sufficient to address behaviors such as self-harm or suicidality, which are common among individuals with BPD.

The general lack of randomization, control groups, and longer term follow-up in many of these studies is to be expected, given the early stage of this literature. These studies represent the creative application of DBT skills training as a means of improving global functioning by reducing dysfunctional behaviors. The results from trials that utilize a naturalistic study design provide important data for program evaluation, but are more limited in terms of the reliability of conclusions that we can draw about treatment efficacy.

Although we are cautious to interpret outcome data from uncontrolled studies, we can use these findings to inform future treatment research. There is some preliminary evidence of the feasibility and acceptability of DBT skills training across a range of populations (i.e., incarcerated adults and adolescents, adults with intellectual disability, and caregivers at risk for elder abuse perpetration); for example, a lack of adverse effects, low dropout rates, reported reductions in mental health symptoms and behavioral problems, and improvements in overall functioning at EOT. However, we remain unable to draw firm conclusions regarding DBT skills training as a stand-alone treatment given the wide variability in intervention content (e.g., omitted modules, non-DBT content), patient population, therapist training, and focus on mental and behavioral health problems. It is clear that more rigorous methods must be applied to treatment research within these groups before valid clinical recommendations can be made.

Limitations of Existing Research

The primary limitations of the reviewed trials include a lack of adequate control groups, significant deviations from the standard DBT skills training content and methods, and a lack of follow-up assessment. Further, no studies compared the use of DBT skills training to standard DBT. Nine studies in the current review employed one-sample pre- and posttest designs that limit us from evaluating the effectiveness of DBT skills modules relative to other treatment approaches. Pre-post designs prioritize internal validity over external validity, which may be appropriate given the early stage of this literature. However, this focus will need to evolve over time, as future trials are planned and executed. The number of therapy contact hours varied widely across studies, ranging from 9 to 32 hours.

Further, clinician training in DBT varied widely across studies (e.g., graduate coursework, 10-day workshop), with 7 of the 10 studies providing no information on the nature of clinician training at all. Some of the authors noted, and we agree, that these limitations not only reduce generalizability but also prevent the use of the most powerful statistical techniques necessary to ascertain the true impact of the treatment protocol.

Of the eight controlled trials in this review, only three trials included follow-up assessment at 1-year posttreatment; two of these trials found that differences between control and DBT skills group diminished over the course of the follow-up year (Safer et al., 2010; Shelton et al., 2009). Here it is important to note that of the three studies that examined treatment outcomes during a follow-up period, only Safer and colleagues (2010) used a control group (active treatment); therefore, we can posit that the long-term impact of DBT skills group may not be due to group assignment (Safer et al., 2010). Again, we are limited in our ability to draw conclusions about the enduring benefit of DBT skills training versus other treatment modalities.

Limitations of Present Review

Before providing specific recommendations for future research, we must note a few limitations of the present review. For example, to clearly examine the effectiveness of DBT skills training as a stand-alone treatment, this review excluded articles in which participants received concurrent individual DBT therapy or markedly modified skills training, but included studies in which participants concurrently engaged in non-DBT individual or group therapy, as well as studies in which therapists participated on a DBT consultation team. These exclusion criteria limited the number of articles included in this review and thus our ability to generalize more widely. Additionally, while the existing literature provides some preliminary evidence of the potential efficacy of utilizing DBT skills training without other components, methodological limitations made it difficult to draw firmer conclusions and make definitive treatment recommendations.

Recommendations for Future Research

Future research could employ a number of techniques to address study design limitations present in the current review. Researchers interested in understanding the impact of modified DBT skills treatment could implement modifications for specific populations, and then revise study protocols to finalize treatment manuals that provide specific guidance as to which techniques and modules to include or exclude (for a concise description of the intervention development process, see Rounsaville et al., 2001). Once these have been established, the modifications can be standardized and RCTs can be implemented to determine the efficacy of a standardized protocol for addressing specific symptoms in a specific population (American Psychological Association [APA], 2002).

During Stage IA, researchers are given creative liberty to design a treatment that, based on previous basic and applied research, might be helpful for a specific population (APA, 2002; Rounsaville et al., 2001). However, to move to Stage IB, researchers must demonstrate the feasibility of their modified DBT protocol. Many of the reviewed trials tested "combination treatments" (Chambless & Hollon, 1998), which preclude us from determining if the treatment effect is of DBT skills training or other non-DBT components. To provide clarity on the potency of each component, researchers could attempt to implement standard DBT skills training (with all four modules) in patient populations, and then proceed to omit or add modules or techniques in an iterative process before moving on to Stage II treatment research (Rounsaville et al., 2001).

To determine the efficacy and validity of standard DBT skills treatment, future researchers must conduct RCTs (a) in which manualized DBT skills treatment is compared to other therapeutic methods (as well as to standard DBT) for a narrowly defined clinical population and (b) based on a scientifically valid model of disorder for that group. At the same time, more naturalistic (Stage IA) studies of skills training in the field should be replicated to determine the feasibility of DBT treatment in a variety of populations and settings. In cases for which resources required for more rigorous design are not available, researchers could employ

systematized clinical observation to naturalistic studies, for example, by examining qualitative data and replicating findings across case studies (APA, 2002).

Considering the high cost and professional investment required to administer a DBT group (e.g., two group leaders, weekly 2.5 hour sessions, expensive and time-consuming group leader training and supervision), it is important that future studies compare DBT skills group treatment to other forms of therapy to determine whether DBT skills training is actually more effective than shorter term and less expensive treatments. Further, studies should attempt to recruit larger samples to achieve adequate power to conduct requisite inferential analyses (Del Boca & Darkes, 2007).

Future research would benefit from more precise measurements. For example, studies should use outcome measures that are sensitive to change over time, incorporate process measures that have been used or validated in other treatment modalities, measure therapist adherence to the treatment in a reliable and valid manner, and employ standardized assessments of skills use and skills acquisition (APA, 2002; Chambless & Hollon, 1998; Rounsaville et al., 2001).

It is imperative that researchers establish a standardized way to assess skills use to determine (a) if group training is an effective way to teach skills, (b) if behavioral outcomes are due to skills use, and (c) if participants who consistently use skills during treatment and posttreatment evidence better outcomes than participants who do not use skills between sessions or in the posttreatment assessment period. For example, there is currently one promising measure of DBT skills use, the DBT Ways of Coping Checklist (Neacsiu, Rizvi, Vitaliano, Lynch, & Linehan, 2010), which could be adapted and tested for reliability and validity in other populations. Further, studies should report specific skills used by participants (as this data can easily be extracted from diary cards) so that clearer connections between specific skills and behavior changes can be drawn.

Considering several authors' assertions that DBT emotion regulation skills decrease the affective instability common to many psychological disorders, future research should utilize dismantling designs to evaluate empirically the active ingredients of DBT that are most beneficial to client health and well-being and determine whether DBT can still be effective when some components are absent. The use of longitudinal tests of statistical mediation would be helpful to determine the extent to which increased skills use at EOT predicts clinical improvements at follow-up (Greenhouse, Stangl, & Bromberg, 1989; Hollon & Beck, 1994). These studies would help to determine whether skills learned in controlled settings (e.g., inpatient units, correctional facilities) are useful when clients have transitioned away from these settings and are functioning independently within society. These longitudinal studies would help to determine the least amount of resources required to obtain the most benefit for skills training participants. In this way, settings that are not able to provide the full DBT package would be able to provide evidence-based treatment comprised of the "essential" DBT components.

Currently, DBT skills training modules are being utilized in some capacity in a wide variety of clinical settings that serve a diversity of client populations (e.g., Dimeff & Koerner, 2007). Therefore, it is imperative that future research focuses on determining the effectiveness of skills-only treatment in an effort to develop pragmatic standards of care.

References

American Psychological Association (2002). Criteria for evaluating treatment guidelines. American Psychologist, 57, 1052–1059.

Blackford, J. U., & Love, R. (2011). Dialectical behavior therapy group skills training in a community mental health setting: A pilot study. International Journal of Group Psychotherapy, 61, 645–657.

Chambless, D. L., & Hollon, S. D. (1998). Defining empirically supported therapies. Journal of Consulting and Clinical Psychology, 66, 7–18.

Del Boca, F. K., & Darkes, J. (2007). Enhancing the validity and utility of randomized clinical trials in addictions treatment research: III. Data processing and statistical analysis. Addiction, 102, 1356–1364.

Dimeff, L. A., & Koerner, K. (2007). Dialectical behavior therapy in practice: Applications across disorders and settings. New York: Guilford Press.

Drossel, C., Fisher, J. E., & Mercer, V. (2011). A DBT skills training group for family caregivers of persons with dementia. Behavior Therapy, 42, 109–119.

Feldman, G., Harley, R., Kerrigan, M., Jacobo, M., & Fava, M. (2009). Change in emotional processing during a dialectical behavior therapy-based skills group for major depressive disorder. Behaviour Research and Therapy, 47, 316–321.

Greenhouse, J. B., Stangl, D., & Bromberg, J. (1989). An introduction to survival analysis: Statistical methods for analysis of clinical trial data. Journal of Consulting and Clinical Psychology, 57, 536–544.

Harley, R., Sprich, S., Safren, S., Jacobo, M., & Fava, M. (2008). Adaptation of dialectical behavior therapy skills training group for treatment-resistant depression. Journal of Nervous and Mental Disease, 196, 136–143.

Harned, M. S., Chapman, A. L., Dexter-Mazza, E. T., Murray, A., Comtois, K. A., & Linehan, M. M. (2008). Treating co-occurring Axis I disorders in recurrently suicidal women with borderline personality disorder: A 2-year randomized trial of dialectical behavior therapy versus community treatment by experts. Journal of Consulting and Clinical Psychology, 76, 1068–1075.

Hirvikoski, T., Waaler, E., Alfredsson, J., Pihlgren, C., Holmström, A., Johnson, A., … Nordström, A. (2011). Reduced ADHD symptoms in adults with ADHD after structured skills training group: Results from a randomized controlled trial. Behaviour Research and Therapy, 49, 175–185.

Hollon, S. D., & Beck, A. T. (1994). Cognitive and cognitive-behavioral therapies. In A. E. Bergin & S. L. Garfield (Eds.). Handbook of psychotherapy and behavior change (pp. 428–466). New York: Wiley.

Kirby, J., & Baucom, D. (2007). Treating emotion dysregulation in a couples context: A pilot study of a couples skills group intervention. Journal of Marital and Family Therapy, 33, 375–391.

Koons, C., Robins, C. J., Tweed, J. L., Lynch, T. R., Gonzalez, A. M., … Bastian, L. A. (2001). Efficacy of dialectical behavior therapy in women veterans with borderline personality disorder. Behavior Therapy, 32, 371–390.

Kring, A. M., & Sloan, D. M. (2010). Emotion regulation and psychopathology. New York: Guilford Press.

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gotzsche, P. C., Ioannidis, J. P. A., … Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analysis of studies that evaluate health care intervention: Explanation and elaboration. Public Library of Science Medicine, 6, e1000100.

Linehan, M. M. (1993a). Cognitive-behavioral treatment of borderline personality disorder. New York: Guilford Press.

Linehan, M. M. (1993b). Skills training manual for treating borderline personality disorder. New York: Guilford Press.

Linehan, M. M., Armstrong, H. E., Suarez, A., Allmon, D., & Heard, H. I. (1991). Cognitive-behavioral treatment of chronically parasuicidal borderline patients. Archives of General Psychiatry, 48, 1060–1064.

Linehan, M. M., Bohus, M., & Lynch, T. (2007). Dialectical behavior therapy for pervasive emotion dysregulation: Theoretical and practical underpinnings. In J. Gross (Ed.), Handbook of emotion regulation (pp. 581–605). New York: Guilford Press.

Linehan, M. M., Comtois, K., Murray, A., Brown, M., Gallop, R., Heard, H., … Lindenboim, N. (2006). Two-year randomized controlled trial and follow-up of dialectical behavior therapy vs. therapy by experts for suicidal behaviors and borderline personality disorder. Archives of General Psychiatry, 63, 757–766.

Linehan, M. M., Dimeff, L. A., Reynolds, S. K., Comtois, K. A., Welch, S. S., & Heagerty, P. (2002). Dialectical behavior therapy versus comprehensive validation therapy plus 12-step for the treatment of opioid dependent women meeting criteria for borderline personality disorder. Drug and Alcohol Dependence, 37, 13–26.

Linehan, M. M., Schmidt, H., Dimeff, L. A., Craft, J. C., Kanter, J., & Comtois, K. A. (1999). Dialectical behavior therapy for patients with borderline personality disorder and drug dependence. American Journal on Addictions, 8, 279–292.

Long, C. G., Fulton, B., Dolley, O., & Hollin, C. R. (2011). Dealing with feelings: The effectiveness of cognitive behavioural group treatment for women in secure settings. Behavioural and Cognitive Psychotherapy, 39, 243–247.

Lynch, T. R., Cheavens, J. S., Cukrowicz, K. C., Thorp, S. R., Bronner, L., & Beyer, J. (2007). Treatment of older adults with co-morbid personality disorder and depression: A dialectical behavior therapy approach. International Journal of Geriatric Psychiatry, 22, 131–143.

McCann, R. A., Ball, E. M., & Ivanoff, A. (2000). DBT with an inpatient forensic population: The CMHIP forensic model. Cognitive and Behavioral Practice, 7, 447–456.

Neacsiu, A., Rizvi, S., & Linehan, M. (2010). Dialectical behavior therapy skills use as a mediator and outcome of treatment for borderline personality disorder. Behaviour Research and Therapy, 48, 832–839.

Neacsiu, A. D., Bohus, M., & Linehan, M. M. (in press). Dialectical Behavior Therapy Skills: An Intervention for Emotion Dysregulation. In J. J. Gross (Ed.). Handbook of Emotion Regulation, Volume 2. Guilford Press, New York.

Neacsiu, A. D., Rizvi, S. L., Vitaliano, P. P., Lynch, T. R., & Linehan, M. M. (2010). The Dialectical Behavior Therapy Ways of Coping Checklist (DBT-WCCL): Development and psychometric properties. Journal of Clinical Psychology, 66, 1–20.

Nelson-Gray, R., Keane, S., Hurst, R., Mitchell, J., Warburton, J., Chok, J., ... Cobb, A. R. (2006). A modified DBT skills training program for oppositional defiant adolescents: Promising preliminary findings. Behaviour Research and Therapy, 44, 1811–1820.

Rajalin, M., Wickholm-Pethrus, L., Hursti, T., & Jokinen, J. (2009). Dialectical behavior therapy-based skills training for family members of suicide attempters. Archives of Suicide Research, 13, 257–263.

Rounsaville, B. J., Carroll, K. M., & Onken, L. S. (2001). A stage model of behavioral therapies research: Getting started and moving from stage I. Clinical Psychology: Science and Practice, 8, 133–142.

Safer, D. L., & Joyce, E. E. (2011). Does rapid response to two group psychotherapies for binge eating disorder predict abstinence? Behaviour Research and Therapy, 49, 339–345.

Safer, D. L., Robinson, A. H., & Jo, B. (2010). Outcome from a randomized controlled trial of group therapy for binge eating disorder: Comparing dialectical behavior therapy adapted for binge eating to an active comparison group therapy. Behavior Therapy, 41, 106–120.

Safer, D. L., Telch, C. F., & Agras, W. S. (2001). Dialectical behavior therapy for bulimia nervosa. American Journal of Psychiatry, 158, 632–634.

Sakdalan, J., Shaw, J., & Collier, V. (2010). Staying in the here-and-now: A pilot study on the use of dialectical behaviour therapy group skills training for forensic clients with intellectual disability. Journal of Intellectual Disability Research, 54, 568–572.

Sambrook, S., Abba, N., & Chadwick, P. (2007). Evaluation of DBT emotional coping skills groups for people with parasuicidal behaviours. Behavioural and Cognitive Psychotherapy, 35, 241–244.

Seligman, M. E. P. (1995). The effectiveness of psychotherapy: The consumer reports study. American Psychologist, 50, 965–974.

Shelton, D., Kesten, K., Zhang, W., & Trestman, R. (2011). Impact of a dialectic behavior therapy—corrections modified (DBT-CM) upon behaviorally challenged incarcerated male adolescents. Journal of Child and Adolescent Psychiatric Nursing, 24, 105–113.

Shelton, D., Sampl, S., Kesten, K. L., Zhang, W. L., & Trestman, R. L. (2009). Treatment of impulsive aggression in correctional settings. Behavioral Science and the Law, 27, 787–800.

Soler, J., Pascual, J., Tiana, T., Cebrià, A., Barrachina, J., Campins, M., ... Pérez, V. (2009). Dialectical behaviour therapy skills training compared to standard group therapy in borderline personality disorder: A 3-month randomised controlled clinical trial. Behaviour Research and Therapy, 47, 353–358.

Telch, C., Agras, S., & Linehan, M. (2000). Group dialectical behavior therapy for binge eating disorder: A preliminary uncontrolled study. Behavior Therapy, 31, 569–582.

Telch, C., Agras, W., & Linehan, M. (2001). Dialectical behavior therapy for binge eating disorder. Journal of Consulting and Clinical Psychology, 69, 1061–1065.

Wiser, S., & Telch, C. F. (1999). Dialectical behavior therapy for binge eating disorder. Journal of Clinical Psychology, 55, 755–768.