A CONTROLLED TRIAL OF PSYCHODYNAMIC PSYCHOTHERAPY FOR CO-OCCURRING BORDERLINE PERSONALITY DISORDER AND ALCOHOL USE DISORDER

A randomized controlled trial was conducted to determine whether a manual-based psychodynamic treatment, labeled dynamic deconstructive psychotherapy (DDP), would be feasible and effective for individuals with co-occurring borderline personality disorder (BPD) and alcohol use disorder. Thirty participants were assessed every 3 months during a year of treatment with either DDP or treatment as usual (TAU) in the community. DDP participants showed statistically significant improvement in parasuicide behavior, alcohol misuse, institutional care, depression, dissociation, and core symptoms of BPD, and treatment retention was 67% to 73%. Although TAU participants received higher average treatment intensity, they showed only limited change during the same period. The results support the feasibility, tolerability, and efficacy of DDP for the co-occurring subgroup and highlight the need for further research.

Keywords: psychodynamic, borderline personality disorder, psychotherapy, alcohol, personality

Borderline personality disorder (BPD) is a serious illness involving cognitive, affective, and behavioral symptoms and multiple comorbidities. Approximately 50% to 70% of psychiatric inpatients with BPD also meet diagnostic criteria for substance use disorders, most commonly alcohol use disorder (Dulit, Fyer, Haas, Sullivan, & Frances, 1990; Zanarini, Frankenburg, Hennen, Reich, & Silk, 2004). The prevalence of BPD among persons in treatment for alcohol use disorder is also high. BPD prevalence rates of 16% to 22% have been reported in outpatient and inpatient alcohol detoxification and rehabilitation facilities (Morgenstern, Langenbucher, Labouvie, & Miller, 1997; Nurnberg, Rifkin, & Doddi, 1993).

Among patients in treatment for alcohol use disorder, co-occurring BPD has been associated with nonadherence to treatment and multiple measures of problem drinking, including lifetime severity of alcohol dependence, psychological problems related to drinking, earlier age of onset of drinking, worse adaptive coping, and suicide ideation (Martinez-Raga, Marshall, Keaney, Ball, & Strang, 2002; Morgenstern et al., 1997). In the latter study, BPD symptoms were sustained during times of abstinence and were predicted by measures of maladjustment in childhood and adolescence. These results suggest that persons with BPD represent a distinct subgroup among patients receiving treatment for alcohol dependence, with unique clinical variables, etiology, and treatment course.

Likewise, studies examining patients in treat-
ment for BPD have demonstrated that co-occurring alcohol use disorder adversely affects outcome on measures of psychopathology. In a study by Miller, Abrams, Dulit, and Fyer (1993), BPD complicated by alcohol use disorder was associated with unemployment, poor school performance, and promiscuity, as compared to BPD without co-occurring alcohol use disorder. A study by van den Bosch, Verheul, and van den Brink (2001) compared 29 subjects with BPD to 35 subjects who had co-occurring BPD and substance use disorders. The latter group was found to have higher rates of anxiety, antisocial behavior, and suicide attempts. In a large psychological autopsy study of substance-related suicides, female victims were noted to have high rates of BPD (Pirkola et al., 1999). In a prospective study of 290 subjects diagnosed with BPD who had been hospitalized at McLean, Zanarini, and colleagues (2004) reported that co-occurring substance use disorders strongly and negatively correlated with remission from BPD at 6-year follow-up. The presence of substance use disorders, including alcohol use disorder, had a greater effect on outcome than the presence of any other co-occurring Axis I disorder, including posttraumatic stress disorder, bipolar disorder, eating disorders, or major depressive disorder. In their discussion, the authors stressed the need for development of treatments that specifically target persons who have co-occurring BPD and substance use disorders.

**Treatment Studies**

Various psychotherapy modalities have been developed for BPD, but many of the clinical trials excluded participants with co-occurring substance dependence (Bateman & Fonagy, 1999, 2001; Clarkin, Levy, Lenzenweger, & Kernberg, 2007; Koons et al., 2001; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991). Two psychotherapy trials that included a mix of patients with and without co-occurring substance use disorders have examined the impact of these disorders on the outcome of BPD. In an 18-month analysis of 39 BPD patients treated with cognitive analytic therapy, Ryle and Golynkina (2000) reported that co-occurring alcohol abuse was associated with poorer treatment retention and outcomes.

In a randomized trial of dialectical behavior therapy (DBT) in 58 women, DBT resulted in greater improvement in borderline pathology than treatment as usual, including parasuicide, regardless of the presence of co-occurring substance use disorders (van den Bosch, Verheul, Schippers, & van den Brink, 2002). However, utilizing the Addiction Severity Index as an outcome assessment, DBT was ineffective in decreasing either alcohol or drug use after 12 months of treatment and an additional 6-month follow-up, as compared either to pretreatment or to usual care. In a subsequent paper, the data from this study were reanalyzed employing the BPD Severity Index as an outcome measure for alcohol and drug use (van den Bosch, Koeter, Stijnen, Verheul, & van den Brink, 2005). Utilizing this measure, DBT was shown to be effective in decreasing alcohol misuse at 12-months relative to usual care, but not at 6-month follow-up.

Given indications that the co-occurring subgroup may be especially challenging and need more focused treatment, DBT was adapted and modified to include substance use in the hierarchy of targeted dysfunctional behaviors. Two small controlled trials of the modified DBT have been published thus far. In the first study, modified DBT combined with drug replacement therapy (methadone and methylphenidate) was compared to usual care in 28 drug dependent women with BPD (Linehan et al., 1999). The results indicated that DBT and drug replacement decreased substance use relative to usual care throughout the treatment year and at 16 months follow-up and demonstrated greater gains in global and social adjustment. However, there were no between-groups differences in parasuicide or inpatient utilization.

In the second study, modified DBT was compared to comprehensive validation therapy (CVT) plus 12-step in 23 heroin-dependent women with BPD (Linehan et al., 2002). Both groups also received drug replacement therapy and total contact hours were equivalent. Results indicated that both treatments were effective in reducing opiate use and improving measures of global adjustment, but not social adjustment or parasuicide.

To summarize research findings regarding persons with co-occurring BPD and substance use disorders, it is evident that they represent a large subgroup of both the mental health system and alcohol and drug rehabilitation programs. Co-occurrence is associated with more severe psychopathology and worsened prognosis than either condition separately. Initial studies of a modified
version of DBT have been carried out for co-occurring BPD and drug dependence. Psychodynamic psychotherapy for the co-occurring subgroups is untested except in case reports (Gregory, 2004; Johnson, 1992).

The primary objective of the present paper is to describe the results of a 12-month controlled study that assesses the feasibility, tolerability, and efficacy of a manual-based psychodynamic psychotherapy for persons with co-occurring BPD and alcohol use disorder. Alcohol use disorder was targeted for treatment over other substance use disorders because of its high prevalence and common co-occurrence with BPD. Although the study is not powered to detect statistically significant between-groups differences, a statistical analysis was undertaken to determine whether findings were sufficiently favorable to warrant further research and to inform the designs of future studies.

Method

Participants

Thirty adults enrolled in the study. Inclusion criteria included ages between and including 18 to 45 years, diagnosis of BPD, and active alcohol abuse or dependence (i.e., not in full sustained remission). Exclusion criteria included diagnoses of schizophrenia or schizoaffective disorder, mental retardation, or a neurological condition that may produce secondary psychiatric symptoms (e.g., stroke, multiple sclerosis, partial complex seizures, or traumatic brain injury).

Recruitment was from clinical settings and took place from June 2004 through mid-November, 2005. Sources of referral included emergency departments (n = 9), mental health clinics (n = 8), drug and alcohol rehabilitation centers (n = 5), inpatient psychiatry units (n = 4), and other (n = 4). By the end of the recruitment period, 103 potential participants had been screened for eligibility. As Figure 1 indicates, of the 103 potential participants, 37 did not meet inclusion/exclusion criteria, 36 were eligible but elected not to participate, and 30 were enrolled and allocated to treatment groups. The most common reasons for exclusion from the study were no active alcohol use disorder (n = 14), followed by age (n = 7), low I.Q. (n = 6), schizophrenia or schizoaffective disorder (n = 5), not meeting criteria for BPD (n = 4), and diagnosis of multiple sclerosis (n = 1).

Table 1 outlines the demographic and diagnostic characteristics of the enrolled sample. Participants were primarily unmarried (90%), female (80%) and Caucasian (90%), with a mean ± SD age of 28.7 ± 7.7 years. Only 10 participants (33%) were engaged in part-time or full-time employment (Hollingshead categories 1–7). The 36 persons who were eligible but chose not to participate were also largely of female gender (n = 35) with a mean age of 29.0 ± 7.2 years. There were no statistically significant differences in demographic characteristics between the two treatment groups.

Thirteen of the study participants (43%) had a co-occurring diagnosis of antisocial personality disorder and 5 participants (17%) met criteria for bipolar disorder, Type I or II, all in the TAU group (p = .042). Twenty participants (67%) met criteria for alcohol dependence and the remainder (n = 10) for alcohol abuse. Twelve participants (40%) reported currently using illicit drugs. Twenty-five participants (83%) admitted to a prior history of illicit drug use, including heroin (n = 6), sedative hypnotics (n = 10), other opiates (n = 11), amphetamines (n = 12), hallucinogens (n = 14), cocaine (n = 16), and cannabis (n = 25).

Assessment Procedure

A research coordinator (AR) administered the borderline and antisocial personality disorder sections of the Structured Clinical Interview for DSM–IV Axis II Personality Disorders (First, Gibbon, Spitzer, Williams, & Smith, 1997) and the alcohol disorders, bipolar disorders, and schizophrenia modules of the Structured Clinical Interview for DSM–IV–TR Axis I Disorders (First, Spitzer, Gibbon, & Williams, 2002) to potential participants. Interrater kappa coefficients for the SCID-II have varied across studies from 0.53 to 0.80 (First et al., 1997). The borderline and antisocial sections of the SCID-II demonstrated excellent test–retest reliability with kappa coefficients of 0.87 and 0.84, respectively, among 29 patients with co-occurring cocaine or opioid dependence (Malow, West, Williams, & Sutker, 1989). The SCID-II has also demonstrated good internal consistency and temporal stability in patients with co-occurring personality disorders and substance dependence (Ball, Roun-
Although interrater reliability ratings were not obtained for the present study sample, the coordinator had received formal training in the use of the SCID-I and SCID-II and had extensive clinical experience with this population.

The coordinator also elicited neurological conditions that would form a basis for exclusion (see above) and administered the vocabulary subtest of the Wechsler Adult Intelligence Scale. The vocabulary subtest correlates highly with full-scale IQ ($r = .84$) and was used as a general measure of intelligence. An age-adjusted scaled score of $\geq 8$ represents an average IQ and was therefore the cut-off for inclusion (The Psychological Corporation, 1997).

After administration of informed consent and completion of pretreatment interviews and measures, participants were assigned by the research coordinator to either the investigation treatment or to treatment as usual (TAU) in the community. A minimization method was employed for group assignment. This method allows for rolling allocation of participants into study groups while ensuring comparability of the two groups on key variables or factors. The approach and methodology is outlined by Taves (1974) and involves matched group metrics and assigning scores to each group based upon the distribution of the selected factors within each group and on each group’s total number of participants. The specific factors

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**FIGURE 1. Flow diagram of participants through the study.**
that we adjusted for included: age, gender, alcohol abuse versus dependence, current alcohol use, antisocial personality disorder, inpatient utilization, and number of parasuicides.

The minimization method has been shown to produce better balance in key factors between groups than either simple or stratified randomization, particularly for studies employing small numbers of subjects (White & Freedman, 1978). For this reason, it has been the most commonly used method for assigning participants into treatment groups in controlled psychotherapy trials of BPD (Linehan et al., 1999; 2002; Verheul et al., 2003).

### Treatments

If they were not already in treatment, participants assigned to TAU were referred to an alcohol rehabilitation center. Participants were also given names of psychiatric clinics and therapists in the community who might have openings and provide suitable treatment. They were allowed to keep their current psychotherapist, if any. Participants assigned to the investigation treatment were required to end treatment with their present psychotherapist, unless that person served primarily as a case manager or substance use counselor.

As shown in Table 2, TAU participants received a variety of different kinds of treatments over the course of the study involving a combination of individual psychotherapy at a mental health clinic or independent practice, medication management, alcohol counseling, professional and self-help groups and/or case management. Most received a combination of individual psychotherapy and medication management.

For each data point, the professional treatment contact hours (not including self-help) were combined to provide an overall measure of outpatient treatment intensity. The investigators did not contact TAU providers to assess their levels of training, experience, and other qualifications because of concerns about potentially influencing the kind of treatment that they were providing to participants.

The investigation treatment was a modified form of psychodynamic psychotherapy, labeled dynamic deconstructive psychotherapy (DDP; Gregory & Remen, in press). DDP was developed for particularly challenging cases of BPD, such as those with co-occurring substance use disorders or antisocial personality disorder (Woody, McLellan, Luborsky, & O’Brien, 1985). Treatment involved individual weekly sessions over 12 to 18 months, defined during the initial sessions when the treatment contact was established, and followed a manual-based protocol (Gregory, unpublished manuscript). The 12-month limitation for some participants was because of pragmatic considerations that their therapists were graduating residency training and leaving the area. After termination of treatment with DDP at 12 to 18 months, participants were provided the same referral options as the TAU group for those who wished to continue to receive some form of treatment.

DDP participants were encouraged, but not required, to be involved in some form of group therapy. This usually involved group therapy with an interpersonal focus or 12-step. As Table 2 indicates, only four (26%) of the participants assigned to DDP received professionally led group therapy for the first 6 months and none by 12 months.

DDP delineates key neurocognitive deficits of BPD targeted for remediation. The purported deficits include disrupted linkages among affective experiential capacities, memory, and verbal/symbolic attribution capacities. These deficits are manifested by various difficulties, including: difficulty identi-

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**TABLE 1. Pretreatment Characteristics According to Group Assignment**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>DDP (n = 15)</th>
<th>TAU (n = 15)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age – years</td>
<td>28.3 ± 7.1</td>
<td>29 ± 8.6</td>
<td>.818</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2 (13)</td>
<td>4 (27)</td>
<td>.651</td>
</tr>
<tr>
<td>Female</td>
<td>13 (87)</td>
<td>11 (73)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>2 (13)</td>
<td>1 (7)</td>
<td>1.000</td>
</tr>
<tr>
<td>Unmarried</td>
<td>13 (87)</td>
<td>14 (93)</td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full</td>
<td>4 (27)</td>
<td>6 (40)</td>
<td>.439</td>
</tr>
<tr>
<td>Part</td>
<td>11 (73)</td>
<td>9 (60)</td>
<td></td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaskan Native</td>
<td>1 (7)</td>
<td>0 (0)</td>
<td>.483</td>
</tr>
<tr>
<td>Black/AA</td>
<td>1 (7)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>0 (0)</td>
<td>1 (7)</td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>13 (86)</td>
<td>14 (93)</td>
<td></td>
</tr>
<tr>
<td>Alcohol dependence</td>
<td>10 (67)</td>
<td>10 (67)</td>
<td>1.000</td>
</tr>
<tr>
<td>Abuse</td>
<td>5 (33)</td>
<td>5 (33)</td>
<td></td>
</tr>
<tr>
<td>Antisocial personality disorder</td>
<td>7 (47)</td>
<td>6 (40)</td>
<td>.713</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>0 (0)</td>
<td>5 (33)</td>
<td>.042</td>
</tr>
</tbody>
</table>

**Note.** Continuous characteristics are expressed as the mean ± 1 SD, whereas categorical variables as the sum followed by the percentage in parentheses.

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fying and verbalizing specific emotions, incoherent narrative accounts of interpersonal experiences, unstable and polarized attribution system poorly grounded in reality, and the use of compensatory maladaptive behaviors and/or idealized attachments for purposes of self-soothing.

DDP aims to activate specific neurocognitive functions that are impaired. A major focus is to foster verbalization of affects and elaboration of recent interpersonal experiences into simple narratives so that patients can begin to link their affective experiences to their verbal/symbolic attribution capacities. The therapist also tries to help the patient integrate polarized attributions toward self and other, while remaining generally nondirective and nonjudgmental and bringing in new perspectives or alternative attributions for the patient to consider. In addition, there is a strong experiential component to the treatment that relies on moment-by-moment affective responses of both the patient and therapist to support self-other differentiation and to identify and deconstruct negative attributions toward treatment that can interfere with a therapeutic alliance (Gregory, 2005, 2007). Treatment progresses over four thematic stages, each characterized by specific therapy tasks and patterns of relatedness (Gregory, 2004).

Problematic behaviors, including alcohol misuse, are viewed as compensatory, maladaptive efforts to self-soothe in the absence of verbal/symbolic and relational capacities. Substances may serve as a substitute for interpersonal attachment and thus maintain distance and autonomy, including within the therapy relationship. The therapist encourages verbalization of recent episodes of problematic behaviors within the context of interpersonal narratives, including antecedents, consequences, and associated affects. The nonjudgmental and nondirective stance of DDP may be particularly helpful for patients having co-occurring substance use disorders consistent with findings in the literature supporting nondirective treatment approaches for these disorders (Karno & Longabaugh, 2005; Miller, Benefield, & Tonigan, 1993).

During the study, medication management was according to the independent clinical judgment of the providers. For the group receiving DDP, medication management was provided by the therapist during the weekly therapy sessions and followed American Psychiatric Association (2001)

### TABLE 2. Outpatient Treatment Utilization Over the Study Period

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Preentry</th>
<th>3 months</th>
<th>6 months</th>
<th>9 months</th>
<th>12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>n (%) receiving individual psychotherapy or alcohol counseling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>10 (67)</td>
<td>13 (100)</td>
<td>11 (100)</td>
<td>10 (100)</td>
<td>10 (100)</td>
</tr>
<tr>
<td>TAU</td>
<td>11 (73)</td>
<td>10 (83)</td>
<td>9 (82)</td>
<td>5 (63)</td>
<td>7 (78)</td>
</tr>
<tr>
<td>n (%) receiving separate medication management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>10 (67)</td>
<td>3 (23)</td>
<td>2 (18)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>TAU</td>
<td>9 (60)</td>
<td>11 (92)</td>
<td>9 (82)</td>
<td>6 (75)</td>
<td>5 (56)</td>
</tr>
<tr>
<td>n (%) receiving case management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>1 (7)</td>
<td>1 (8)</td>
<td>1 (9)</td>
<td>0 (0)</td>
<td>1 (10)</td>
</tr>
<tr>
<td>TAU</td>
<td>3 (20)</td>
<td>2 (17)</td>
<td>2 (18)</td>
<td>1 (13)</td>
<td>2 (22)</td>
</tr>
<tr>
<td>n (%) receiving professional group therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>4 (27)</td>
<td>4 (31)</td>
<td>1 (9)</td>
<td>2 (20)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>TAU</td>
<td>5 (33)</td>
<td>7 (58)</td>
<td>4 (36)</td>
<td>1 (13)</td>
<td>2 (22)</td>
</tr>
<tr>
<td>n (%) participating in self-help groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>5 (33)</td>
<td>2 (15)</td>
<td>2 (18)</td>
<td>2 (20)</td>
<td>2 (20)</td>
</tr>
<tr>
<td>TAU</td>
<td>6 (40)</td>
<td>5 (42)</td>
<td>6 (55)</td>
<td>4 (50)</td>
<td>3 (33)</td>
</tr>
<tr>
<td>$M$ (SD) number of psychotropic medications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>3.00 (2.20)</td>
<td>2.62 (1.89)</td>
<td>2.73 (2.05)</td>
<td>2.00 (0.94)</td>
<td>2.00 (1.56)</td>
</tr>
<tr>
<td>TAU</td>
<td>2.80 (2.04)</td>
<td>2.92 (1.24)</td>
<td>2.73 (1.62)</td>
<td>2.13 (1.25)</td>
<td>2.89 (1.69)</td>
</tr>
<tr>
<td>$M$ (SD) total paid contact hours per month</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>3.65 (5.30)</td>
<td>5.44 (3.40)</td>
<td>5.39 (3.60)</td>
<td>4.77 (3.01)</td>
<td>3.57 (1.22)</td>
</tr>
<tr>
<td>TAU</td>
<td>4.05 (4.71)</td>
<td>8.97 (5.47)</td>
<td>10.6 (10.7)</td>
<td>3.88 (4.38)</td>
<td>6.11 (7.12)</td>
</tr>
</tbody>
</table>
guidelines for BPD. DDP therapists did not pre-
scribe medications specifically targeting sub-
stance use disorders, for example, naltrexone. As
can be seen in Table 2, during the last 6 months
of treatment DDP participants were receiving
50% fewer medications on average than before
entry into the study. This finding likely reflects
conservative medication management by DDP
therapists and a preferential emphasis on psycho-
therapeutic solutions for overcoming crises over
pharmacological interventions.

Therapists and Treatment Integrity

Six therapists provided DDP, including the
principal investigator (PI; n = 6 study partici-
pants) and five psychiatry residents (n = 9 par-
ticipants) who were in their third year of resi-
dency training at the time they began to treat
study participants. Before being assigned partici-
pants for treatment, the five residents were inde-
pendently verified as competent in technique
based on videotaped sessions by two members of
the Department of Psychiatry faculty, Kathleen
Deters-Hayes, M.S.W., and the PI (RG), who had
special expertise in object relations theory and
practice. Assessment of competency included
evaluation of whether the proper therapist stance
and technique were being applied at appropriate
times. In addition, the resident therapist had to
demonstrate the ability to establish a treatment
alliance and move a patient from Stage I to Stage
II of recovery (Gregory, 2004) before being as-
signed a study participant. After achieving com-
petency, adherence to technique and treatment
integrity for resident therapists was assured
through weekly group supervision with these two
faculty members and individual supervision of
videotaped sessions with the PI every other week
throughout treatment.

Training to competency involved didactics, in-
dividual supervision of videotaped cases by the
PI, and reading a training manual. The purpose of
the manual was to assist in training and help
ensure consistency of approach. There were five
didactic sessions altogether, with special empha-
sis on overviews of treatment stages (Gregory,
2004), attribution states (Gregory, 2007), the
therapeutic stance (Gregory, 2005), and the initial
sessions. As part of prestudy training, the PI
coparticipated with each resident in the evalua-
tion (the second session) of a patient with BPD.
This was to demonstrate in vivo how to obtain an
initial history, engage the patient in the treatment
process, establish a working alliance and treat-
ment goals, and review treatment expectations.
The remaining contact between the PI and resi-
dent therapists involved weekly 1-hr sessions of
individual case supervision employing video-
tapes of therapy sessions. The amount of case
supervision needed to achieve competency was
16.2 ± 8.2 sessions, with a range from 9 to 26.

Measures

The three primary outcome measures were:
Parasuicide behavior. This was obtained by
the adapted 3-month version of the Lifetime
Parasuicide Count (LPC; Comtois & Linehan,
1999). The LPC is a structured interview that
assesses the frequency of parasuicide behaviors,
including overdoses, cutting, burning, and so
forth. Participants are told to rate whether each act
was “intending to die,” “ambivalent,” or “not
intending to die.” The LPC has been shown to be
a sensitive measure of response to dialectical
behavior therapy (van den Bosch et al., 2005;
Verheul et al., 2003), but does not have published
data on validity or reliability.

Alcohol misuse. Defined by consuming five
or more drinks on a single occasion within the
prior 30 days, alcohol misuse was measured by
the Addiction Severity Index (ASI; McLellan et
al., 1992). The ASI is probably the most widely
used instrument for assessing substance use dis-
orders and response to treatment. It is a structured
interview that ascertains 30-day and lifetime fre-
cuency, route, and severity of alcohol and drug
use. It also includes measures of social and oc-
cupational functioning. Interrater reliability by
trained technicians is very good, displaying an
average concordance across scales of r = .89
(McLellan, Luborsky, Cacciola, & Griffith,
1985).

Institutional care. This variable was assessed
by combining the number of days spent in inpa-
tient psychiatric units, inpatient detoxification/
rehabilitation facilities, emergency departments,
partial hospitalization programs, and group homes
or half-way houses over the preceding 3 months.
These data were obtained utilizing the Treatment
History Interview (THI; Linehan, 1987). The THI
has been the most widely used instrument in clinical
trials of BPD for assessing health care utilization
(Koons et al., 2001; Linehan et al., 1991; 1999;
2006), but does not have published data on va-
lidity or reliability ratings. It is a structured interview that records the frequency of individual and group psychotherapy, case management, inpatient utilization, comprehensive treatment programs, emergency department visits, and medication use.

The above measures were chosen because they can demonstrate tangible changes in behaviors over time, are less prone to reporting bias, and may be less affected by day-to-day shifts in mood. Nevertheless, the following self-report variables were assessed as secondary outcomes since they reflect relevant psychological parameters.

**Depression.** The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, & Erbaugh, 1961) was used to assess depression severity. The BDI is a 21-item measure with scores ranging from 0 to 63. It has been used in previous treatment trials of BPD (Bateman & Fonagy, 1999; Clarkin et al., 2007) and has demonstrated good internal consistency (α = .93) and acceptable sensitivity and specificity in detecting clinical depression (Golden, Conroy, & O’Dwyer, 2007).

**Dissociation.** The Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986) is a 28-item scale that assesses a wide range of dissociative phenomena. Scores range from 0% to 100% and interitem Kendall coefficient of concordance is 0.64. Koons and colleagues (2001) employed the DES in their trial of DBT for women veterans with BPD.

**Social support.** The Social Provisions Scale (SPS; Cutrona & Russell, 1987) is a 24-item questionnaire that assesses six dimensions of perceived social support, including attachment, social integration, reassurance of worth, reliable alliance, guidance, and opportunity for nurturing. Internal consistency is good (α = .90) and scores range from 24 to 96, where the higher the score, the greater the perceived social support.

**BPD severity.** The Borderline Evaluation of Severity over Time (BEST) was developed by Blum and colleagues (2002) to assess the degree of impairment or interference from each of the DSM-based diagnostic symptoms of BPD. The BEST has 15 items and three subscales, including “negative thoughts and feelings,” “negative behaviors,” and “positive behaviors.” For example, the first item states, “Worrying that someone important in your life is tired of you or is planning to leave you,” and is rated on a five-point scale from “none/slight” to “extreme.” The combined score can range from 12 to 72. The BEST has been shown to be a sensitive indicator of treatment response, to correlate positively with other measures of psychopathology, such as the BDI, and to demonstrate good internal consistency (α = .90).

An independent, trained research assistant administered the primary and secondary outcome measures at intake, 3 months, 6 months, 9 months, and 12 months (making a total of five data points). The research assistant was blind to treatment group at the time of interviews, but blindedness was only partial, as she was able to correctly guess group assignment 67% of the time (50% correct guesses were expected by chance alone).

**Statistical Analyses**

We compared the two groups of subjects (DDP and TAU) in an intent-to-treat analysis over five time points (pretreatment, 3 months, 6 months, 9 months, and 12 months). Our three primary outcomes for this study were whether or not the participants had an episode of parasuicide behavior over the previous 3 months, whether or not the participant misused alcohol (≥5 drinks at any one time) over the past 30 days, and whether or not the participant had any days of institutional care (emergency department, inpatient psychiatric, partial hospitalization, group home, and/or inpatient rehabilitation) over the previous 3 months, each measured on a dichotomous, binary scale interpreted as “none versus any.” We employed logistic regression analyses to model the nested effects of time (pre, 12 months) within subject, and group (DDP, TAU) effects on these primary binary outcomes. This analysis is modeling the log-odds of participants exhibiting one of these negative outcomes over time and by group, thus it similar in design to the more traditional mixed-model ANOVA/ANCOVA techniques commonly used with continuously scaled outcomes.

The secondary outcome measures, including the BDI, DES, SPS, and BEST, were also assessed at pretreatment, 3, 6, 9, and 12 months. Because these are continuously scaled measures, they were analyzed by two-factor mixed-model Analysis of Variance (ANOVA), with time as repeated measures factor, and group (TAU, DDP) a between-subjects factor. A priori contrasts comparing secondary outcomes by group within level of time were also conducted.

Missing data points for the regression analyses of the primary and secondary outcome measures...
were accounted for conservatively by carrying forward the most recent observation to the subsequent data collection intervals. This method helped to reduce the potential bias from study dropouts, while including data that would be lost in an analysis of study completers. However, all proportions and means reported in the paper were unadjusted for last observation carried forward.

Absolute risk reduction and its reciprocal, number needed to treat, were calculated for binary outcome measures to assess whether treatment differences were clinically meaningful. Absolute risk reduction represents the difference in probability of a given outcome between groups, or in this instance, the difference between the two treatment groups in the proportions of participants manifesting a behavioral outcome (e.g., parasuicide) at 12 months. The number needed to treat approximates the number of persons who must be treated by DDP versus TAU over 12 months for a single participant to obtain remission from a behavioral outcome.

Absolute risk reduction and number needed to treat share advantages over relative risk reduction and odds ratios in estimating effect sizes in that they are more intuitively obvious, clinically relevant, and can account for differences in baseline risk between groups or between conditions (Cook & Sackett, 1995). We calculated 95% confidence intervals by employing the Wilson scoring method, which is considered to be more accurate in small sample sizes than traditional methods (Bender, 2001).

We employed Cohen’s $d$ to estimate effect sizes of each treatment group over time on continuous outcome measures, calculated as the difference in mean scores pretreatment and at 12 months divided by the pooled standard deviation (Cohen, 1992). Cohen suggested that effect sizes greater than 0.20, 0.50, and 0.80 be interpreted as “small,” “medium,” and “large,” respectively.

### Results

#### Twelve-Month Primary Outcomes

Table 3 displays the proportion of participants reporting parasuicide, alcohol misuse, or institutional care at each of the five time intervals. Employing logistic regression analysis, there were no statistically significant differences between groups either pretreatment or during the course of the study on these outcome measures (all $p$ values $>.13$). However, there was statistically significant improvement over time on each measure for participants receiving DDP, but not for those receiving TAU.

The proportion of DDP participants reporting parasuicide behavior decreased from 73% ($n = 11$) pretreatment to 30% ($n = 3$) at 12 months. The absolute risk reduction for DDP relative to TAU was 21%. This provides an estimate of 21 more persons free of parasuicide per 100 persons treated with DDP as compared to community care. The number needed to treat was five, indicating that for every five persons treated with DDP, one more person would be free of parasuicide than if they had received treatment in the community.

Employing a procedure recommended by O’Carroll and colleagues (1996), we further subdivided parasuicide episodes into either self-harm behavior (with no intent-to-die) or suicide attempts (with ambivalent or definite intent to die). Of the 11 DDP participants reporting parasuicide

### Table 3. Primary Outcomes as a Function of Time and Group Assignment—Intent-to-Treat Sample

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Preentry</th>
<th>3 months</th>
<th>6 months</th>
<th>9 months</th>
<th>12 months</th>
<th>Prepost $S (df = 1)^a$</th>
<th>ARR$^b$ (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>n (%) with parasuicide</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>11 (73)</td>
<td>5 (38)</td>
<td>5 (45)</td>
<td>4 (40)</td>
<td>3 (30)</td>
<td>4.50*</td>
<td>.21</td>
</tr>
<tr>
<td>TAU</td>
<td>7 (47)</td>
<td>5 (42)</td>
<td>7 (64)</td>
<td>2 (25)</td>
<td>3 (33)</td>
<td>0.00 ($-.20, .54$)</td>
<td></td>
</tr>
<tr>
<td><strong>n (%) with alcohol misuse</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>10 (67)</td>
<td>5 (38)</td>
<td>5 (45)</td>
<td>4 (40)</td>
<td>3 (30)</td>
<td>4.00*</td>
<td>.14</td>
</tr>
<tr>
<td>TAU</td>
<td>10 (67)</td>
<td>4 (33)</td>
<td>5 (45)</td>
<td>3 (38)</td>
<td>4 (44)</td>
<td>0.20 ($-.25, .49$)</td>
<td></td>
</tr>
<tr>
<td><strong>n (%) with institutional care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>10 (67)</td>
<td>4 (31)</td>
<td>2 (18)</td>
<td>1 (10)</td>
<td>1 (10)</td>
<td>6.00*</td>
<td>.12</td>
</tr>
<tr>
<td>TAU</td>
<td>10 (67)</td>
<td>7 (58)</td>
<td>2 (18)</td>
<td>1 (13)</td>
<td>2 (22)</td>
<td>3.57 ($-.22, .46$)</td>
<td></td>
</tr>
</tbody>
</table>

$^a$ McNemar test of paired proportions.

$^b$ Absolute risk reduction, or difference in probabilities for a given outcome for DDP versus TAU.

$^*$ $p < .05$. 

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behavior before treatment, eight had reported suicide attempts. However, there were no DDP participants reporting suicide attempts for the last 6 months of treatment.

Seven DDP participants reported self-harm behavior before treatment and three participants continued to report that behavior at 12 months. However, the mean ± SD number of incidents for those three participants decreased from 10.7 ± 13.6 pretreatment to 2.3 ± 0.57 at 12 months. These data suggest that DDP helps patients to attain both remission and harm reduction of parasuicide behaviors.

As Table 3 indicates, the proportion of DDP participants reporting incidents of alcohol misuse (≥5 drinks on a single occasion) decreased from 67% (n = 10) pretreatment to 30% (n = 3) at 12 months. Thus, the proportion of DDP participants remaining abstinent more than doubled over the 12 months of treatment. The absolute risk reduction for DDP relative to TAU was 14%, producing a number needed to treat of seven.

Although three DDP participants failed to achieve abstinence during the course of treatment, the mean ± SD number of incidents of alcohol intoxication for those three participants decreased from 8.7 ± 6.5 pretreatment to 1.7 ± 1.2 at 12 months. No DDP participants reported using illicit substances during the last 6 months of treatment. These findings suggest that DDP enhances both remission and harm reduction of co-occurring substance use disorders.

Table 3 demonstrates that the proportion of DDP participants needing institutional care decreased from 67% (n = 10) pretreatment to 10% (n = 1) at 12 months, combining inpatient psychiatric days, emergency department visits, inpatient detoxification/rehabilitation, partial hospitalization, and residential treatment. The absolute risk reduction for DDP relative to TAU was 12%, producing a number needed to treat of eight.

When institutional care was broken down into its constituent parts, DDP participants demonstrated less use of inpatient psychiatric services over time. Mean ± SD number of inpatient days decreased from 4.1 ± 7.9 pretreatment to 1.5 ± 4.7 at 12 months. None of the DDP participants utilized emergency departments, inpatient detoxification/rehabilitation facilities, partial hospitalizations, or residential facilities during the final segment of treatment.

**Twelve-Month Secondary Outcomes**

As shown in Table 4, participants reported a high level of distress at study entry on self-report measures, but preentry scores were not significantly different between groups. Mean ± SD scores on the BDI were 28.3 ± 11.1, and on the DES were 28.2 ± 17.3. These scores were comparable to those of other BPD treatment trials that employed these measures (Bateman & Fonagy, 1999; Koons et al., 2001). BEST scores (46.5 ± 8.3) indicated worse pretreatment severity than the other study to employ this measure. Blum and colleagues (2002) reported a mean initial BEST score of 38, suggesting that our study population was particularly impaired on core features of BPD. SPS scores in our study (59.2 ± 15.1) were

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### TABLE 4. Secondary Outcomes as a Function of Time and Group Assignment—Intent-to-Treat Sample, Unadjusted Means

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Preentry</th>
<th>3 months</th>
<th>6 months</th>
<th>9 months</th>
<th>12 months</th>
<th>Prepost t(2, 28)</th>
<th>Prepost effect size</th>
<th>Group × Time F(2, 28)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M (SD) BEST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>48.9 (9.40)</td>
<td>39.2 (13.5)</td>
<td>39.3 (10.0)</td>
<td>35.6 (13.2)</td>
<td>33.6 (12.4)</td>
<td>-3.20**</td>
<td>1.43</td>
<td>4.32*</td>
</tr>
<tr>
<td>TAU</td>
<td>44.0 (7.07)</td>
<td>36.9 (10.7)</td>
<td>40.5 (12.2)</td>
<td>39.4 (13.4)</td>
<td>38.4 (8.62)</td>
<td>-0.39</td>
<td>0.97</td>
<td></td>
</tr>
<tr>
<td><strong>M (SD) BDI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>DDP</td>
<td>30.7 (13.5)</td>
<td>21.2 (13.0)</td>
<td>23.8 (11.4)</td>
<td>25.1 (12.1)</td>
<td>21.0 (11.4)</td>
<td>-3.99***</td>
<td>0.76</td>
<td>4.22*</td>
</tr>
<tr>
<td>TAU</td>
<td>25.9 (7.61)</td>
<td>20.6 (8.05)</td>
<td>21.6 (11.4)</td>
<td>20.6 (9.29)</td>
<td>25.9 (6.42)</td>
<td>-0.36</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td><strong>M (SD) DES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>31.3 (12.9)</td>
<td>29.2 (24.7)</td>
<td>31.4 (18.4)</td>
<td>32.3 (26.1)</td>
<td>27.7 (21.4)</td>
<td>-2.46*</td>
<td>0.21</td>
<td>0.65</td>
</tr>
<tr>
<td>TAU</td>
<td>25.2 (12.6)</td>
<td>26.6 (19.6)</td>
<td>24.8 (18.3)</td>
<td>23.0 (18.1)</td>
<td>22.3 (20.6)</td>
<td>-1.97</td>
<td>0.18</td>
<td></td>
</tr>
<tr>
<td><strong>M (SD) SPS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDP</td>
<td>55.5 (16.5)</td>
<td>68.0 (8.84)</td>
<td>65.8 (6.34)</td>
<td>63.3 (11.9)</td>
<td>66.0 (7.36)</td>
<td>0.55</td>
<td>0.77</td>
<td>4.36*</td>
</tr>
<tr>
<td>TAU</td>
<td>62.9 (13.6)</td>
<td>66.0 (13.0)</td>
<td>62.9 (16.4)</td>
<td>63.0 (18.6)</td>
<td>65.3 (13.9)</td>
<td>0.01</td>
<td>0.18</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* BEST = Borderline Evaluation of Severity Over Time; BDI = Beck Depression Inventory; DES = Dissociative Experiences Scale; SPS = Social Provisions Scale. Effect size computed as unadjusted Mpre — Mpost/SDpooled.

* p < .05; ** p < .01; *** p < .001.
lower than those reported by Black et al. (2006) in a sample of veterans with BPD (SPS = 70), suggesting very impaired social support in our study population.

Compared to pretreatment, at 12 months DDP demonstrated medium to large effect sizes over time on most measures, with changes in core BPD symptoms (BEST), depression (BDI), and dissociation (DES) reaching statistical significance. Community care did not result in significant improvements on any of the secondary measures. Significant group by time interaction effects ($\omega^2 = .05$) were demonstrated for BEST, BDI, and SPS scores.

To determine whether co-occurring bipolar disorder accounted for group differences, this variable was entered into the regression equation as a covariate. Bipolar disorder displayed no significant interactions with group on any primary or secondary outcome measure at any time interval.

To determine whether the positive response among DDP participants was accounted for by the addition of group therapy, this was added as a covariate into the analysis of time effects for each treatment. The addition of group therapy displayed no significant interactions with treatment group or time effects on any outcome measure. This finding supports the specificity of DDP because outcome was not significantly affected by the addition of other treatments.

### Treatment Retention

As shown in Figure 1, 9 of the 15 TAU participants were available for 12-month assessments. One of the TAU participants died by suicide approximately 9 months into the study. Two other TAU participants missed their 9-month assessments, but subsequently rejoined the study for 12-month assessments. As displayed in Table 2, most of the TAU participants who remained in the study continued to receive individual psychotherapy and/or alcohol/drug counseling. By 12 months, TAU total outpatient treatment contact hours were approximately 50% higher than before study entry, averaging 6.1 hours/month.

Among the 15 DDP participants, four dropped out within 6 months and one participant between 6 and 9 months. Of these five participants, one involuntarily withdrew from treatment because of incarceration shortly after entering the study. The other four participants were discharged because of repeated no-shows. Hence, the 12-month DDP dropout rates were 27% for voluntary withdrawal and 33% when the incarcerated participant was included.

DDP was generally well tolerated. None of the voluntary dropouts was in crisis at the time of discharge nor displayed clinical deterioration. All three of the dropouts who completed their 3-month assessments had demonstrated improvement in the primary outcome measures and BEST scores decreased an average of 21%. Given these data, it may be reasonable to assume that the DDP participants who left the study would have continued to improve had they stayed in treatment. If so, then the last observation carried forward analysis likely underestimated treatment effects.

Two of the DDP dropouts had originally entered treatment because of a legal stipulation for parole or for child custody, and this external contingency may have undercut their autonomous motivation for treatment. The remaining two dropouts had progressed in treatment and were becoming more aware of the limitations of their interpersonal relationships. The therapists and clinical supervisor (RG) felt that improved awareness of emotionally painful material might have led to increased ambivalence about treatment.

### Discussion

The present study addresses the need for the development of effective treatments for persons with co-occurring BPD and alcohol use disorders. The authors report on a new psychodynamic approach (DDP) developed for those patients with BPD who are particularly difficult to engage in a therapeutic relationship, including those with co-occurring antisocial personality disorder or substance use disorders. This study represents the first controlled treatment trial specifically targeting persons with co-occurring BPD and alcohol use disorder.

The analysis of 12-month outcomes has yielded three major results. First, DDP was associated with statistically significant improvement in parasuicide, alcohol misuse, and institutional care. Most secondary outcome measures, including core symptoms of BPD, depression, and dissociation, also improved significantly. Perceived social support also improved, demonstrating a medium effect size for DDP, but this was not statistically significant.

Second, tendencies favored DDP over community care on every primary and secondary out-
come measure and reached statistical significance for core symptoms of BPD, depression, and perceived social support. This finding is particularly noteworthy given that DDP was administered primarily by nonexpert therapists and that DDP participants received fewer overall treatment contact hours than did participants receiving community care.

DDP may be a particularly cost-effective treatment alternative. In addition to producing clinically meaningful benefits, it was less time-intensive than community care and than other manual-based treatments of BPD, it contributed to a marked decrease in institutional care over time, and it was associated with decreased prescriptions of psychotropic medications.

Finally, the rate of treatment retention for DDP was generally good (67–73%) and comparable to retention rates of other treatments for BPD. For example, 12-month retention rates were 57% to 77% in a recent study comparing the efficacy of three different manual-based treatments (Clarkin et al., 2007). However, DDP retention rates were better than those reported for other BPD samples having a predominance of co-occurring substance use disorders (Linehan et al., 1999; 2002; van den Bosch et al., 2002). These have averaged 55% to 64% treatment retention despite the addition of drug replacement therapy in two of the studies (Linehan et al., 1999; 2002).

Possible contributing factors for the relatively good retention rate in this very challenging patient population include a nondirective therapist stance with support for patient autonomy, a structured collaborative treatment plan, and a systematic approach to deconstructing pathological attributes that can interfere with the therapeutic alliance. These explanations are consistent with the findings from a study of 36 women with BPD by Yeomans et al. (1994) demonstrating that therapist contributions to the treatment contract and the therapeutic alliance are associated with decreased dropout rates from psychotherapy. Similarly, Hilsenroth and colleagues (2007) were able to obtain very high ratings of therapeutic alliance from patients having co-occurring BPD and depression by applying a psychodynamic treatment model that emphasized the therapeutic relationship and included collaborative development of an explicit treatment frame.

The design of the present study is atypical in that it incorporates elements that allow findings to be more readily generalized to treatment-resistant clinical populations. For instance, only minimal exclusion criteria were employed and potential participants were recruited from clinical settings. Thus, a large percentage of our study population were from low socioeconomic backgrounds and had severe core BPD psychopathology and challenging comorbid conditions, including antisocial personality disorder and illicit drug use.

The authors also attempted to enhance the applicability of the findings to clinical settings by utilizing study therapists who had little prior psychotherapy training and experience. The use of expert therapists is more common in efficacy studies since it improves consistency of treatment application and is more likely to produce a significant effect for the investigation treatment, as compared to usual care. However, exclusive reliance on expert therapists makes it less likely that the treatment will have comparable efficacy in clinical settings (Miller & Binder, 2002).

There are also a number of limitations of the present design. The study must be considered exploratory because of the small sample size, lack of reliability ratings for SCID-II interviews, and exclusive reliance on self-report for alcohol use. Although self-report has been the primary method utilized in clinical trials of treatments for alcohol use disorder, it would have been helpful to obtain liver function tests to verify self-reports.

Another limitation is the potential that therapist allegiance to an investigational treatment may have enhanced treatment effects (Luborsky et al., 1999). Likewise, the use of a control group that is receiving variable and nonstandardized modalities of treatment and the lack of specific measures of therapeutic alliance or adherence makes it difficult to ascertain the mechanism of action of treatment effects.

Despite these limitations, the study represents an important contribution to the literature given the observed clinical benefits, tolerability, and cost-effectiveness of DDP, and paucity of other treatment trials for the co-occurring subgroup. The results of this study support the need for further research on DDP, including long-term outcomes, mechanisms of action, and efficacy in comparison to other manual-based treatments.

References


