Dialectical Behavior Therapy Adapted for Suicidal Adolescents

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We report a quasi-experimental investigation of an adaptation of Dialectical Behavior Therapy (DBT) with a group of suicidal adolescents with borderline personality features. The DBT group ($n = 29$) received 12 weeks of twice weekly therapy consisting of individual therapy and a multifamily skills training group. The treatment as usual (TAU) group ($n = 82$) received 12 weeks of twice weekly supportive-psychodynamic individual therapy plus weekly family therapy. Despite more severe pre-treatment symptomatology in the DBT group, at post-treatment this group had significantly fewer psychiatric hospitalizations during treatment, and a significantly higher rate of treatment completion than the TAU group. There were no significant differences in the number of suicide attempts made during treatment. Examining pre-post change within the DBT group, there were significant reductions in suicidal ideation, general psychiatric symptoms, and symptoms of borderline personality. DBT appears to be a promising treatment for suicidal adolescents with borderline personality characteristics.

Suicide accounts for more adolescent deaths in the United States than all natural causes combined, ranking as the third leading cause of death in this age group, preceded only by accidents and homicide (National Center for Health Statistics, 1996). In addition to the increased incidence of adolescent suicide over the past several decades (e.g., Fischer & Shaffer, 1990), recent epidemiological studies suggest a parallel increase in the incidence of adolescent suicide attempts, with lifetime rates among high school students ranging from 3.5% to 11% (Andrews & Lewinsohn, 1992). Although boys who complete suicide significantly outnumber girls (King, 1997), adolescent girls make two to four times as many suicide attempts as boys (Lewinsohn, Rohde, & Seeley, 1996). Further, between 31% to 50% of adolescent suicide attempters re-attempt suicide (Shaffer and Piacentini, 1994), many within 3 months of their first attempt (Lewinsohn et al., 1996), and many receiving costly and repeated hospitalizations (Zlotnick, Donaldson, Spirito, & Pearlstein, 1997).

The high rate of continued psychiatric disturbance exhibited by these adolescents, as well as the fact that previous suicide attempts are predictive of eventual completed suicide (e.g., Brent et al., 1988), indicate the pressing need for effective psychological interven-

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tions. Unfortunately, as many as 50% of adolescent suicide attempters fail to receive follow-up mental health treatment (Spirito, Brown, Overholser, & Fritz, 1989) and, of those who do receive treatment, up to 77% do not attend therapy appointments or fail to complete treatment (Trautman, Stewart, & Morishima, 1993). Moreover, despite the seriousness of adolescent suicide, no comprehensive empirically validated treatment exists for this population.

Thus far, two randomized controlled studies have targeted suicidality in adolescents. Cotgrove, Zirinsky, Black, and Weston (1995) compared standard outpatient care to an experimental condition comprised of standard care plus a "greencard" given to adolescents that permitted immediate readmission to an inpatient unit at a local hospital if they felt actively suicidal. Results indicated no differences between groups on measures of repeated self-injurious behavior. Harrington and colleagues (1998) compared a three to four session, home-based family problem-solving therapy to treatment as usual (TAU) with adolescent suicide attempters. Results of this study indicated that the experimental intervention was more effective than routine care in reducing suicidal ideation only among attempters who did not meet criteria for major depression.

Rotheram-Borus and colleagues (1994, 1996, 2000), using a quasi-experimental design, reported that the effects of a specialized emergency room (ER) program improved subsequent treatment adherence among female adolescent suicide attempters to a six-session, family-based cognitive behavioral outpatient program called Successful Negotiation/Acting Positively (SNAP). Among a larger sample, 18-month follow-up data showed improvement on mental health indices among subjects in both conditions; rates of suicide ideation and reattempts did not differ across treatment conditions.

Outpatient treatment studies that target depressed adolescents generally exclude adolescents with suicidal behaviors (e.g., Kroll, Harrington, Jayson, Fraser, & Gowers, 1996; Lewinsohn, Clarke, Hops, & An-

drews, 1990; Mufson et al., 1994; Wood, Harrington, & Moore, 1996). The dearth of treatment research with suicidal adolescents seems particularly lamentable since studies with adults who attempt suicide suggest that treatment may reduce repeated attempts and enhance social adjustment (cf., Shaffer and Piacentini, 1994). One exception to the tendency to exclude suicidal adolescents is Brent and colleague's (1997) comparison of individual Cognitive Behavior Therapy (CBT), systemic behavior family therapy (SBFT), and individual nondirective supportive therapy (NST) on adolescents' depressive symptoms, suicidality, and functional impairment. Results indicated CBT was more efficacious than SBFT or NST at reducing depression during the acute phase of treatment, although all three conditions showed significant reductions in suicidality and functional impairment. However, only 31% of the study participants had suicidal features, thus limiting the generalizability of these findings.

In summary, none of the aforementioned studies demonstrates superiority of a treatment focusing exclusively on suicidal adolescents relative to a comparison group in terms of reducing suicidal behavior and psychiatric inpatient admissions along with drop-out rates. Such variables are clearly essential in our evaluation of treatments for suicidal youth. Our aim was to conduct a preliminary study of a novel time-limited outpatient treatment for suicidal adolescents specifically designed to address these central outcome variables.

DIALECTICAL BEHAVIOR THERAPY

Dialectical Behavior Therapy (DBT; Linehan, 1993a, 1993b) is an evidence-based outpatient psychotherapy for chronically parasuicidal adults diagnosed with borderline personality disorder (BPD). *Parasuicide* is defined as acute, deliberate nonfatal self-injury or harm that includes suicide attempts and nonsuicidal self-injurious behaviors (Linehan, 1993a). In a randomized clinical trial

comparing DBT with TAU, DBT was more effective in reducing suicide attempts, other parasuicidal acts, number of inpatient psychiatric hospitalization days, and anger, while improving social adjustment, treatment compliance, and treatment drop-out rate (Linehan, Armstrong, Suarez, Allmon, & Heard, 1991). Recent replication efforts of DBT have shown promising preliminary results (Koons et al., 1998; Linehan et al., 1998).

In this paper we compare an adolescent adaptation of DBT (Miller, Rathus, Linehan, Wetzler, & Leigh, 1997) to TAU for suicidal adolescents using a quasi-experimental design. DBT appeared appropriate for suicidal adolescents with borderline personality features because of its targets of reducing life-threatening behaviors, decreasing therapy-interfering behaviors, and decreasing quality-of-life-interfering behaviors. Further, behavioral skills targeted in treatment (emotion regulation, interpersonal effectiveness, distress tolerance, and mindfulness/attentional control) closely correspond to core issues of adolescent development (e.g., mood lability, unstable relationships, impulsive behaviors, identity confusion), which are only intensified for adolescents presenting for treatment. We hypothesized that DBT would be more effective than TAU in reducing suicide attempts, reducing psychiatric hospitalizations, and increasing treatment completion rates. In addition, we expected that patients receiving DBT would show reductions in suicidal ideation, emotional distress, and borderline personality symptomatology.

METHOD

Participants

Participants were 111 consecutive outpatient admissions to the Adolescent Depression and Suicide Program (ADSP) at Montefiore Medical Center/Albert Einstein College of Medicine (Bronx, New York). Eighty-two participants were assigned to TAU and 29 were assigned to DBT (N's and degrees of freedom vary across analyses due to missing data). The adolescents in DBT were one year older on average (16.1, $SD = 1.2$, versus 15.0, $SD = 1.7$; $t_{105} = 3.30$, $p = .001$), and were overwhelmingly female (93% female versus 73% female in the TAU group; $\chi^2_1 = 5.02$, $p = .025$). The two groups did not differ on ethnicity; 67.6% ($n = 75$) of the total sample were Hispanic, 17.1% ($n = 19$) African American, 8.1% ($n = 9$) White, .9% ($n = 1$) Asian American, and 6.3% ($n = 7$) endorsed "other." The two groups did not differ on medication status (i.e., proportion of adolescents receiving psychotropic medications during treatment), with 21.2% of the total sample on medication. Categories of medications taken included antidepressants, mood stabilizers, neuroleptics, and anxiolytics.

Procedure

Each participant received a comprehensive evaluation including interviews and self-report measures[1]. (Note that the measures we report were part of a larger battery. Because this battery evolved over time, our sample sizes for pre-post analyses vary and represent only a subset of participants receiving treatment.) In an effort to closely adhere to Linehan and colleagues' (1991) inclusion criteria including both the suicidal and borderline personality domains, patients were selected for DBT if they met the following criteria: (a) a suicide attempt within the last 16 weeks as measured by clinical interview or current suicidal ideation as measured by the Harkavy-Asnis Suicide Survey (HASS; Harkavy-Friedman & Asnis, 1989a, 1989b) and the Scale for Suicidal Ideation (SSI; Beck, Kovacs, & Weissman, 1979), and (b) a diagnosis of borderline personality disorder or a minimum of three borderline personality features (as measured by the SCID-II). This group of patients was assigned to DBT based on a triage model, with those patients who

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1. Due to limited resources, and the fact that we were importing this novel treatment into a clinic not presently conducting outcome research, we did not administer posttreatment measures to the TAU group.

met criteria indicating the greatest need for this treatment (i.e., suicidality plus borderline personality features) assigned to it. Participants who met criterion A or criterion B but not both were assigned to TAU. Therapists were either doctoral-level clinical psychologists or pre-doctoral psychology interns. A total of five therapists treated the sample. The two treatment groups did not differ in the proportion of cases seen by doctoral-level or pre-doctoral level therapists.

DBT Condition. DBT is based on Linehan's (1993a) biosocial theory which views BPD and its concomitant behaviors as stemming from a core problem with affect regulation. According to this theory, this dysfunction arises from a transaction between a biologically-based emotional sensitivity and a pervasively invalidating environment. DBT conceptualizes parasuicidal behaviors as functioning as maladaptive attempts at problem solving, where the primary problem to be solved is unbearable emotional distress; Linehan (1993a) observes that self-harm behaviors typically have emotion-regulating effects as well as reinforcing environmental consequences.

DBT treatment was comprised of 12 weeks of twice weekly individual and multifamily skills training. DBT is characterized by its balance of acceptance and change, and by its well-specified communication strategies, dialectical strategies, validation strategies, problem-solving strategies, case management strategies, and hierarchy of treatment targets. The therapist structures each treatment interaction to address the following specific targets in a hierarchical order of importance: life-threatening behaviors, therapy-interfering behaviors, quality-of-life-interfering behaviors, and increasing behavioral skills. Multifamily skills training group sessions are comprised of four modules: mindfulness, interpersonal effectiveness, emotion regulation, and distress tolerance (see Linehan, 1993, and Miller, Koerner, & Kanter, 1998, for elaborations of treatment approach).

Our adaptation of DBT for adolescents involves several modifications: (1) shortening treatment length to 12 weeks based on the clinical reality that the majority of adolescent suicide attempters fail to attend or complete therapy (Trautman et al., 1993), thus helping adolescents to perceive therapy completion as an achievable goal; (2) including parents in the skills training group (a) to enhance generalization and maintenance of skills by teaching them to family members who can serve as coaches, and (b) to improve the adolescents' often dysfunctional, invalidating home environments, given that researchers have found family dysfunction to be associated with suicidal ideation, deliberate self-harm, and suicide attempts (e.g., Martin & Waite, 1994); (3) including parents or other family members in individual therapy sessions when familial issues seem paramount; (4) reducing the number of skills taught and simplifying the language on skills handouts to enhance the probability of adolescents' learning the content in 12 weeks.

DBT Training and Adherence. The doctoral level therapists had received intensive training in DBT with Dr. Linehan. All therapists received a two-day training workshop in DBT and ongoing consultation by senior DBT therapists from a nearby hospital. To enhance DBT adherence, all therapists followed a formally modified skills training protocol (Miller, Rathus, Landsman, & Linehan, 1995), and skills groups were videotaped for teaching and supervision purposes. In addition, individual therapists audiotaped therapy sessions for individual supervision, and participated in weekly therapist consultation team meetings which included group supervision and didactic instruction in DBT. The pre-doctoral level therapists received weekly supervision from licensed psychologists trained intensively.

Treatment as Usual Condition. The TAU condition was comprised of 12 weeks of twice weekly individual and family sessions[2]. Individual therapists employed short-term psychodynamic or supportive approaches aimed toward resolving acute prob-

2. Although this treatment condition may be more intensive than what other treatment studies may typically offer (e.g., Cotgrove et al., 1995; Harrington et al., 1998) this condition represented the standard care in our setting.

lems. This treatment addressed issues of identity formation, separation/individuation, intra-psychic conflicts that emerged as relevant to the adolescent's presenting problems, and coping with daily life stressors. Family therapy sessions generally employed a family systems orientation, and aided the family in resolving their acute conflicts. This modality also provided psychoeducation regarding adolescent depression and addressed issues regarding acculturation and blended families as relevant. The pre-doctoral level therapists received weekly psychodynamic and family therapy supervision for these cases from a psychoanalytically-trained senior psychologist and a family systems-oriented senior social worker.

Instruments

Harkavy-Asnis Suicide Survey. (HASS; Harkavy-Friedman & Asnis, 1989a, 1989b). The HASS is a self-report instrument that includes 10 items assessing various aspects of suicidality including suicidal ideation, planning, and nature of attempts. The scale discriminates suicide attempters, ideators, and nonattempters in adolescent psychiatric outpatients (Wetzler et al., 1996), and has shown varying levels of consistency between self-report and interview methods of administration (Kaplan et al., 1994; Velting, Rathus, & Asnis, 1998). Participants filled out this measure at pre-treatment.

Beck Depression Inventory. (BDI, Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The BDI is a 21-item self-report inventory measuring depression. The BDI has well-established psychometric properties and is widely used in depression research (Beck, Steer, & Garbin, 1988).

Life Problems Inventory. (LPI; Rathus & Miller, 1995). The LPI is a 60-item self-report scale with four 15-item subscales assessing core aspects of borderline personality disorder addressed in DBT: confusion about self, interpersonal difficulties, emotion dysregulation, and impulsivity. The LPI has good internal consistency (subscale alphas range from .82 to .90), and preliminary evidence of criterion validity, with each scale

being significantly correlated with a positive SCID II diagnosis of BPD. All participants completed this measure at pre-treatment; the DBT group also completed it at post-treatment.

Scale for Suicidal Ideation. (SSI; Beck et al., 1979). Suicidal ideation was assessed using the SSI, a 19-item scale used to rate the intensity of a patient's suicidal thoughts, plans, and behaviors. Items are rated on a 3-point scale ranging from 0 to 2, reflecting least to greatest level of ideation; scores range from 0 to 38. The scale assesses suicidal ideation over two time periods: present and most severe time of illness; only present levels were assessed in this study. Good inter-rater and internal consistency reliability, as well as validity, has been established (Beck et al., 1979; Beck, Steer, & Brown, 1993). All participants completed this measure at pre-treatment; the DBT group completed it again posttreatment.

Symptom Checklist 90-Revised. (SCL-90; Derogatis, 1977). The SCL-90 is a 90-item scale spanning nine symptom areas: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The scale has acceptable internal consistency and test-retest reliability, and concurrent and discriminant validity has been demonstrated (Derogatis, 1977). All participants completed this measure at pre-treatment; the DBT group completed the measure again posttreatment.

Schedule for Affective Disorders and Schizophrenia, child version. (K-SADS; Puig-Antich & Chambers, 1978). This semi-structured interview contains modules reflecting Axis I diagnostic categories and was designed for use with children and adolescents. The interview is scored categorically for presence or absence of each diagnostic category assessed. Participants were administered this interview during the intake process.

Structured Clinical Interview for DSM-IIIR Personality Disorders, Borderline Personality Module. (SCID-II; Spitzer, Williams, Gibbon, & First, 1990). The SCID-II is a structured interview for diagnosis of DSM-III personality disorders. Independent mod-

ules represent each personality disorder. Each module receives a categorical rating reflecting the presence or absence of the diagnosis; the number of criteria met can also be tabulated for a dimensional score for a given disorder (i.e., to determine a specified number of features, as in the present study). Participants were administered the Borderline module of this interview during the intake process.

Number of Psychiatric Hospitalizations during Treatment. For each patient, the number of times of admission to an inpatient psychiatric unit was calculated. Since no patient in the sample was admitted more than once during the 12-week treatment, this was treated as a dichotomous (i.e., yes/no) variable.

Number of Suicide Attempts during Treatment. Suicide attempts were defined as self-harm behavior with the intent to die. These data were collected by individual therapists based on patients' self-report during the course of treatment.

Treatment Completion Rate. Each participant was given a dichotomous rating of *yes* or *no* based on whether they completed the 12 weeks of treatment. Both groups maintained an attendance policy: those who missed either three skills groups (or family sessions in TAU) or three individual sessions were discharged from treatment and thus considered noncompleters. Patients were permitted to reapply 16 weeks after their first therapy session and received referrals to their catchment area clinics. Patients who failed to show for their first or second visit were contacted by the therapist, who made an attempt to recruit them. For patients who dropped out and reapplied later for treatment, we included only their first round of treatment data (they are thus considered non-completers).

RESULTS

Group Differences at Pretreatment

Because participants were not randomly assigned to groups, it was important to examine the ways in which the two groups differed at pretreatment.

DSM-IV Diagnoses. The DBT group was diagnosed with more depressive disorders (92%, $n = 23$) than the TAU group (72.7%, $n = 56$), $\chi^2_1 = 4.01$, $p = .045$, more substance abuse disorders (48%, $n = 12$, versus 5.3%, $n = 4$), $\chi^2_1 = 25.8$, $p < .0001$, and a trend toward more anxiety disorders (40%, $n = 10$, versus 20.8%, $n = 16$), $\chi^2_1 = 3.67$, $p = .055$). The two groups did not differ on disruptive behavior disorders (19.8%, $n = 20$), adjustment disorders (20.8%, $n = 21$), or psychotic disorders (6.1%, $n = 6$). The DBT group had a greater total number of Axis I diagnoses with 2.6 ($SD = 1.0$) diagnoses per adolescent versus 1.5 ($SD = .68$) in the TAU group, $t_{100} = 5.54$, $p < .001$. The DBT group also had an overwhelmingly greater proportion of adolescents diagnosed with borderline personality disorder (88%, $n = 22$, versus 15.8%, $n = 12$), $\chi^2_1 = 43.93$, $p < .00001$. Finally, the DBT group reported more borderline personality symptoms on the LPI (total score; $t_{70} = 3.07$, $p = .003$), and on each of its four subscales: confusion about self ($t_{70} = 2.94$, $p = .004$), interpersonal difficulties ($t_{70} = 2.70$, $p = .009$), emotion dysregulation ($t_{70} = 2.18$, $p = .032$), and impulsivity ($t_{70} = 2.84$, $p = .006$).

Suicidality and Depression. The two groups did not differ on suicidal history, likely due to the fact that they were all entering a specialty depression and suicide program. Suicidal features were common to most of the sample, leading to a ceiling effect of suicidality. As a whole, the sample had made an average of 1.5 ($SD = 2.1$) suicide attempts (defined on the HASS as "trying to kill yourself"), reported 2.25 ($SD = 2.13$) years since time of first suicidal ideation, and 1.80 ($SD = 2.23$) years since their first suicide attempt. There were no differences in parasuicidal history, with 67.9% ($n = 53$) of the total sample indicating never having engaged in parasuicidal behavior, 24.4% ($n = 19$) reporting one to two parasuicidal acts, and 7.7% ($n = 6$) reporting three or more parasuicidal acts.

The DBT group did show a trend toward greater current suicidal ideation on the SSI ($t_{65} = 1.91$, $p = .060$) at pretreatment, and

were more depressed according to the BDI ($t_{50} = 2.87$, $p = .006$) (see Table 1).

Hospitalizations Prior to treatment. The DBT group had more than twice as many inpatient psychiatric hospitalizations prior to treatment—65.5% versus 31.7%, $\chi^2_1 = 10.16$, $p = .001$).

Between-Group Findings

We conducted chi-square analyses to examine the differences between the TAU and DBT groups on: (1) inpatient psychiatric hospitalizations during treatment, (2) suicide attempts during treatment, and (3) treatment completion rates. Thirteen percent of participants in the TAU condition were admitted for psychiatric hospitalizations during the course of treatment, which was significantly greater than 0%, or none, in the DBT condition, $\chi^2_1 = 4.16$, $p = .041$.

There was no significant difference in the number of suicide attempts during the course of treatment between the two groups, with 7.3% ($n = 8$) of the total sample making attempts while in treatment. Although the number of suicide attempters in the groups was too low to obtain statistical significance, the proportion of adolescents making suicide attempts while in the TAU treatment was 2.5 times as many as those who made suicide attempts while in the DBT treatment, with 8.6% ($n = 7$) of participants in the TAU group making attempts compared with 3.4% ($n = 1$) in the DBT group.

Finally, looking at treatment completion rates, 40% of participants in the TAU group completed 12 weeks of treatment,

which was significantly less than the 62% of participants in the DBT group who completed treatment, $\chi^2_1 = 4.32$, $p = .038$.

Within-Group Findings

Examining pre-post change within the DBT group, suicidal ideation ($n = 10$) decreased significantly, $t_9 = 2.65$, $p = .026$. As reported in Table 2, on the SCL-90, there was a significant pre-post reduction in the Global Severity Index, a measure of overall symptom levels across all 90 items, $t_9 = 2.73$, $p = .023$. There was also a significant pre-post reduction in the Positive Symptom Distress Index, a measure of total number of symptoms endorsed, $t_9 = 3.62$, $p = .006$. Looking at individual scale scores, significant decreases occurred on the anxiety, $t_9 = 2.29$, $p = .048$), depression, $t_9 = 3.89$, $p = .004$, interpersonal sensitivity, $t_9 = 2.93$, $p = .017$, and obsessive-compulsive, $t_9 = 3.59$, $p = .006$) scales, with a trend toward significance on the paranoid scale ($n = 10$), $t_9 = 2.17$, $p=.058$.

Examining LPI scores, we found significant pre-post decreases in total scores, $t_{12} = 3.44$, $p = .009$, and in each of the four problem areas ($n = 13$): confusion about self, $t_{12} = 3.22$, $p = .007$, impulsivity, $t_{12} = 3.43$, $p = .005$, emotion dysregulation, $t_{12} = 3.37$, $p = .006$, and interpersonal difficulties, $t_{12} = 2.21$, $p = .047$ (see Table 3). All within-group decreases may be considered especially robust given the low power for these analyses.

DISCUSSION

The present study reported data from a quasi-experimental investigation of an ad-

TABLE 1
Pre-Treatment Differences in Suicidal Ideation and Depression in DBT and TAU Groups: Means and Standard Deviations

Measure	DBT Group		TAU Group	
	M	SD	M	SD
Scale for Suicidal Ideation	9.92	7.5 ($n = 26$)	6.61[T]	6.5 ($n = 41$)
Beck Depression Inventory	21.0	10.0 ($n = 21$)	13.1[b]	9.5 ($n = 31$)

Note [b]$p < .01$; [T] = trend ($p < .10$); DBT = Dialectical Behavior Therapy; TAU = Treatment as Usual

TABLE 2

DBT Pre- and Posttreatment Differences on Suicidal Ideation and SCL-90 Scores (n = 10): *Means and Standard Deviations*

Measure	Pretreatment		Posttreatment	
	M	SD	M	SD
Scale for Suicidal Ideation	9.80	5.3	3.80[a]	4.6
SCL-90				
Global Severity Index (*t*-score)	49.2	12.1	36.7[a]	16.9
Positive Symptom Distress Index (*t*-score)	53.5	12.7	40.8[b]	16.1
Somatic	46.8	11.7	45.2	14.2
Obsessive Compulsive	51.1	14.0	38.2[b]	15.6
Interpersonal Sensitivity	50.3	11.7	38.2[a]	12.8
Depression	51.7	10.4	34.1[b]	16.7
Anxiety	44.4	12.3	35.8[a]	12.2
Hostility	50.1	12.1	41.9	12.7
Phobia	47.4	10.6	43.8	12.0
Paranoia	53.1	10.8	43.9[T]	11.5
Psychoticism	50.5	10.0	42.5	13.4

Note [a]*p* < .05; [b]*p* < .01; [T] = trend (*p* < .10); SCL-90 = Symptom Checklist 90

aptation of Linehan's Dialectical Behavior Therapy for suicidal adolescents compared to treatment as usual. Despite the greater level of severity of the DBT group pretreatment, on outcome this group had significantly fewer inpatient psychiatric hospitalizations during the 12 weeks of treatment (i.e., none), and a significantly greater treatment completion rate. Thus, DBT for adolescents seems to be effective in keeping patients out of the hospital and in treatment (relative to TAU). On the third outcome measure, the groups did not differ significantly in the number of suicide attempts made during treatment. This is a case where we consider a null finding a notable one, since the DBT group was diagnosed with a greater number of Axis I disorders, had a much higher rate of borderline personality disorder, was more impulsive (as measured by the LPI), and had twice as many prior hospitalizations.

In addition to the between-group findings, within our DBT group we obtained significant reductions in suicidal ideation; overall symptom levels and total number of symptoms endorsed on the SCL-90; the anx-

TABLE 3

DBT Pre- and Posttreatment Differences on Borderline Personality Symptoms (*LPI Scores*, n = 13): *Means and Standard Deviations*

Scale	Pretreatment		Posttreatment	
	M	SD	M	SD
LPI Total	170.6	58.2	108.0[b]	63.5
Confusion About Self	45.9	18.6	25.6[b]	18.1
Impulsivity	37.4	10.9	25.9[b]	12.3
Emotion Dysregulation	45.5	16.3	27.2[b]	17.8
Interpersonal Difficulties	41.8	18.7	29.0[a]	18.8

Note [a]*p* < .05; [b]*p* < .01; LPI = Life Problems Inventory

iety, depression, interpersonal sensitivity, and obsessive-compulsive subscales (with a trend toward significance on the paranoid subscale) of the SCL-90; and overall borderline symptomatology on the LPI as well as in each of its four subscales, representing problem areas considered by Linehan (1993a) to reflect core areas of dysfunction in BPD: confusion about self, impulsivity, emotion dysregulation, and interpersonal difficulties. These changes are especially noteworthy given the high chance of Type II error with our limited sample sizes.

The presence of a depressive disorder in 92% of our DBT group is worthy of consideration, especially since the vast majority of this group would have been excluded from the typical treatment study for depression due to the high rate of comorbid disorder and suicidality. Similarly, in Linehan et al.'s (1991) sample of 41 women diagnosed with BPD who had engaged in recent parasuicidal behavior, 71% met criteria for major affective disorder and 24% met criteria for dysthymia, reflecting the high rate of comorbid depressive disorders in samples recruited for borderline personality characteristics.

Clinical Implications

Effective treatments for suicidal patients are sparse, especially for adolescents. Most empirically supported psychosocial interventions for depressed adolescents exclude adolescents with suicidal behaviors and comorbid psychopathology. Given the relevant literature, a study examining multi-problem suicidal adolescents with comorbid psychiatric illness was indicated. Our findings generally supported our expectations regarding the comparison of DBT to the TAU condition and pre-post change within the DBT condition. It is particularly promising that improvements of this nature were obtained following a brief treatment model with 12 weeks of twice-weekly therapy. However, our more brief application of DBT to an adolescent population was based in part on the notion that these patients are not as chronic and severe as an adult suicidal population with

BPD; indeed, as compared to Linehan and colleagues' (1991) one-year study, our DBT group was clearly less severe in terms of parasuicidal behavior and psychiatric admissions. Nevertheless, as these patients are representative of those adolescents referred to our program for treatment with suicidal and borderline personality features, our adapted treatment appears at this point to be a fitting model for this group of patients.

Another consideration is the treatment philosophy of DBT therapists to work intensively using an outpatient model to help patients manage their life problems using means such as in vivo problem solving via telephone consultation and employing distress tolerance skills. Therefore, there is less of a reliance in DBT on hospitalizing patients in crisis than in other treatment orientations. The question might then arise as to whether the lower percentage of hospitalization in the DBT condition reflects improvement in functioning or simply an inclination by clinicians not to hospitalize. Interestingly, however, higher rates of hospitalization among adolescents receiving TAU did not appear to reduce suicide attempts (i.e., there were no differences between groups in suicide attempts). Given the potential emotional, social, academic, and financial costs of hospitalization, DBT appears to offer an effective approach for managing high risk adolescents on an outpatient basis.

The issue of transportability of empirically validated treatments from highly controlled research settings to real world treatment settings is an important one for evaluating any therapy (NIMH, 1991). In this sense, Linehan et al.'s (1991) initial randomized study was unique in that it targeted, rather than excluded, patients traditionally considered highly difficult to treat: multi-problem patients with high Axis I and II diagnostic comorbidity, suicidality, and other forms of extreme behavioral dyscontrol. Our study lends preliminary support to even further extension of DBT's applications. First, the study is the only one to date evaluating a comprehensive outpatient treatment for suicidal adolescents. In addition, the adolescent

treatment was developed with a predominantly Hispanic population (68%). This is especially relevant given two findings: (1) Hispanic high school students have the highest rate of suicide attempts compared to other high school students (CDC & Prevention, 1998), and (2) there is a dearth of behavior therapy and research being conducted with culturally diverse populations (Preciado, 1999). Finally, the treatment setting is an active hospital-based clinic to which the treatment was imported (as opposed to a university-based clinic that was also the treatment development site).

Limitations

Several aspects of our study design limit its conclusiveness. Adolescents were not randomly assigned to treatment conditions, resulting in a non-equivalent comparison group. Our study design cannot rule out the possibility that depressed, female borderline adolescents are more responsive to psychotropic medications or to psychotherapy than other suicide-attempting teen-agers. These issues obviously require further study using random assignment to equate groups. In addition, it would have been important to compare DBT group posttreatment scores on self-report measures with TAU group posttreatment scores to determine whether the promising improvements noted were unique to the DBT condition, but unfortunately we did not collect that data. Moreover, the lack of follow-up data further limits the conclusiveness of the within-group change, in light of the ceiling effect often observed in symptom recovery within a brief time frame among acutely suicidal individuals. However, Lewinsohn and colleagues (1996) note that nearly one quarter of teen suicide attempters re-attempt within 3 months of their first attempt, suggesting that our findings of reduced suicidal ideation, depression, and impulsivity, among other pre-post changes, are noteworthy. Further, the pre-post measures we include are limited to self-report instruments, which are subject to the usual problems associated with this mode of assessment including distortions in self-perception and vulnerability to response biases and demand characteristics. Future research should therefore include outcome assessments in both the experimental and control treatment groups and expand assessment to include follow-up data and modes other than paper-and-pencil self-report measures (e.g., structured interviews, observer ratings). Another limitation involves the lack of objective markers of treatment adherence. Lastly, the possibility exists that differences between groups could be accounted for by differential enthusiasm conveyed to patients regarding the two treatments. While nearly any novel treatment poses this threat to construct validity in an intervention study, our TAU condition was delivered in a teaching hospital with supervisors committed to the short-term psychodynamic model and trainees eager to learn it. Thus, we feel this threat is minimized.

The areas in need of future refinement notwithstanding, based on our findings, DBT appears to lend itself to adaptation for an adolescent population, and appears to offer a promising treatment for suicidal adolescents with borderline personality characteristics.

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