ORIGINAL ARTICLE

Naturalistic Follow-up of a Behavioral Treatment for Chronically Parasuicidal Borderline Patients

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Background: A randomized clinical trial was conducted to evaluate whether the superior performance of dialectical behavior therapy (DBT), a psychosocial treatment for borderline personality disorder, compared with treatment-as-usual in the community, is maintained during a 1-year posttreatment follow-up.

Methods: We analyzed 39 women who met criteria for borderline personality disorder, defined by Gunderson's Diagnostic Interview for Borderline Personality Disorder and *DSM-III-R* criteria, and who had a history of parasuicidal behavior. Subjects were randomly assigned either to 1 year of DBT, a cognitive behavioral therapy that combines individual psychotherapy with group behavioral skills training, or to treatment-as-usual, which may or may not have included individual psychotherapy. Efficacy was measured on parasuicidal behavior (Parasuicide History Interview), psychiatric inpatient days (Treatment History Interview), anger (State-Trait Anger Scale), global functioning (Global Assessment Scale), and social adjustment (Social Adjustment Scale–Interview and Social Adjustment Scale–Self-Report). Subjects were assessed at 6 and 12 months into the follow-up year.

Results: Comparison of the two conditions revealed that throughout the follow-up year, DBT subjects had significantly higher Global Assessment Scale scores. During the initial 6 months of the follow-up, DBT subjects had significantly less parasuicidal behavior, less anger, and better self-reported social adjustment. During the final 6 months, DBT subjects had significantly fewer psychiatric inpatient days and better interviewer-rated social adjustment.

Conclusion: In general, the superiority of DBT over treatment-as-usual, found in previous studies at the completion of 1 year of treatment, was retained during a 1-year follow-up.

(Arch Gen Psychiatry. 1993;50:971-974)

BY ALL accounts, borderline personality disorder (BPD) is a substantial public health problem that is difficult to treat. A recent study by Linehan et al[1] was the first randomized, controlled trial of a psychosocial intervention for the disorder. Linehan et al targeted parasuicidal behavior (all acute, intentional self-injurious behavior, including suicide attempts), a pattern that discriminates BPD from other personality disorders.[2] They reported that subjects who received 1 year of a cognitive behavioral treatment, specifically, dialectical behavior therapy (DBT), had significantly fewer parasuicidal episodes, fewer medically severe parasuicidal episodes, a lower treatment dropout rate, and fewer psychiatric inpatient days than the subjects assigned to the treatment-as-usual (TAU) control condition. The study was conducted in two cohorts, with approximately equal numbers of subjects in each. Analyses of the second cohort,[3] where a number of additional outcome measures were added to the assessment battery, indicated that subjects assigned to DBT, compared with those assigned to TAU, also reported significantly less anger, greater social adjustment, better work performance (ie, role performance in employment, school, or housework), less anxious rumination, and better employment performance and were rated by the interviewer as more socially adjusted and as less severely disturbed based on the Global Assessment Scale (GAS).

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SUBJECTS AND METHODS

SUBJECTS

Recruitment, screening, and assignment of subjects to treatment are described in the original outcome study.[1] Briefly, all subjects met criteria for BPD, had at least two instances of prior parasuicidal behavior, were women between ages 18 and 45 years, and gave voluntary informed consent. Forty-one (DBT=20, TAU=21) of the original 47 subjects remained in the study at the end of the experimental treatment year. Two of these subjects, one in each condition, could not be contacted for follow-up. The remaining 39 subjects were included in the follow-up. Information about subsequent suicidal behavior was obtained for all subjects. All other assessments were conducted only on subjects in the second cohort of the clinical trial (DBT=9, TAU=11).

TREATMENTS

Dialectical Behavior Therapy

Dialectical behavior therapy is a manualized behavioral treatment[8,9] that includes concomitant, weekly individual psychotherapy and group skills training. The treatment is described in greater detail in the original outcome study.[1] Dialectical behavior therapy is based on a combined motivational-skills deficit model that presumes that individuals with BPD lack important interpersonal, self-regulation (including emotional regulation), and distress tolerance skills and that personal and environmental factors often inhibit the use of behavioral skills the individual does have and/or reinforce inappropriate borderline behaviors. Weekly individual DBT focuses primarily on motivational issues and skill strengthening and balances behavioral strategies aimed at change with supportive, validating strategies aimed at providing acceptance. It maintains a hierarchy of treatment goals during the first stage of therapy, which targets the reduction of suicidal behavior, behavior that interferes with therapy, and behavior that interferes with quality of life and replaces these behaviors with skillful interpersonal, emotion regulation, distress tolerance, and mindful behavioral responses. Weekly group skills training follows a psychoeducational format and focuses on behavioral skill acquisition. At the end of the treatment year, all DBT subjects were required to take a 2-month "vacation" from their individual DBT therapist after which they could continue in private psychotherapy if both they and the therapist agreed to continue. Seven subjects (35%; cohort 1=3, cohort 2=4) continued. In the second cohort, all four subjects in psychotherapy joined an ongoing support group led by the senior author (M.M.L.).

Treatment-as-Usual

The TAU control condition was a naturalistic one in which subjects were allowed to participate in any type(s) of therapy available in the community. At the end of the experimental treatment year, 12 subjects assigned to TAU (55%; cohort 1=7, cohort 2=5) were in ongoing psychotherapy. In the second cohort, three subjects entered or continued some group therapy.

ASSESSMENT

Timing

Assessments were scheduled for 6 and 12 months following the end of the experimental treatment year and are referred to as the 18- and 24-month time periods or time points.

Measures

The measures, their psychometric properties and procedures, are described in greater detail in the original outcome studies.[1,3] All subjects were asked questions from the Parasuicide History Interview (PHI),[10] which obtained information about the frequency and subsequent medical treatment of parasuicidal behavior. In the second cohort, subjects were given the following additional measures: the Treatment History Interview (THI)[11] obtained information about psychiatric inpatient treatment. The trait portion of the State-Trait Anger Scale (STAS-T)[12] measured anger as a trait over time and situations. An interview was adapted and modified from the psychosocial functioning portion of both the Social Adjustment Scale–Interview (SAS-I)[13] and the Longitudinal Interview Follow-up Evaluation (LIFE) Base Schedule[14] and provided the information for an observer rating of social adjustment and a GAS[15] score. The Social Adjustment Scale–Self-Report (SAS-SR)[16] measured overall social adjustment, work performance, anxious rumination, and employment performance during the 2 weeks before each assessment. Higher scores on the GAS but lower scores on the interviewer-rated social adjustment and SAS-SR scales indicate better functioning. Some subjects were unwilling to complete the entire assessment battery but were willing to do an abbreviated interview covering essential outcome data. Interviewers were "blind" about treatment condition.

Because of the lack of other controlled trials of psychosocial treatments for BPD, currently available follow-up studies for this population[4-7] either follow up patients retrospectively through a naturalistic course of treatment(s) or prospectively follow up patients who have been assigned to a specific treatment with no controlled comparison group. These studies have generally demonstrated poor prognoses for patients with BPD, even when intensive treatments have been applied. The course of BPD over time, as well as pessimism about available treatments, suggest that follow-up evaluations after treatment trials are especially important for this population.

Treatment Outcome by Condition and Time*

Variable	Descriptive Statistic	Condition: DBT	Condition: TAU	Statistic
Parasuicide episodes, No.				
18 mo	Median (IQR), n	0.00 (0.00), 19	1.00 (3.00), 20	z=3.78†
	Mean±SD	0.10±0.32	2.10±2.69	. . .
24 mo	Median (IQR), n	0.00 (1.00), 18	0.00 (2.00), 18	z=0.98
	Mean±SD	0.72±1.56	1.06±1.55	. . .
Medically treated episodes, No.				
18 mo	Median (IQR), n	0.00 (0.00), 19	0.00 (1.00), 20	z=2.56‡
	Mean±SD	0.05±0.23	0.75±1.45	. . .
24 mo	Median (IQR), n	0.00 (0.00), 18	0.00 (0.00), 18	z=0.04
	Mean±SD	0.11±0.11	0.56±0.24	. . .
Psychiatric hospital days, No.				
18 mo	Median (IQR), n	0.00 (0.00), 9	0.00 ((30.00), 10	z=1.14
	Mean±SD	1.56±4.67	16.00±29.54	. . .
24 mo	Median (IQR), n	0.00 (0.00), 9	0.00 (4.50), 10	z=1.74§
	Mean±SD	0.00±0.00	5.30±12.87	. . .
Anger				
18 mo	Adjusted mean±SD, n	30.97±7.75, 8	37.46±5.35, 7	f=3.64§
24 mo	Adjusted mean±SD, n	32.99±7.48, 8	38.19±9.08, 11	f=1.87
Global Assessment Scale				
18 mo	Adjusted mean±SD, n	48.18±10.78, 7	32.14±8.28, 7	f=7.24§
24 mo	Adjusted mean±SD, n	57.41±16.82, 9	36.05±3.86, 6	f=7.93‡
Interviewer-rated social adjustment				
18 mo	Adjusted mean±SD, n	3.65±0.96, 7	3.97±0.64, 7	f=0.54
24 mo	Adjusted mean±SD, n	3.23±0.73, 7	4.23±0.36, 7	f=8.69‡
Self-reported social adjustment				
18 mo	Adjusted mean±SD, n	2.11±0.25, 8	2.40±0.42, 7	f=3.82§
24 mo	Adjusted mean±SD, n	2.01±0.47, 8	2.23±0.60, 7	f=0.18
Work performance				
18 mo	Adjusted mean±SD, n	1.99±0.47, 7	2.32±0.61, 7	f=1.29
24 mo	Adjusted mean±SD, n	1.70±0.86, 7	2.14±0.52, 7	f=1.39
Anxious rumination				
18 mo	Adjusted mean±SD, n	1.79±0.36, 6	2.50±1.08, 7	f=2.14
24 mo	Adjusted mean±SD, n	1.98±0.78, 6	2.42±1.02, 7	f=0.79
Employment performance				
18 mo	Adjusted mean±SD, n	1.47±0.40, 5	2.27±0.56, 5	t=2.60§
24 mo	Adjusted mean±SD, n	1.42±0.50, 4	2.46±0.50, 4	t=3.00§

DBT indicates dialectical behavior therapy; TAU, treatment as usual; and IQR, inner quartile range.
†P<.001, one-tailed test.
‡P<.01, one-tailed test.
§P<.05, one-tailed test.

This article describes a 1-year, naturalistic follow-up of the subjects participating in the study by Linehan et al.[1] The study is naturalistic because ethical considerations precluded any requirement that DBT subjects and their therapists terminate therapy at the end of the experimental treatment. All subjects remaining in the study at the end of the experimental treatment year were included, and all measures showing significant between-group differences at posttreatment were analyzed.

RESULTS

Mann-Whitney *U* and binominal tests were used to analyze parasuicidal behavior and psychiatric inpatient days, neither of which met assumptions for parametric tests. Throughout the treatment year, both the parasuicide repeat rate (DBT=26%; TAU=60%; z=2.12; P<.01) and the likelihood of any psychiatric hospitalization (DBT=11%; TAU-40%; z=1.43; P<.07) were lower for subjects completing DBT than for subjects remaining in TAU. During the 12- to 18-month period, subjects completing DBT had fewer parasuicidal episodes and fewer medically treated episodes (**Table**). This is due primarily to the higher parasuicide rate among subjects remaining in TAU. There were no significant between-group differences on parasuicide measures during the 18- to 24-month period. In contrast, psychiatric inpatient days during the 18- to 24-month period (Table) were lower for subjects completing DBT, but

there were no between-group differences during the 12- to 18-month period.

For each time point, we conducted separate analyses of covariance, with pretreatment scores covaried on anger, GAS, interview-rated social adjustment, self-reported social adjustment, work performance, anxious rumination, and employment performance. Multivariate repeated measures statistics were not used because of problems with missing or incomplete data. We did not covary pretreatment scores when analyzing employment performance because subjects may have started working after pretreatment (Table). At both time points, subjects completing DBT, compared with subjects remaining in TAU, reported significantly better employment performance and were rated significantly higher on global adjustment by the interviewer. At the 18-month time point, subjects completing DBT reported significantly less anger and better social adjustment. At the 24-month time point, subjects completing DBT were rated significantly higher on overall social adjustment by the interviewer. There were no significant between-condition differences on either work performance or anxious rumination at either time point.

COMMENT

In this follow-up comparison of DBT with TAU, the superiority of DBT over TAU achieved during the treatment year[1] is generally maintained during the year following treatment. In every area where DBT was superior to TAU at posttreatment, except for work performance and anxious rumination, there was maintenance of DBT gains relative to TAU during follow-up for at least 6 months.

Across the follow-up year as a whole, DBT subjects reported significantly better GAS scores and employment performance than TAU subjects. Dialectical behavior therapy superiority was stronger during the first 6 months following the experimental treatment year for measures of parasuicidal behavior, anger, and self-reported social adjustment. In contrast, during the last 6 months of follow-up, superiority emerged for psychiatric inpatient days and interviewer-rated social adjustment. The absence of significant between-group differences on parasuicidal behavior during the 18- to 24-month period suggests what most clinicians would predict: on the one hand, 1 year of treatment, even one that is effective at producing improvement, is not sufficient for long-term "cure" and, on the other hand, over the long term, some chronically parasuicidal individuals can be expected to decrease their parasuicidal behavior either on their own or with the assistance of available mental health resources.

This study has some limits. Our small sample size limited the power and, consequently, we may not have detected true differences that could be picked up in a larger study. Power analyses of those variables that were not significant at one of the time points suggested that this might be the case. The individual psychotherapy of the subjects completing DBT was not controlled during follow-up. One could hypothesize that the superiority of DBT was maintained by subjects who remained in the treatment. We examined this hypothesis by comparing follow-up scores for those continuing with their DBT therapist compared with those not and found little support for this hypothesis, though a study with a much larger sample would be needed to address this issue. Finally, the sample was a relatively homogeneous group of severely dysfunctional, chronically parasuicidal borderline women. It remains unclear to what extent the results of this study with highly dysfunctional female borderline patients would generalize either to less dysfunctional patients or to the treatment of male borderline patients. Despite these limitations, the statistical significance of our results suggests a powerful effect of DBT that is maintained well throughout the follow-up year.

Accepted for publication December 29, 1992.

This research was supported by grant MH34486 from the National Institute of Mental Health, Bethesda, Md (Dr Linehan).

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