Dialectical Behavior Therapy for Borderline Personality Disorder

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Key Words

intentional self-injury, suicide, DBT, emotion regulation, mindfulness

Abstract

Since the introduction of Linehan's treatment manuals in 1993, dialectical behavior therapy (DBT) has been widely disseminated throughout multiple therapeutic settings and applied to a variety of diagnoses. The enthusiasm with which it was embraced by clinicians early on led some to question whether DBT's popularity was outstripping its empirical foundation. Most of the specific concerns raised regarding DBT's early empirical base have been meaningfully addressed in subsequent randomized controlled trials. This review provides a brief introduction to DBT, followed by a critical appraisal of empirical support for the treatment and a discussion of current research trends.

Contents

INTRODUCTION

DBT: dialectical behavior therapy

BPD: borderline personality disorder

Dialectic: the development of two opposing positions (the thesis and antithesis) that are resolved through formation of a synthesis

Following the publication of Linehan's (1993a,b) treatment manuals and the first intensive training for therapists outside of the University of Washington in 1992, dialectical behavior therapy (DBT) for the treatment of borderline personality disorder (BPD) has grown increasingly popular among clinicians, patients, and mental health advocate groups. However, excitement generated by new treatments should correspond with the empirical data supporting the efficacy of the new approach. In an attempt to align enthusiasm with empiricism, several reviewers comprehensively critiqued the body of existent DBT research in a special section of *Clinical Psychology: Science and Practice* (Levendusky 2000, Scheel 2000, Swenson 2000, Turner 2000b, Westen 2000, Widiger 2000). The goals of this review are to continue with this approach by conservatively scrutinizing the status of DBT research and evaluating the rigor with which criticisms of prior research have been addressed to date.

Prior to any careful review of an existing treatment literature, it is useful to define the necessary elements required for an intervention to be classified as representative of the treatment. These issues are particularly important considering the growing number of adaptations developed based on DBT. For our review, we focused primarily on randomized controlled trials (RCTs), and we used criteria for study inclusion based in part on a currently ongoing meta-analytic study of DBT (S. McMain, personal communication). Consequently, we included studies if they met the following criteria: (*a*) At least one of the

treatment arms was DBT or described as cognitive behavior therapy and based on treatment protocols specified in Linehan's (1993a,b) books. (*b*) The DBT treatment must have included individual therapy sessions, a formal skills-training group, a therapist consultation team, and some form of coaching (typically telephone for outpatient care), and/or the function associated with each of these modes was addressed in some fashion (e.g., individual therapy conducted over the telephone). (*c*) DBT treatment length must have been at least six months for outpatient programs and at least two months for inpatient treatments. (*d*) Outcome measures must have included at least one scaled measure of self-injury. (*e*) The study specifically states that it is an RCT, or a review of methodology reveals that the study meets RCT criteria (random assignment of subjects to two or more treatment groups). We also report whether the study included measures of adherence. For RCT studies using DBT in non-BPD populations, we used the same criteria with the exception that a measure of self-harm was not required.

Using this as our definitional criteria, we note that DBT has garnered considerably greater empirical evidence for its efficacy in treating BPD since the critiques in 2000, warranting designation as well-established when utilizing criteria outlined by the Division 12 Task Force (Chambless & Hollon 1998). To be considered well-established according to this criteria, a treatment must have demonstrated efficacy in at least two rigorous RCTs with superiority over placebo control conditions or another bona fide treatment (Chambless & Ollendick 2001). At this time, DBT has been evaluated and found to be efficacious for the treatment of BPD in seven well-designed RCTs conducted across four independent research teams (Koons et al. 2001; Linehan et al. 1991, 1993, 1994, 1999, 2002, 2006b; Turner 2000a; Verheul et al. 2003). In addition, it has demonstrated efficacy in RCTs for chronically depressed older adults (Lynch et al. 2003), older depressed adults with comorbid personality disorder (Lynch et al. 2006b), and eating-disordered individuals (Safer et al. 2001, Telch et al. 2001).

In this chapter, we first briefly review the principles and strategies associated with DBT treatment and adherence measures used in treatment studies. Next, we critically review findings from RCTs for BPD and other DBT adaptations that have been published. We then mention published DBT studies that were not RCTs (e.g., quasi-experimental design, open trial). Finally, we outline future directions for research.

OVERVIEW OF DIALECTICAL BEHAVIOR THERAPY TREATMENT APPROACHES

DBT was originally developed as a treatment for people who meet criteria for BPD, particularly those who are highly suicidal. Since then, DBT has been reformulated and conceptualized as a treatment for multidiagnostic treatment-resistant populations. DBT draws its principles from behavioral science, dialectical philosophy, and Zen practice. The therapy balances acceptance and change, with the overall goal of helping patients not only to survive, but also to build a life worth living. In addition, DBT explicitly helps therapists avoid becoming burned out, as often happens in the treatment of behaviors associated with BPD or multidiagnostic cases.

A guiding principle of DBT is summarized in the biosocial theory elucidated by Linehan. Briefly, the biosocial theory of BPD asserts that the client's emotional and behavioral dysregulation are elicited and reinforced by the transaction between an invalidating rearing environment and a biological tendency toward emotional vulnerability (Linehan 1993a). Practically speaking, this theory encourages DBT therapists to view client behaviors as natural reactions to environmental reinforcers. This theory also informs treatment, which focuses on shaping and reinforcing more adaptive behaviors while also providing clients with a validating environment.

Randomized controlled trial (RCT): controls for factors that jeopardize internal validity (history, maturation of participants, testing, instrumentation, statistical regression, selection, and experimental mortality)

Biosocial theory: the transaction between an invalidating rearing environment and a biological tendency toward emotional vulnerability produce a dysregulation in the client's emotional system

Table 1 Interventions that serve the five functions of dialectical behavior therapy

Function	Example interventions
1. Enhance capabilities	Behavioral skills training, modeling, behavioral rehearsal, psychoeducation, coaching and feedback, homework
2. Increase motivation	Behavioral assessment, chain analysis, contingency management, exposure-based strategies, cognitive modification
3. Enhance generalization to the natural environment	Phone and email consultation, homework, in vivo interventions, client review of therapy tapes
4. Structure the environment	Case management, family or marital interventions
5. Enhance therapist capabilities and motivation to treat effectively	Weekly consultation team meeting, treatment manuals, supervision, continuing education

Intentional self-injury: nonfatal, intentional self-harm resulting in tissue damage, illness, or risk of death or ingestion of drugs or other substances with clear intent to cause bodily harm or death

In DBT, therapists pay particularly close attention to the factors that maintain dysfunctional behaviors, such as reinforcers of self-injurious behavior and aversive consequences of more effective behavior. Whereas behavioral principles focus on changing ineffective behavior, a great challenge in treating individuals with BPD is to balance the efforts to change with acceptance and validation. In general, a dialectical philosophy, which synthesizes an initial proposition or thesis that is opposed by a contradictory antithesis, helps to provide this balance. For example, an organizing assumption dialectically considers clients to radically be doing the best that they can while at the same time recognizing that they need to do better and behave more effectively.

In the case of BPD, one of the most frequent dialectical tensions is that a behavior, such as self-injury behavior, is both functional (it helps the patient reduce distress in the short term) and dysfunctional (the self-injury produces negative effects on health and interpersonal functioning in the long term, and is associated with the risk of suicide). The dialectical tension is resolved by finding the synthesis, by seeking to find what is being left out of the thesis and antithesis (e.g., validating the need to relieve distress while helping the client utilize skills that function to reduce stress and the long-term negative consequences of repeated self-injury). The middle path approach of dialectics is an inherent feature of Zen, and DBT utilizes these principles in an effort to help clients behave more effectively and live more balanced lives.

Functions and Modes of Dialectical Behavior Therapy

DBT is a comprehensive treatment designed to serve five functions (see **Table 1**) through interventions delivered in four modes of therapy. The first mode of therapy involves a traditional dyadic relationship between the client and his or her individual therapist. The individual DBT therapist takes primary responsibility for a client's treatment by overseeing progress toward therapy goals, integration of therapy modes, and management of life-threatening behaviors and crises. Individual DBT therapy is organized around the following target hierarchy: (*a*) eliminating life-threatening behaviors including suicide attempts and intentional self-injury, (*b*) eliminating therapy-interfering behavior including nonattendance or not doing homework, and (*c*) ameliorating behaviors and factors leading to decreased quality of life including homelessness, drug dependence, or other severe axis I disorders.

The second mode of therapy, skills training, is a more didactic intervention that teaches clients four primary skill sets: mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness. Mindfulness primarily has to do with the quality of awareness that an individual brings to the present experience. Mindfulness practice often involves letting go of attachments and becoming one with current experience, without judgment or any effort to change what is. At the same time, mindfulness involves the use of skillful means and the finding of a middle path between extremes or polarities. Skills taught in this module include observing, describing, fully participating, being

nonjudgmental, focusing on one thing in the present moment, and being effective over being right. Distress-tolerance training attempts to equip clients with a range of specific methods aimed at improving the client's capacity to tolerate aversive situations, feelings, or thoughts; to survive crises; and to radically accept that which cannot be changed. Emotion-regulation training tends to be more change focused and includes specific methods designed to identify what emotion is being experienced, to decide whether the emotion is justified or fits the current circumstances, and then to learn ways to modulate the emotion if the client decides he or she would like to change his or her emotional experience. Finally, interpersonal effectiveness training is designed to help clients interact with others in ways that allow them to improve relationships while simultaneously maintaining their own personal values and self-respect.

A third mode of therapy in DBT, skills generalization, focuses on helping clients integrate the skills and principles taught in DBT into real-life situations. In practice, this usually translates into telephone contact outside of normal therapy hours (i.e., coaching calls). These calls are typically brief interactions focused on helping clients apply specific skills in specific circumstances.

The fourth mode of therapy employed in DBT is a consultation team designed to support the therapists in working with difficult clients. The teams serve several important functions, including reducing therapist burnout, providing therapy for the therapist, improving phenomenological empathy for clients, and providing consultation for individual therapists or group skills trainers regarding specific client difficulties.

The goal of the treatment approaches outlined above can be distilled down into the following process: the reduction of ineffective action tendencies linked with dysregulated emotions (Chapman & Linehan 2006). The core problem in BPD is hypothesized to not be excessively intense emotions, but instead the pervasive habitual breakdown of the patient's cognitive, behavioral, and emotional regulation systems when he or she experiences intense emotions (Linehan 1993b). Consequently, the primary goal of treatment is to help the patient to engage in functional, life-enhancing behavior, even when intense emotions are present. For example, mindfulness skills and opposite action (i.e., behaving opposite to the action urges of an unjustified emotion) are hypothesized to work by encouraging nonreinforced engagement with emotionally evocative stimuli, while blocking dysfunctional escape, avoidance behaviors, or other ineffective responses to intense emotions (Lynch et al. 2006a).

Four Stages of Dialectical Behavior Therapy

DBT is a flexible treatment that varies in its approach depending on the client's current level of disorder. This tailoring of approach to the client's current needs can be roughly operationalized into four stages of treatment. A patient engaging in imminently dangerous or deadly behaviors, such as suicidal behaviors or severe heroin addiction, enters DBT at the first stage of treatment. Treatment during this stage is focused on eliminating the most severely disabling and dangerous behaviors. Once behavioral dysfunction is under control, patients move to stage two of treatment, which focuses on shifting from quiet desperation to emotional experiencing. Stage two may include helping clients experience emotions after a lifetime of avoiding emotions or inhibited grieving associated with posttraumatic stress disorder. Stage three addresses problems in living, such as uncomplicated axis I disorders, career problems, and marital problems. Finally, stage four involves helping the client develop the capacity for freedom and joy. Treatment targets in stage four may include working on reducing feelings of emptiness or loneliness and increasing experiences associated with feeling complete. Stage one targets are the focus of most of the empirical research available on DBT to date.

However, the ultimate goal of DBT is to provide a comprehensive treatment designed to help clients at all levels of psychological distress achieve optimal functioning.

Therapy Adherence in Dialectical Behavior Therapy

There is no agreed upon approach for conducting manipulation checks in psychotherapy outcome studies (Am. Psychiatr. Assoc. 2001). In addition, in a review of the literature, only approximately 26% of recently completed psychotherapy outcome studies even used specific treatment protocols, less than half these studies reported therapist training, and only 13% documented therapist competence (Luborsky et al. 1997). Including ratings of adherence in intervention research is important, however, because adherence provides information about the purity and dose of a treatment that is received. Additionally, adherence ratings allow researchers to examine interventions that are specific to a particular treatment modality and those that are common to multiple treatment modalities. In DBT-specific treatment, protocols have been developed and validated, and rating systems have been established to examine adherence to treatment protocols (Linehan & Korslund 2003). In contrast to adherence, competence ratings provide a qualitative assessment of therapist skill in providing the prescribed elements of the treatment, and this type of rating is typically employed by experts using videotaped sessions (Miller & Binder 2002). However, measures of competence also should take into account contextual issues, such as the stage in therapy, patient difficulty, and presenting problems (Waltz et al. 1993).

The DBT rating instrument generates a single item index of DBT adherence and subscale scores for the 12 DBT strategy domains. The rating scale comprises 66 items reflective of the major DBT strategies, each operationalized with behaviorally defined anchor points in the corresponding DBT adherence strategy manual (Linehan & Korslund 2003). Anchor points for each item range between 0 and 5. Each item is scored according to an expert judgment-scoring algorithm based on the DBT adherence strategy manual. Conditions for scoring in the form of if-then rules take into account the necessity and sufficiency of each strategy given the context of the session and the prescriptions/proscriptions of the DBT treatment manual. Scores of above 3.9 indicate an adherent session. Inter-rater reliabilities of mean scores of the strategy items range from 0.78 to 0.83. Correlations between the mean score of the items and the global rating range from 0.89 to 0.99 (Linehan & Korslund 2003).

Of the RCTs for BPD reviewed here, all but Turner (2000a) included measures of adherence monitoring using the scale developed by Linehan and Korslund. No studies report competence ratings as this type of rating scale has yet to be developed. Obtaining ratings of adherence can be an expensive proposition, as it requires a reliably trained therapist expert in DBT to watch and code a session in real time. Consequently, it is recommended that researchers budget and plan for how they will obtain reliable ratings of adherence during the early stages of study development. In an effort to maximize the number of sites that have adherence rating ability, the Linehan team recently trained a small group of DBT researchers from institutions outside the University of Washington (UW) in the DBT adherence scale. There are currently nine reliable coders: four at the UW, one in private practice, one in New York City, one in Canada, one in the Netherlands, and one in Spain (K. Korslund, personal communication). All coding is coordinated through the UW regardless of the coder's physical location. Several other groups of coders are in training presently (both in the United States and abroad). However, more raters need to be trained to facilitate DBT research. That said, a significant strength of the existing approach is that a reliable measure has been developed, and expert raters using the measure are tested to reliability on an ongoing

basis. Given this measure's strength, it is unlikely that the field would benefit from the development of additional or alternative adherence measures. On the contrary, use of multiple scales would make comparisons across studies more difficult. Thus, at least for now, it is probably best to consider the UW scale as the gold standard.

RANDOMIZED CONTROLLED TRIALS OF DIALECTICAL BEHAVIOR THERAPY FOR BORDERLINE PERSONALITY DISORDER

Linehan et al. 1991, 1993, 1994

Linehan and colleagues at the UW undertook the first major RCT of DBT, which resulted in three published manuscripts examining different aspects of the data (Linehan et al. 1991, 1993, 1994). As this study has been reviewed in detail elsewhere (Robins & Chapman 2004, Scheel 2000), we only discuss it briefly here (see **Table 2** for a summary of RCTs). The study involved 44 subjects with BPD and a history of recent and repeated intentional self-injury and/or suicide attempts who were randomized to either DBT (N = 22) or treatment as usual (TAU) in the community (N = 22). The results indicated several statistically and clinically significant advantages for DBT over TAU. These included substantially greater reductions in intentional self-injury rate and associated medical risk, total psychiatric inpatient hospital days, treatment dropout, self-rated anger, and greater improvements in global and social role functioning among DBT clients (Linehan et al. 1991, 1993, 1994). Both groups improved similarly on measures of suicidal ideation (SI) and depression.

Certainly, this original study represented a seminal achievement. However, it was an early efficacy study of an as-yet unproven treatment. As such, it does suffer from some of the methodological limitations that are typical of such studies. These include small sample size and limited ability to control for nonspecific factors in the comparison treatment such as the intensity, stability, and affordability of therapy and the amount of training and supervision received by therapists. In addition, two subjects assigned to the DBT condition were not included in some of the final statistical analyses because they dropped out after four or fewer sessions. Although this is methodologically appropriate in many cases, particularly where statistical power is limited by small sample size, it is relatively less informative than the gold-standard intent-to-treat (ITT) analysis, in which all subjects who are randomized to a treatment condition are included in all analyses regardless of whether they actually received the treatment.

Secondary analyses of the data in which many of these issues are statistically controlled for have been reported and indicate that the advantages found for DBT are maintained even when these factors are taken into account (see Linehan et al. 1991, 1993, 1994). However, although reassuring, such post-hoc analyses do not provide a true substitute for a priori experimental control. Fortunately, since the completion of this original study, six additional and more methodologically refined RCTs have been published that examine the use of DBT for treatment of BPD or BPD comorbid with substance abuse and substantially address these issues.

Koons et al. 2001

An independent research team at Duke University (Koons et al. 2001) compared outpatient DBT with TAU for borderline women veterans being treated at the Durham Veterans Affairs Medical Center. This study attempted to replicate Linehan's original findings as well as examine DBTs efficacy with a less severely afflicted group of patients. The researchers hypothesized that lower symptomatic acuity would allow a shift in treatment focus from imminently life-threatening behaviors to treatment targets lower on the therapeutic hierarchy, including depression,

TAU: treatment as usual

SI: suicidal ideation

Table 2 Summary of randomized controlled trials of dialectical behavior therapy (DBT)

Treatments (number of patients)	Inclusion criteria	Length	Main effects	Reference(s)
Trials of DBT for BPD				
DBT (N = 24) versus community mental health TAU (N = 22)	BPD + suicide attempt in past 8 weeks + one other in past 5 years Female	1 year	ISI frequency and medical risk, treatment retention, emergency/inpatient treatment, anger, social and global adjustment	Linehan et al. 1991, 1993, 1994
DBT (N = 12) versus TAU (N = 16)	BPD + current drug dependence Female	1 year	Illicit drug use, social and global adjustment, treatment retention	Linehan et al. 1999
DBT + LAAM (N = 11) versus CVT + 12-step + LAAM (N = 12)	Females with BPD + current opiate dependence	1 year	Opiate use	Linehan et al. 2002
DBT-oriented (N = 12) versus CCT (N = 12)	BPD + referral from emergency services for suicide attempt	1 year	ISI/suicide attempts, impulsiveness, anger, depression, global adjustment, inpatient treatment	Turner 2000a
DBT (N = 10) versus Veterans Administration TAU (N = 10)	BPD Female	6 months	ISI/suicide attempts (trend), hopelessness, suicidal ideation, depression, anger expression	Koons et al. 2001
DBT (N = 31) versus TAU (N = 33)	BPD Female	1 year	ISI/suicide attempts (trend), treatment retention, self-damaging impulsivity	van den Bosch et al. 2002, 2005; Verheul et al. 2003
DBT (N = 52) versus CTBE (N = 51)	BPD + recent and recurrent self-injury Female	1 year	Suicide attempts, treatment retention, emergency and inpatient treatment	Linehan et al. 2006b
Trials of DBT modifications for non-BPD diagnoses				
DBT + MED (N = 17) versus MED alone (N = 17)	Age ≥60 Current major depression	28 weeks	Remission at 6-month follow-up	Lynch et al. 2003
DBT + MED (N = 21) versus MED alone (N = 14)	Age ≥55 + personality disorder Current depressive symptoms Nonresponse to MED trial	24 weeks	Interpersonal sensitivity, interpersonal aggression, depression (trend)	Lynch et al. 2006b
Modified DBT skills training (N = 14) versus wait list (N = 15)	Females age 18–65 Binge/purge at least once per week for 12 weeks	20 weeks	Binge episodes, binge days, eating in response to aversive emotions (trend)	Safer et al. 2001
Modified DBT skills training (N = 22) versus wait list (N = 22)	Females age 18–65 Binge eating disorder	20 weeks	Binge episodes; binge days; anger; concerns about weight, body shape, and eating	Telch et al. 2001

BPD, borderline personality disorder; CCT, client-centered therapy; CTBE, community treatment by psychotherapy experts in suicide and BPD; CVT, comprehensive validation therapy; ISI, intentional self-injury; LAAM, levo-alpha-acetylmethadol; MED, antidepressant pharmacotherapy; TAU, treatment as usual.

hopelessness, anxiety, anger, and dissociation. Twenty-five patients were randomized [13 DBT, 12 TAU with 20 completing the study (10 in each group)]. All five dropouts cited transportation difficulties as the reason for discontinuing treatment and were removed from all analyses except for treatment retention. Alterations were made to Linehan's original inclusion criteria such that a history of intentional self-injury was not required and subjects with antisocial personality disorder were excluded. All subjects met DSM-III-R criteria for BPD at study entry, and 40% had a recent history of self-injurious behavior. Reflecting the lower acuity of these subjects, treatment duration was reduced from 12 months to 6 months, and weekly group skills-training sessions were reduced from 180 minutes to 90 minutes. Aside from these modifications, standard DBT was delivered according to Linehan's original (1993a,b) protocol. The TAU comparison condition was actually a somewhat enhanced version of usual treatment at the Veterans Affairs Medical Center and involved weekly 60-min individual psychotherapy sessions, referral to various psychosocial groups as appropriate, and regular medication-management visits.

Despite the small sample size, results pointed strongly to the superiority of DBT across a number of treatment outcomes. DBT was statistically superior to TAU on four outcomes (hopelessness, depression, anger expression, and SI) as measured by group multiplied by time interaction over the treatment period. On four other variables, the DBT group showed either significant improvement (dissociation and unexpressed anger) or a strong trend toward improvement (hospitalizations, intentional self-injury), whereas the TAU group did not. Both groups showed similar significant reductions in interviewer-rated depression scores and SCID-II borderline symptoms, whereas interviewer-rated anxiety symptoms were unimproved by either intervention.

Although this study suffered from some of the same limitations described for Linehan's original study (e.g., small sample size, no ITT analysis, multiple end points increasing risk of type I error), it also incorporated several methodological improvements, most notably in regard to the TAU comparison condition. Specifically, the TAU and DBT conditions were essentially identical in terms of treatment setting, treatment affordability and availability, availability of expert therapist supervision, and institutional prestige. Concerns regarding multiple end points with such a small sample are valid but are perhaps partly allayed when we consider that DBT was significantly superior to TAU on more than one-third of the outcomes assessed despite the small sample size and was numerically superior to TAU on over two-thirds of the outcomes. In addition, the majority of DBT subjects met criteria for clinically meaningful improvement on six of the seven variables for which this could be defined a priori, whereas this was true for TAU subjects on only two of the seven.

CCT: client-centered therapy

Turner 2000a

A second independent research team led by Turner compared a modified version of DBT with client-centered therapy (CCT) in the treatment of BPD. The DBT treatment regimen included several substantial modifications to standard DBT. First, psychodynamic principles were introduced into the treatment to "conceptualize patients' behavioral, emotional, and cognitive relationship schema" (Turner 2000a, p. 415). Second, to minimize between-group differences in total hours of therapeutic contact, the DBT condition included no formal skills-training group. Instead, DBT skills were taught during individual therapy sessions. Despite the treatment modifications, we chose to include this study in our review as it met the definition of a DBT trial according to our criteria as outlined in the introduction. In addition, it represents an important contribution to the DBT treatment literature because it was the first RCT examining DBT in a nonacademic setting and

the first to employ a structured, theory-driven comparison treatment.

A local emergency room referred potential subjects after they were seen for a suicide attempt. All subjects met full DSM-III criteria for BPD according to standardized interview. Subjects with psychosis, bipolar disorder, mental retardation, or an organic mental disorder were excluded; however, unlike most other DBT RCTs, both men and women were included. Thirty-three of 62 potential subjects met study criteria and consented to participate. Of these, 7 dropped out prior to randomization and an additional 2 dropped out after learning treatment assignment, leaving a modified ITT sample of 24 (12 in each group; 19 women and 5 men). The subjects tended to be young (average age 22, with a range of 18 to 27), and 83% carried a diagnosis of nonnicotine substance abuse.

The active comparator, CCT, was based on a treatment model developed by Carkuff. CCT emphasizes "empathic understanding of the patient's sense of aloneness and providing a supportive atmosphere for individuation" (Turner 2000a, p. 416). Therapeutic interpretation and confrontation were generally proscribed in CCT. Whenever possible, CCT clients were seen twice weekly (three times weekly in case of crisis). Frequency of individual therapy for DBT was not specifically mentioned. Both treatments lasted for 12 months, and a total of six group sessions were offered to all participants over the course of the year. The group format was focused loosely around traditional DBT skills training, but there was no mention of the specific skills addressed.

The same four clinicians delivered both treatments. The therapists had an average of 22 years experience and reported backgrounds in family systems, client-centered, and psychodynamic treatments. Instruction in DBT consisted of five lectures and 12 90-minute training sessions over three months. Although the therapists were generally familiar with CCT, each attended a weekly educational seminar for 12 weeks in an effort to control for effects of the DBT training course. Each therapist attended two weekly group supervision sessions: a DBT supervision group led by the author and a CCT supervision group led by the senior clinic therapist. Group supervision focused on improving treatment adherence by reviewing videotaped sessions. No formal adherence ratings were reported.

Although subjects in both treatments tended to improve, the results strongly favored DBT over CCT. Significant between-group differences were found for all three primary outcomes, representing composite measures of suicidality, affective dysregulation, and global mental health functioning. Secondary analyses of individual measures revealed significant between-group differences favoring DBT on rates of suicide and intentional self-injury, depression, SI, hospitalization days, a global score on a brief psychiatric rating scale, impulsiveness, and anger.

As noted above, the Turner study has several characteristics that weaken its status as an authentic DBT study. Perhaps most controversial in this respect is the incorporation of some psychodynamic principles into the DBT condition. In addition, although the mention of weekly supervision to promote adherence is somewhat reassuring, there is no mention of what sort of formal training the DBT supervisor (Turner) had obtained, and no formal adherence rating was used. Although these concerns are valid and might justifiably exclude this study from a formal meta-analysis of DBT RCTs, they may also be viewed as evidence that therapists who accept DBT assumptions and make a sincere effort to apply DBT can achieve beneficial results.

Van den Bosch et al. 2002, 2005; Verheul et al. 2003

A third independent research team led by Verheul, van den Bosch, and colleagues compared standard DBT with TAU for the treatment of women with BPD who were attending community psychiatry and substance-abuse clinics in Amsterdam (van den Bosch et al. 2002,

2005; Verheul et al. 2003). The study was the first large-scale RCT of standard DBT undertaken in a nonacademic setting. Subjects were mostly referred from psychiatric and addiction treatment centers, and each referring provider was required to sign a letter stating that he or she was willing to treat the patient for 12 months if the patient was assigned to the control condition. Subjects referred by a general practitioner or self-referred were required to obtain a similar letter from a psychiatrist or psychologist prior to acceptance into the study.

The comparison condition was a true TAU condition. The setting was similar between groups, but the treatments differed in several other ways. Treatment intensity was substantially higher in the DBT condition and consisted of the full DBT program as described by Linehan et al. (1993). Subjects assigned to TAU, by contrast, "attended generally no more than two sessions per month" (Verheul et al. 2003, p. 136). Between-group differences in clinician characteristics were not explicitly addressed but may have been important as well. DBT therapists (4 psychiatrists and 12 clinical psychologists) may have had more overall education than TAU therapists (a mix of psychiatrists, psychologists, and social workers) and were probably more enthusiastic about the treatment given that the DBT therapists were volunteers, whereas the TAU therapists were the same clinicians who had originally referred subjects for potential treatment elsewhere. DBT therapists also received intensive training and supervision that were not provided to TAU therapists. Although these differences are notable, they are also typical for a comparison of a new treatment with TAU and demonstrate that DBT can be applied in nonacademic community settings. In light of significant limitations, however, it is probably best to interpret the results conservatively.

A total of 94 subjects were referred, of whom 64 were randomized to either DBT (N = 31) or TAU (N = 33). Two subjects in each group dropped out prior to the first session, and an additional two subjects in the DBT group dropped out after attending only one session. Analyses were performed on a modified ITT sample excluding these six subjects (27 DBT, 31 TAU). Despite high treatment dropout from the TAU condition, 78% of all assessments were completed with no difference between groups. Significant differences in outcomes between groups were evident. Subjects assigned to DBT had significantly greater reductions in self-mutilating and self-damaging impulsive behaviors and were significantly more likely to stay in treatment than TAU subjects. Fewer DBT subjects attempted suicide (2 out of 27 versus 8 out of 31), but this difference was not statistically significant (Fisher's exact $p = 0.0871$). Post-hoc analyses employing a severity factor (defined by a median split on lifetime number of parasuicidal acts) found that DBT's advantage over TAU for treating suicidal and self-mutilating behavior was most pronounced among severely afflicted subjects. DBT was not associated with a differential reduction in prescription psychotropic medication use. Unfortunately, the study did not present data regarding the use of crisis services, depression/anxiety ratings, SI, or global functioning. A follow-up assessment six months after treatment ended found that the superior gains associated with DBT were maintained, although DBT's advantage was less pronounced than it was immediately post-treatment.

A secondary objective of this study was to examine the efficacy of DBT among borderline subjects with active substance abuse and dependence diagnoses. The study found DBT to be equally effective for subjects with and without substance dependence in terms of reducing target behaviors (i.e., intentional self-injury, self-mutilation). However, generalization of improvements to nontarget behaviors (i.e., substance abuse) appeared to be limited. Analysis of 10 variables reflecting substance misuse found only one significant difference between groups (group multiplied by time treatment effect for alcohol use) (van den Bosch et al. 2002, 2005).

CVT: comprehensive validation therapy

Recognizing the importance of treating substance-abuse issues among borderline patients, Linehan's group undertook the first significant modification of standard DBT in the mid-1990s. Specific modifications were based largely on early clinical experiences with substance-abusing clients and included (*a*) more aggressively targeting treatment dropout by introducing a set of attachment strategies and increasing the positive emotional valence of therapy, (*b*) encouraging patients with opiate and stimulant addictions to use replacement pharmacotherapy, and (*c*) providing targeted case management to address issues related to housing, finances, and the legal system. Their work culminated in the creation of a treatment manual for comorbid BPD and substance disorder in 1997 (Linehan & Dimeff 1997).

Linehan et al. 1999

Results of the first randomized trial of the modified treatment were published in 1999 (Linehan et al. 1999). This trial compared DBT with community TAU and involved 28 women with comorbid BPD and substance-use disorder. Using a minimization procedure to match for age, severity of dependence, readiness to change, and Global Assessment Functioning score, the investigators assigned 12 subjects to DBT and 16 to TAU. They ran analyses on both the ITT sample and the treated sample, defined as those subjects in either group who attended more than six sessions and for whom outcome assessments beyond pretreatment were available (N = 18; 7 DBT, 11 TAU).

Results from the ITT analyses indicated an advantage for DBT in terms of treatment retention (7 out of 12 DBT versus 3 out of 16 TAU; Fisher's exact p = 0.0497). Included among DBT dropouts was one subject who died during the study, apparently as the result of an accidental overdose. Among subjects who attended at least one session (11 DBT, 11 TAU), a nonsignificant trend favoring better retention in DBT was seen (4 out of 11 DBT versus 8 out of 11 TAU). The primary drug-use outcome was based on structured interviews at baseline and at 4, 8, 12, and 16 months. ITT analyses using one-tailed t-tests indicated significant advantages for DBT on this measure for the treatment year overall as well as at the 4- and 16-month assessments. Treatment-effect size estimates at all time points were in the moderate to large range per Cohen's (1988) recommendations, possibly indicating that the study was underpowered to detect a clinically significant difference between treatments. Urine drug screens were only performed on a maximum of six occasions (once at each assessment and once at random during the study). Urine-drug-screen results tended to favor DBT at all time points according to ITT analysis, nearly reaching statistical significance at 4 and 16 months. Estimated between-groups effect sizes for this outcome were generally small to moderate. No between-groups differences emerged for intentional self-injury, anger, global adjustment, or social adjustment during treatment, but significant differences favoring DBT were found for social adjustment and global adjustment at 4 months post-treatment. Interestingly, better adherence to DBT protocol may have produced better results, as indicated by a post-hoc analysis revealing that adherent DBT therapist-client dyads had a higher proportion of negative urinalyses throughout the study.

Linehan et al. 2002

Building on the results of the 1999 study, a follow-up study compared DBT with a highly structured control condition for the treatment of comorbid BPD and opiate dependence (Linehan et al. 2002). Women who met DSM-IV criteria for both disorders were randomly assigned to DBT or a combination of comprehensive validation therapy and a structured 12-step program (CVT + 12-step). The CVT + 12-step control condition was designed to more thoroughly control for the influence of nonspecific treatment variables on

treatment outcome. Essentially, CVT represents only the acceptance side of the acceptance/change dialectic that underlies DBT. As such, CVT therapists employ all of the validation techniques used in DBT, but they do not use cognitive-behavioral change techniques, give overt advice, or actively direct the therapy session beyond insisting that drug use be brought up at least once. To control for group-therapy hours, the study required that CVT subjects attend a weekly Narcotics Anonymous "12 and 12" meeting conducted by the two CVT therapists who were also recovering addicts. As part of the 12-step program, subjects in this condition were also encouraged to meet with an NA sponsor weekly.

The DBT protocol was essentially identical to the one used in the 1999 study, except that an additional 30-minute individual skills-training session was offered to DBT clients to control for the weekly 12-step sponsor meetings in the control group. Women in both groups received opiate replacement therapy throughout the study. Twenty-four women were randomized (12 to each arm). One subject was subsequently dropped from the DBT condition after it was discovered that she did not meet inclusion criteria, leaving a modified ITT sample of 23 for analyses. Significant decreases in opiate use were evident in both treatment arms, and primary outcomes analyses found no significant differences between groups on the main measures of drug use and parasuicidal behavior. Secondary analyses revealed a significantly lower proportion of opiate-positive drug screens among DBT clients over the course of the treatment, primarily resulting from some rebound in drug use among CVT clients over the last four months of treatment. An additional finding of interest was that self-report of drug use was significantly more accurate in the DBT group as corroborated by thrice weekly urine drug screens throughout treatment. Remarkably, not a single subject dropped out of the CVT group over the entire 12 months of treatment. This was attributed to the supportive and validating environment fostered by CVT.

The results of this study reinforce the importance of controlling for nonspecific treatment factors in therapy trials, and they perhaps also speak to concerns regarding the empirical rigor with which DBT has been evaluated. The control treatment here was not a so-called paper tiger designed to emphasize DBT's effectiveness while providing some semblance of experimental control. Instead, CVT + 12-step was both efficacious and skillfully executed, as evidenced by the remarkable 100% retention rate of clients who have historically been difficult to keep in treatment. The increasing sophistication of the control conditions used in DBT trials also reflects a guiding principle that has been embraced by Linehan and others examining DBT, which holds that subject safety and well-being must be of paramount concern.

CTBE: community treatment by experts in suicide and borderline personality disorder

Linehan et al. 2006b

In the largest and most rigorously controlled RCT of DBT to date, Linehan et al. (2006b) compared standard DBT with community treatment by experts (CTBE). This study was designed to replicate the results of the original study while controlling for a wide range of potential confounds not specifically addressed in that study. Subjects in the two groups were matched according to total number of lifetime suicide attempts and nonsuicidal self-injuries combined, number of psychiatric hospitalizations, history of bona fide suicide attempts versus nonsuicidal self-injury only, age, and presence of negative prognostic factors (severe depression and severely impaired interviewer-assessed global functioning). The comparator condition (CTBE) was carefully designed to control for a variety of nonspecific treatment effects, including treatment availability; ease of obtaining and traveling to the first appointment; hours of individual psychotherapy offered; institutional prestige associated with treatment; and therapist factors including gender, allegiance to treatment offered, formal education (i.e., doctoral versus master's degree), clinical

experience, and availability of supervision and group clinical consultation.

Subjects were women between the ages of 18 and 45 who met DSM-IV diagnostic criteria for BPD and who had attempted suicide and/or self-injured at least once in the past eight weeks and twice in the past five years. Potential subjects were excluded if they had a psychotic disorder, bipolar disorder, mental retardation, a seizure disorder requiring medication, or if treatment was mandated. One-hundred and eleven subjects were randomized to either DBT (60) or CTBE (51). Eight DBT training cases and two CTBE pilot subjects were not included in the analyses, leaving a final ITT sample of 101 (52 DBT, 49 CTBE).

CTBE therapists were nominated by local mental health leaders based on reputation for expertise with especially difficult and chronically suicidal clients. Of 94 therapists nominated, 38 were selected for the study and 25 accepted at least one study client. To avoid cross-contamination of treatment techniques, only therapists who described their treatment approach as nonbehavioral or mostly psychodynamic were selected for the CTBE condition. To optimize therapist allegiance to the delivered treatment, CTBE therapists were instructed to provide the dose and type of therapy that they felt was most appropriate for the client, with the single requirement that individual therapy be offered at least once per week. To control for both the effects of the DBT therapist consultation team and client expectations linked to institutional prestige, all CTBE therapists were encouraged to attend a weekly group supervision session led by the training director of the Seattle Psychoanalytic Society. To ensure optimal treatment affordability and availability in both conditions, CTBE therapists were paid with study funds, and the study coordinator helped clients contact therapists and arrange transportation to the first meeting.

Standard DBT was administered by 16 therapists who were nominated by colleagues based on their potential to be good DBT therapists. Of the 16, 8 had no prior DBT exposure, and 5 were either graduate students or postdoctorates. DBT training consisted of 45 hours of training followed by supervised practice, and therapists were hired after being rated to adherence on six out of eight consecutive training case sessions. The two groups of therapists were matched according to education (i.e., doctoral versus master's degree) and gender. However, therapists in the CTBE group had significantly more experience than did DBT therapists on average.

Although subjects in both conditions showed substantial improvements, the DBT group generally exhibited better treatment response, particularly on outcomes related to behaviors specifically targeted by treatment. Subjects assigned to DBT were half as likely to attempt suicide as those assigned to CTBE (23.1% with at least one suicide attempt in DBT versus 46% in CTBE; $p = 0.01$). A similar, although not statistically significant, advantage was seen when considering only non-ambivalent suicide attempts (5.8% in DBT versus 13.3% in CTBE; $p = 0.18$). Among subjects who did engage in self-injurious or suicidal behaviors, ratings of medical risk associated with these behaviors were significantly lower in the DBT group. Although no significant difference was found for nonsuicidal self-injury between groups, a greater reduction was documented for the DBT group as indicated by an estimated between-group treatment effect size of 0.49 ("moderate" effect per Cohen 1988). Subjects receiving DBT also used significantly fewer crisis services (e.g., psychiatric emergency room visits and inpatient admissions) than subjects assigned to CTBE. Although a significant difference was seen for all psychiatric emergency room visits and admissions in general, it was especially evident when considering only emergency room visits and admissions due to SI. During the treatment year, CTBE subjects were twice as likely as DBT subjects to visit the emergency room for SI (33.3% CTBE versus 15.6% DBT) and three times as likely to be admitted for SI (35.6% CTBE versus 9.8% DBT) (Linehan et al. 2006b).

Consistent with prior studies, subjects in DBT were also significantly less likely to change therapists or drop out of treatment. Both groups improved significantly and similarly on measures of depression, hopelessness, suicidality, and reasons for living. No measured outcomes favored CTBE.

RANDOMIZED CONTROLLED TRIALS OF DIALECTICAL BEHAVIOR THERAPY FOR CLIENTS WITH OTHER DIAGNOSES

Dialectical Behavior Therapy for Depression and Other Personality Disorders

Several RCTs have examined applications of DBT for populations other than individuals with BPD. In one such pilot study, Lynch et al. (2003) randomly assigned 34 adults over the age of 60 in a current major depressive episode to either an antidepressant medication alone condition or an antidepressant medication plus a modified form of DBT condition. The modified form of DBT consisted of 28 weeks of a skills-training group as well as six months of weekly 30-minute phone contact with an individual therapist, followed by three months of once every two weeks and three months of once every three weeks 30-minute phone contact. Phone contacts in the first six months focused on review of diary cards and problem-solving difficulties with applying skills, whereas phone contacts in the second six months focused on use of skills to prevent depression relapse. Those in the DBT condition showed significantly greater improvements than those in the medication-alone condition in areas including self-rated depression at treatment end and interviewer-rated depression scores at six-month follow-up. Post-treatment interviewer ratings of depression indicated that 71% of clients in the DBT condition met criteria for remission, whereas only 47% of clients on medication alone met remission criteria. Furthermore, at a six-month follow-up evaluation, clients in the DBT condition had significantly higher remission rates (75%) than those in the medication-only condition (31%). Clients in the DBT condition also had significant improvement on measures of adaptive coping and dependency, whereas those in the medication-alone condition did not. The authors hypothesize that the improvements in these areas reduce vulnerability to depression.

The main objective of this first study (Lynch et al. 2003) was to determine the feasibility of a group intervention with a skills orientation for older adults. Encouraged by these findings, a second randomized clinical trial was conducted to apply standard DBT (both group and individual) to older adults with major depression and personality disorder with the goal of modifying the DBT specifically for this population (Lynch et al. 2006b).

In this second study, 35 adults over the age of 55 with personality disorders and comorbid depressive symptoms were randomly assigned to either 24 weeks of medication management alone or 24 weeks of medication management plus standard DBT. The DBT condition included in-person weekly individual sessions and group skills training. Those in the DBT condition showed significantly greater decreases in interpersonal sensitivity and interpersonal aggression compared with medication alone. Additionally, assessment at the time point corresponding with the end of the DBT skills group indicated that 71% of clients in the DBT condition met criteria for remission of depression, whereas only 50% of those in the medication-alone condition met criteria for remission. Clients in both conditions showed significant reductions on standardized, clinician-administered ratings of depression, with a nonsignificant difference favoring DBT seen at end of treatment and follow-up assessments. Nine clients in the DBT condition and seven clients in the medication-alone condition no longer met diagnostic criteria for personality disorder after treatment completion. Moderate effect sizes on several variables suggest that this study may have been

underpowered to detect significant differences between conditions.

As mentioned above, a major goal of this second study was to modify standard DBT, and a major impetus for the modifications came from the clinical observation that older adults were generally fairly adept at emotion regulation but had substantial difficulty embracing the new perspectives and behavioral changes important for healing. These observations sparked development of a new form of the biosocial theory for this population that retains the basic tenets of the original theory (e.g., maladaptive behavior produced through interaction of biological predisposition and environmental shaping) but recasts the fundamental dialectic as being between rigidity (fixed mind) and openness to experience (fresh mind). In addition to those skills taught in standard DBT, new skills in this modification emphasize reducing rigid mindsets, increasing openness to new experience, and reconciling events over the life course through reviewing past events and generating forgiveness.

Dialectical Behavior Therapy for Eating Disorders

Two RCTs have also examined DBT for eating disorders. Safer et al. (2001) randomly assigned 29 women with at least one binge-and-purge incident per week over the previous three months to either 20 weeks of wait-list control or to a modified form of DBT. The adapted DBT condition conceptualized binge-and-purge behaviors as attempts at emotion regulation and therefore involved weekly individual therapy sessions focusing on teaching alternative emotion-regulation skills. Clients in the DBT condition had significantly greater reductions in binge episodes and purge episodes than those in the control condition. Significantly more subjects in the DBT condition than in the control condition were abstinent from binge-and-purge behaviors at the end of 20 weeks (28.6% versus 0%). Five additional DBT subjects reduced their bingeing and purging episodes by 88% and 89%, respectively. The DBT condition had a dropout rate of 0%. Although not statistically significant, moderate effect sizes favoring DBT were found for negative affect overall and eating due to anger/frustration, anxiety, and depression. In a second study, Telch et al. (2001) randomly assigned 44 women meeting full DSM-IV research criteria for binge eating disorder either to a wait-list control condition or to a modified 20-week DBT skills group. The group met weekly for two hours and included units on core mindfulness skills, distress tolerance, and emotion-regulation skills. At the end of the 20 weeks, significantly more of those in the DBT condition than in the control condition (89% versus 12.5%) were abstinent from binge eating episodes for at least four weeks. Additionally, those in the DBT condition had significantly fewer binge days, binge episodes, weight concerns, shape concerns, eating concerns, and lower urges to eat when angry than those in the control condition. More studies with larger numbers of subjects are needed to further examine the effectiveness of these adaptations of DBT for treating problematic eating behaviors.

Quasi-Experimental Studies

A number of nonrandomized, quasi-experimental studies have examined DBT (see **Table 3**). Two controlled but nonrandomized studies show promise for adaptations of DBT with suicidal adolescents with BPD symptoms in both outclient settings (Rathus & Miller 2002) and inpatient settings (Katz et al. 2004). Other quasi-experimental studies have suggested beneficial effects of DBT in adult inpatient units (Barley et al. 1993, Bohus et al. 2000), in forensic settings (McCann et al. 2000, Trupin et al. 2002), and in females with binge eating disorder (Telch et al. 2000). However, although these studies may indicate interesting directions for future research, conclusions that can be drawn from them are limited. RCTs are needed to establish these adaptations of DBT as empirically supported therapies.

Table 3 Summary of quasi-experimental studies of dialectical behavior therapy (DBT)

Treatment(s)	Participants	Length	Main effects	Reference
Adapted inpatient DBT (N = 31) versus waiting list with community TAU (N = 19)	Women with BPD	12 weeks	Group comparisons: depression, anxiety, interpersonal functioning, social adjustment, global psychopathology, and self-mutilation	Bohus et al. 2004
Adapted DBT (N = 29) versus supportive-dynamic therapy + family therapy (N = 82)	Adolescent inpatients in depression/suicide program; those with suicide attempt and ≥3 BPD criteria assigned to DBT	12 weeks	Group comparisons: treatment retention, psychiatric hospitalization Pre-/post-DBT comparison: suicidal ideation, general psychiatric symptoms, BPD symptoms	Rathus & Miller 2002
Adapted DBT (N = 32) versus TAU (N = 30)	Adolescent inpatients with suicide attempt or ideation	2 weeks	Group comparisons: problem behavior on the ward	Katz et al. 2004
Pre-/postincorporation of DBT onto adult inpatient unit (N = 130)	Consecutive admissions during transition from psychodynamic to DBT + psychodynamic treatment	Average stay 106 days	Pre-/postincorporation of DBT: mean monthly self-harm rate on the unit	Barley et al. 1993
Adapted adult inpatient DBT (N = 24)	Females with BPD + ≥2 suicide attempts and/or ISI incidents in 2 years	Average stay 94 days	Pre-/postincorporation of DBT: self-harm behaviors, depression, dissociation, anxiety, global stress	Bohus et al. 2000
Adapted DBT (N = 21) versus TAU (N = 14)	Inpatients on adult forensic unit with at least three BPD criteria	20 months	Depressed and hostile mood, paranoia, psychotic behaviors, maladaptive coping, adaptive coping, staff burn-out (trend)	McCann et al. 2000
Adapted DBT	Inpatient adolescent females on a forensic unit	Variable	Pre-/postincorporation of DBT: behavioral problems; staff use of restrictive punishments; participation in therapeutic, educational, and vocational services	Trupin et al. 2002
Adapted DBT for binge eating disorder (N = 11)	Females age 18–65 with binge eating disorder	20 weeks	Pre-/postincorporation of DBT: binge episodes, binge days	Telch et al. 2000

BPD, borderline personality disorder; ISI, intentional self-injury; TAU, treatment as usual.

GENERAL ISSUES

One issue that has reverberated throughout the BPD and personality disorder research field has been a concern as to whether DBT can be successfully translated to the community settings that serve many of the individuals it was designed to treat. Recent developments immediately suggest that this issue may be less relevant. To date five independent research labs have conducted DBT RCTs showing positive between-group effects (Koons et al. 2001; Lynch et al. 2003, 2006b; Safer et al. 2001; Telch et al. 2001; Turner 2000a; Verheul et al. 2003), suggesting clearly that the efficacy of the treatment is not dependent on specific people or organizations. Two of these RCTs

(i.e., Turner 2000a, Verheul et al. 2003) were conducted in nonacademic community clinics, indicating that dissemination of DBT to community settings is both feasible and effective. Further support for DBT's generalizability comes from multiple published pre-/postdesign and nonrandomized controlled studies (Brassington & Krawitz 2006, Bohus et al. 2004, Comtois et al. 2007, Katz et al. 2004, McCann et al. 2000, Rathus & Miller 2002, Trupin et al. 2002) and from unpublished data from community clinics across the country that have been compiled by Behavioral Tech, LLC, a training company focused on the dissemination of evidence-based treatments (L. Dimeff, personal communication).

Additional issues that may impact generalizability include at least three primary characteristics that can distinguish between academic research and treatment programs in which treatments are developed and the community treatment programs in which they are disseminated: to clients, counselors, and settings. A major strength of DBT is that it is explicitly designed to treat clients who typically present for treatment in community treatment programs (e.g., highly symptomatic individuals with a high degree of psychiatric comorbidity). Accordingly, participants in the RCTs described above included heterogeneous samples of individuals with high axis I and II comorbidity. Overall, additional research in applying DBT in real-world settings is needed, and this includes an evaluation of the effects training has on changing therapist behavior.

An additional concern regarding DBT research has been the influence of allegiance effects on outcome (Westen 2000). Despite criticisms regarding the importance of allegiance to therapy outcome (e.g., Chambless 2002), it is reasonable to conclude that allegiance effects on psychotherapy outcomes may influence what treatment wins (Luborsky et al. 1999). How well has DBT dealt with this issue? The most representative outcome study that systematically controlled for allegiance effects has been a study comparing DBT with CTBE (Linehan et al. 2006b). In this study, the CTBE therapists were nominated by community mental health leaders and were considered experts in treating difficult clients. The content of the treatment provided by them was not prescribed by the research study or interfered with, and institutional prestige was controlled for by having the base of operations for CTBE at the Seattle Psychoanalytic Society and Institute. In addition, therapists were told to provide the treatment they had the greatest allegiance to (i.e., the treatment they thought would work best), and there were no differences between conditions in expectancies. Thus, it is reasonable to conclude that allegiance was high in CTBE.

CURRENT DEVELOPMENTS AND FUTURE DIRECTIONS

The accumulated data clearly indicate that DBT is an effective treatment for BPD. Across studies, DBT has resulted in reductions in several problems associated with BPD, including self-injurious behavior, suicide attempts, SI, hopelessness, depression, and bulimic behavior. Nonetheless, further advances in the treatment of this complex disorder are needed. The question now involves how best to move the field forward.

Are Direct Comparisons with Other Borderline Personality Disorder Treatments Needed?

In our opinion, a so-called horse-race study in which another multicomponent treatment is systematically compared with DBT does not appear warranted at this point. To date there have been only two other RCTs for treatment of BPD. The first was Bateman & Fonagy's (1999) study of a psychodynamic partial hospital program, but this has not been replicated either by the authors or in a second independent lab. Interested readers may refer to a special issue of the *Journal of Personality Disorders* (volume 16, issue 2) that was devoted to the American Psychiatric Association's (2001)

practice guidelines for the treatment of BPD and addresses weaknesses of research examining psychoanalytically informed treatments (e.g., Sanderson et al. 2002). The second RCT was the Giesen-Bloo et al. (2006) study of schema-focused therapy versus transference-focused psychotherapy, but again this has not been replicated. Thus, there is currently no other well-established treatment for BPD that would allow comparison with DBT, and the treatments referenced above were of much longer duration than standard DBT, which mitigates direct comparisons. Assuming that the efficacy of another treatment for BPD can be firmly established, it is still not entirely clear that a direct comparison with DBT would represent a wise use of resources. This is not to say that such a comparison might not provide useful information. Rather, the argument against a direct comparison study in this case rests more on whether it is practical or even logistically feasible owing to the large sample size that would be required, and the inherently complex nature of the disorder and, thus, of the treatments being compared. The likely incremental gains from such a study would not offset, in our opinion, the tremendous costs.

Dismantling Studies and Testing Mechanisms of Change

From our perspective, a more appropriate and cost-effective approach would involve determining what makes effective treatments work and using that information to improve patient outcomes. Accordingly, an important goal of current DBT research is to identify the essential features of the treatment to improve its efficacy, efficiency, and generalizability. The recent work of Linehan and others (Lynch et al. 2006a) reflects commitment to this goal. One approach to this problem involves assessing the degree to which DBT strategies are used in non-DBT comparison treatments to determine which strategies and factors are unique to DBT and, thus, might explain its greater efficacy. The rigorous comparison conditions used in recent DBT trials constitute a first step toward identifying these factors. The findings thus far, particularly from the comparison of DBT with CTBE, suggest that superior results obtained with DBT cannot be solely attributed to therapist expertise, experience, gender, and allegiance; institutional prestige; availability of supervision and affordable treatment; assistance to connect with therapist; hours of individual therapy; or other nonspecific factors. A slightly different approach to this issue involves the systematic rating of specific therapist behaviors in individual sessions. Such a study is currently under way in conjunction with a multisite study (Duke University, Principal Investigator T.R. Lynch; University of Washington, Principal Investigator M.M. Linehan) comparing DBT with an established, manualized treatment for substance abuse (individual and group drug counseling) in the treatment of comorbid BPD and heroin dependence. However, although this line of inquiry can tell us which factors do not account for DBT's efficacy, it is relatively less informative regarding which elements of DBT do make it exceptionally effective.

Efforts to further define the relative importance of different aspects of DBT are underway. One current approach involves comparing standard DBT with modified or dismantled forms in which one or more treatment elements are missing. For example, the individual impact of skills training has been assessed in two published RCTs and one unpublished report. Both published studies were adaptations of DBT that included skills training as the primary intervention with some features of individual therapy built into the treatment (Lynch et al. 2003, Telch et al. 2001). Results suggested that skills training alone with minimal individual therapy contact may be helpful for less severe disorders (e.g., eating disorders, chronic depression). However, the nonpublished report (Linehan 1993a, p. 25) found that the outcomes for 11 clients who received DBT skills training in addition to non-DBT individual therapy

were no better than 8 clients receiving non-DBT individual therapy only. This suggests that skills training may be an important component of the full treatment package, especially for more severely affected populations.

A related dismantling study is currently ongoing at UW (P.I. Linehan). In this study, women with BPD and histories of suicidal and other self-injurious behaviors are randomly assigned to one of three treatment conditions: (*a*) standard DBT, (*b*) individual therapy plus activity support group, in which the DBT skills-training group is replaced by a structured weekly group activity and DBT skills are not taught in individual therapy, or (*c*) DBT skills training plus case management, which includes no individual DBT therapy.

Preliminary research regarding the relative importance of change versus acceptance strategies in DBT has also been undertaken. The study comparing DBT with CVT + 12-step for treatment of comorbid BPD and substance dependence (Linehan et al. 2002) represents the first step in this direction. Results of that study suggest that validation strategies may be critical for preventing dropout among subjects with comorbid BPD and substance dependence (Linehan et al. 2002). We cannot draw firm conclusions regarding the importance of change strategies from that study, however, as change strategies were included in the control condition as part of the structured 12-step intervention. In another study, Shearin & Linehan (1992) examined individual sessions and found that a combination of change and validation strategies was important. Specifically, sessions in which clients rated therapists as maintaining a balance between change and validation strategies were associated with greater reductions of parasuicidal behavior and ideation relative to sessions during which the therapist was rated as purely accepting or change focused.

Future studies must be designed in which a strong association between the mechanism of action and both pretreatment variables and post-treatment variables can be demonstrated. Additionally, future studies should use multiple measurement points to determine both a gradient (dosage effect) as well as a time line (i.e., changes in the mechanism of action precede changes in outcome). Finally, the proposed mechanism of action must stand up to tests of plausibility and coherence. In other words, there must be a credible explanation for how and why the mechanism results in change. Theory, then, is an important overarching element in the testing of mechanisms of action. The more assessment periods that are included, the more fine grained the analysis of gradient and time line can be.

Based on the data accumulated thus far, Lynch et al. (2006a) have posited several mechanisms of action specific to DBT that distinguish this treatment from other behavioral interventions. For example, based on the dialectical change theory, the authors suggest that a dialectical focus with a synthesis of change and acceptance strategies may be an important mechanism of action in DBT. They suggest that strategies specific to DBT used in both individual sessions (e.g., utilizing commitment strategies, focusing on DBT skills such as opposite action, and high therapist self-disclosure) and group skills training (e.g., mindfulness skills, emotion-regulation skills, interpersonal effectiveness skills, and self-respect effectiveness skills) may account for significant clinical change.

In addition to the initiatives mentioned above, ongoing research includes evaluation of adaptations of DBT to non-BPD diagnoses, mediator/moderator studies, and basic research examining the theoretical precepts of DBT (e.g., biosocial theory; see Linehan et al. 2006a for a review).

CONCLUSION

The primary purpose of this review was to conservatively scrutinize the status of DBT research and evaluate the rigor with which criticisms of prior research have been addressed to date. Using the criteria for manualized treatments established by Chambless & Hollon (1998), we found that the current

literature quickly reveals that DBT is the only treatment for BPD considered well established or efficacious and specific. However, despite its strong empirical foundation, a number of gaps do remain in the DBT literature. These include a relative paucity of RCTs involving male or minority clients and little information on the relative importance of DBT's different components to treatment outcomes. In addition, although preliminary attempts to apply DBT to diagnoses other than BPD have been promising, these applications should still generally be considered experimental pending further evidence from RCTs. Once it is known that a treatment is efficacious, the next task is to improve the treatment further by enhancing its efficiency and efficacy (Linehan et al. 1999). This phase of treatment development includes component and process-analytic studies, dismantling studies, analysis of response predictors, and large-sample effectiveness research in community settings. We hope that this review provides the impetus for others to expand research efforts into these new domains and continue a tradition based on empirical observation to maximize the likelihood that the treatment helps those it was designed to help.

SUMMARY POINTS

1. DBT has been reformulated and conceptualized as a treatment for multidiagnostic treatment-resistant populations. It has been evaluated and found to be efficacious for the treatment of BPD in seven well-controlled RCTs conducted across four independent research teams.
2. Treatment approaches can be distilled down into the following process: the reduction of ineffective action tendencies linked with dysregulated emotions. However, studies examining specific mechanisms of change need further development.
3. There is a reliable measure of treatment adherence that generates a single item index of DBT adherence and subscale scores for the 12 DBT strategy domains. Dissemination of the treatment may be slowed by an overreliance on the UW site for adherence ratings. However, until a convincing argument can be made that a new adherence scale is needed, it is probably best to consider the UW scale as the gold standard.
4. DBT has demonstrated efficacy in RCTs for chronically depressed older adults, older depressed adults with comorbid personality disorder, and eating-disordered individuals. Although preliminary attempts to apply DBT to diagnoses other than BPD have been promising, these applications should still generally be considered experimental pending further evidence from RCTs.
5. DBT can be successfully conducted outside of UW as evidenced by the positive outcomes from independent research teams, adherence ratings of therapists, and community treatment involvement. Allegiance effects have been recently controlled for in a rigorous randomized trial (Linehan et al. 2006a).

FUTURE ISSUES

1. Future research should focus on component and process-analytic studies, dismantling studies, and studies designed to analyze response predictors.
2. New adaptations of DBT require further testing using evidence from RCTs.

3. Research should emphasize inclusion of males and minority populations in future studies to enhance treatment generalizability.
4. Future research should examine factors that enhance translation of the treatment into community settings, and large-sample effectiveness research in community settings should be conducted to test this.

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Presents findings from the first major RCT of DBT for borderline personality disorder; demonstrated DBT's efficacy for reducing intentional self-injury.

Describes the development and theory of DBT, with detailed review of techniques used and tips for clinical application.

Includes specific worksheets and exercises for group skills training; applicable to both individual and group sessions.

Discusses DBT techniques aimed at improving emotion regulation and the importance of emotion regulation in BPD and other disorders.

Describes results of study designed to replicate/extend findings of landmark 1991 study using larger sample and meticulous control of nonspecific treatment factors.

Proposes hypothesized mechanisms of change associated with DBT techniques including mindfulness, validation, opposite action, and dialectics.

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