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The Effectiveness of Cognitive Behavioral Therapy for Personality Disorders

Alexis K. Matusiewicz, BA^{a,b}, Christopher J. Hopwood, PhD^c[Assistant Professor of Psychology], Annie N. Banducci, BA^{a,b}, and C.W. Lejuez, PhD^{d,e}[Director, Professor of Psychology]

^aCenter Addictions, Personality and Emotion Research, University of Maryland, College Park, Maryland ^bDepartment of Psychology, University of Maryland, College Park, Maryland

^cDepartment of Psychology, Michigan State University, East Lansing, Michigan ^dCenter Addictions, Personality and Emotion Research, University of Maryland, College Park, Maryland

^eDepartment of Psychology, University of Maryland, College Park, Maryland

Abstract

This manuscript provides a comprehensive review of CBT treatments for PDs, including a description of the available treatments and empirical support, drawing on research published between 1980 and 2009. Research generally supports the conclusion that CBT is an effective treatment modality for reducing symptoms and enhancing functional outcomes among patients with PDs, thereby making it a useful framework for clinicians working with patients with PD symptomatology. However, there is clear need for further the development and evaluation to provide specific and more unambiguous treatment recommendations, with particular relevance for understudied PDs.

Keywords

Cognitive Behavioral Therapy; CBT; Personality Disorders; Psychotherapy

Personality disorders (PDs) are characterized by longstanding patterns of impairment that manifest across multiple domains of functioning, including disturbances in cognition (e.g., perceptual abnormalities, disruptions in the experience of self), emotion (e.g., excessive reactivity or intensity), interpersonal behavior (e.g., social isolation, high-conflict relationships), and difficulties with impulse control (e.g., repeated engagement in high risk or criminal activity) (1, 2). The DSM-IV-TR (1) officially recognizes 10 PDs, which are grouped on the basis of prominent common features: Cluster A refers to the “odd, eccentric”

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Corresponding author for proof and reprints C.W. Lejuez, Ph.D. 2103 Cole Field House University of Maryland College Park, MD 20742 clejuez@psyc.umd.edu T: (301) 405-3281 F: (301) 314-9566.

Other authors' contact information Alexis K. Matusiewicz, B.A. 2103 Cole Field House University of Maryland College Park, MD 20742 amatusiewicz@psyc.umd.edu T: (301) 405-4188

Christopher J. Hopwood, Ph.D. 107A Psychology Department of Michigan State University East Lansing, MI 48824 hopwood2@msu.edu T: (517) 355-4599 F: (517)-353-1652

Annie N. Banducci, B.A. 2103 Cole Field House University of Maryland College Park, MD 20742 abanducci@psyc.umd.edu T: (301) 405-4188 F: (301) 314-9566

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PDs (schizotypal, schizoid, and paranoid), Cluster B includes the “dramatic, erratic and emotional” disorders (histrionic, narcissistic, borderline, antisocial), and Cluster C refers to the “anxious or fearful” disorders (avoidant, dependent, obsessive-compulsive). Prevalence rates of these disorders, as well as prominent cognitive, behavioral and interpersonal characteristics, as outlined in the DSM, are included in Table 1..

Whereas Axis I clinical disorders (e.g., depression, anxiety) generally are considered acute disruptions in otherwise normal functioning, Axis II problems historically have been conceptualized as chronic and often intractable patterns of dysfunction (1, 3). However, recent findings suggest that individuals with personality pathology may demonstrate symptomatic improvement over time (4,5). Furthermore, there is growing evidence that targeted psychotherapy can reduce symptoms and enhance functioning among individuals with PDs (6, 7, 8, 9).

Cognitive behavioral therapy (CBT) is well-suited to address the varied and often longstanding problems of patients with PDs for several reasons. From a cognitive behavioral perspective, PDs are maintained by a combination of maladaptive beliefs about self and others, contextual/environmental factors that reinforce problematic behavior and/or undermine effective behavior, and skill deficits that preclude adaptive responding (10, 11). CBT incorporates a wide range of techniques to modify these factors, including cognitive restructuring, behavior modification, exposure, psychoeducation, and skills training. In addition, CBT for PDs emphasizes the importance of a supportive, collaborative and well-defined therapeutic relationship, which enhances the patient's willingness to make changes and serves as a potent source of contingency (10, 11, 12, 13). In sum, several aspects of CBT's conceptual framework and its technical flexibility make it appropriate to address the pervasive and diffuse impairment commonly observed among patients with PDs.

The empirical focus of CBT has translated into strong interest in evaluating treatment outcomes for CBT, which is compatible with the growing emphasis on evidence-based practice in the fields of psychiatry and clinical psychology (14, 15). However, despite marked advances in the development, evaluation and dissemination of empirically-supported treatments for Axis I disorders, progress has been slow for most PDs. Treatment evaluation remains in its early stages, and many PDs are only now receiving preliminary empirical attention. In this regard, borderline and avoidant personality disorders have the most extensive empirical support, including numerous randomized controlled trials (RCTs). In contrast, evidence for CBT for other PDs is limited to a small number of open-label trials and case studies. For this reason, we will include uncontrolled studies (e.g., open-trials, single-case designs, case reports) in this review. Although certainly lacking the rigor of RCTs, uncontrolled studies can provide clinically-important information about mechanisms of change and moderators of treatment outcome. In addition to their use for driving theory and hypotheses for testing in future RCTs, uncontrolled studies can be useful for uncovering essential qualities of effective interventions and the effectiveness of CBT as it is delivered “in the field” (16, 17).

Method

To identify appropriate publications, we conducted literature searches using MedLine, PubMed and PsycInfo using the names of the ten PDs of interest, variations of the phrase “cognitive behavioral therapy,” the names of common CBT components (e.g., skills training) and specific cognitive behavioral treatments (e.g., Dialectical Behavior Therapy) as keywords. These searches were supplemented with a hand-search of relevant journals, review papers, and bibliographies. English-language studies published between 1980 (i.e., when the modern multiaxial taxonomy was introduced) and 2009 were included if they had

a sample of adult patients with a diagnosis of PD, provided a clear description of a cognitive behavioral intervention, specified diagnostic and outcome measures, and reported outcomes related to Axis II symptoms and symptomatic behavior. Studies were excluded if they were concerned primarily with the effect of comorbid Axis II disorders on Axis I treatment outcomes

This search yielded 45 publications evaluating the outcome of cognitive behavioral interventions for PDs. Table 2 summarizes key elements of the study design and significant findings for each publication. To provide consistency with previous reviews, outcomes are divided into four categories: symptoms, symptomatic behavior, social functioning and global functioning (7). The *symptoms* category consists of measures of symptom severity (including Axis I and Axis II disorders and overall psychiatric symptom ratings), symptom counts or percentage of patients who met the recovery criterion. *Symptomatic behavior* includes measures of specific cognitive and/or behavioral outcomes, such as extent of dysfunctional cognitions, frequency of non-suicidal self-injury, or days of abstinence from substances. *Social functioning* includes assessments of overall social functioning or social adjustment, whereas specific interpersonal behaviors (e.g., frequency of verbal assault) are coded as symptomatic behavior. Finally, *global functioning* includes measures of overall functioning, (e.g., Global Assessment of Functioning Scale).

Treatment Outcome

Borderline Personality Disorder (BPD)

Treatments for BPD have been studied more extensively than treatments for any other PD. For example, we identified 16 RCTs of cognitive behavioral treatments that specifically target BPD, as well as 10 naturalistic studies and eight case studies, which provide evidence of the effectiveness of CBT in real-world settings. Of these Dialectical Behavior Therapy (11) has received the most thorough evaluation and empirical support, however, there have been a number of studies that evaluate traditional CBT approaches, schema-focused therapy, and skills-based interventions.

Dialectical Behavior Therapy

Dialectical behavior therapy (DBT) is an extensively studied and widely adopted treatment for patients with BPD and parasuicidal behavior (e.g., suicide attempts and non-suicidal self-injury). DBT is informed by a biosocial model of BPD, which suggests that BPD emerges from a biological predisposition to emotional intensity and reactivity coupled with an invalidating childhood environment (11). Accordingly, DBT emphasizes the importance of acceptance and validation in the therapeutic relationship, and conceptualizes symptomatic behaviors as understandable products of the patient's learning history. In addition, DBT has roots in dialectical philosophy and Eastern spiritual traditions, which place value on the synthesis of opposites (e.g., balancing acceptance and change) and creation of a life worth living (11, 17). Standard, outpatient DBT has four components, delivered concurrently over the course of a year or more: individual DBT, group skills training, phone consultation for skills coaching, and weekly consultation meetings for the therapists. Individual treatment uses functional analysis, exposure, contingency management and cognitive restructuring to decrease problematic behaviors and enhance quality of life. Skills training enhances the patient's ability to respond effectively in difficult situations. The DBT-targeted skills include mindfulness, interpersonal effectiveness, emotion regulation and distress tolerance. Phone consultation is available to patients to support the generalization of skills. Finally, the treatment team participates in weekly supervision to provide support and enhance adherence to the DBT treatment model (11, 17).

The efficacy of the full DBT treatment package (consisting of all four treatment elements) has been demonstrated in multiple RCTs, including trials conducted by independent research groups and in diverse patient populations. Because these studies have been reviewed in depth elsewhere (17, 18), we will discuss them only briefly here. Several trials have compared twelve months of DBT to treatment as usual. However, the quality of this control condition has varied considerably from minimal (e.g., bimonthly clinical management; 19) to intensive (e.g., weekly individual and group psychotherapy, and medication management; 20). Despite this variability in the TAU condition, findings suggest that DBT yields significantly greater reductions in the frequency of parasuicidal behavior and anger and higher rates of treatment retention (19, 20, 21, 22, 23). In addition, findings suggest that, relative to TAU, DBT is associated with fewer emergency room contacts and inpatient days, decreased depression and impulsiveness, and greater social and global adjustment; however, these results have not been replicated across studies.

While these findings are certainly promising, they raise the question of whether treatment effects are specific to DBT, or whether these outcomes can be matched by other active treatment conditions delivered by well-trained clinicians. In one study, Turner and colleagues (24) randomized outpatients with BPD to either client centered therapy (CCT; $n = 12$) or modified DBT, which consisted of only individual treatment (with individual skills training) and included a psychodynamic case conceptualization ($n = 12$). At the end of treatment, clients in DBT had significantly fewer suicide attempts, emergency room visits and inpatient days, decreased impulsiveness, depression and anger, and greater global adjustment suggesting that the effects of DBT are superior to an active but unstructured control treatment across numerous domains of functioning. Similarly, Linehan and colleagues (25) assigned outpatients with BPD to receive a year of either community treatment by experts (CTBE; $n = 51$) or full-package DBT ($n = 52$), with treatments matched for many non-specific clinician characteristics (e.g., therapist sex, training, supervision, allegiance to treatment). DBT was associated with fewer suicide attempts, fewer emergency contacts and inpatient days, and superior treatment retention, suggesting that DBT's effects cannot be explained by general therapy factors. Overall, there is reliable evidence that DBT is superior to active, non-behavioral treatments in terms of incidence of suicide attempts, and utilization of emergency and inpatient psychiatric services; however, there is inconsistent evidence that DBT enhances emotional variables, social adjustment or global functioning.

Most recently, there have been two RCTs that compare the effectiveness of DBT to other empirically supported interventions for BPD. For example, Clarkin and colleagues (26) randomized outpatients with BPD to receive a year of biweekly transference-focused psychotherapy (TFP; $n = 23$), a year of full-package DBT ($n = 17$) or a year of weekly psychodynamic supportive therapy ($n = 21$). In addition, all clients received medication as necessary. Over the course of treatment, patients in all conditions showed significant improvements in depression, anxiety, social adjustment and global functioning. Both TFP and DBT produced significant reductions in suicidality, whereas supportive treatment did not; on the other hand, TFP and supportive treatment reduced anger, but DBT did not. Furthermore, only TFP was associated with significant reductions in irritability, physical assault and verbal aggression. Findings indicate that all three treatments are effective in reducing symptoms and dysfunction associated with BPD. Consistent with previous findings, DBT did have a positive effect on suicide-related outcomes. However, the most widespread gains were observed among clients in TFP. In another study, McMain and colleagues (27) compared DBT ($n = 90$) to general psychiatric management ($n = 90$), which was based on the APA recommendations, and consisted of psychodynamic psychotherapy and symptom-targeted medication management. From the baseline assessment to the end of treatment, both groups showed significant improvements in almost every outcome assessed

(e.g., frequency of suicide attempts and non-suicidal self-injury, medical severity of these behaviors, emergency room visits and inpatient days, depression, anger, BPD symptom severity and overall symptom distress). However, contrary to predictions, the groups did not differ significantly on any treatment outcome, suggesting that DBT and general psychiatric management are equally effective in addressing symptoms and impairment associated with BPD.

Taken together, findings from RCTs for DBT provide considerable support for its effectiveness as a treatment for BPD across many symptom domains. There is consistent evidence that DBT reduces suicidal parasuicidal behavior, decreases the medical risk associated with these behaviors, and produces fewer emergency visits and inpatient days. There is also evidence that DBT reduces affective symptoms of BPD (e.g., depression, anxiety, anger), and that it enhances global adjustment. It is also noteworthy that the effectiveness of DBT has been demonstrated in a range of real-world clinical settings, including a veteran's affairs hospital (23), community mental health centers (28, 29), a university training clinic (30), and among clinicians in private practice (24, 26). Moreover, DBT has been found to be superior to treatment as usual, and generally equivalent to other active, structured, theoretically-sound outpatient treatments.

Whereas standard DBT was developed to be a long-term outpatient treatment, there have been efforts to adapt DBT for use inpatients with BPD. In an initial trial, Barley and colleagues (31) compared frequency of non-suicidal self-injury and overdose before and after a long-term inpatient ward transitioned to DBT. As an additional control, they compared these changes to another general psychotherapy ward. They reported significant reductions in the incidence of non-suicidal self-injury, and parasuicidal behavior decreased on the DBT unit, whereas no decrease was observed on the comparison unit. Bohus and colleagues (32, 33) found similarly promising outcomes following three-month inpatient DBT-based treatment, designed to jumpstart outpatient DBT. Inpatient DBT consisted of psychoeducation about BPD and mechanisms of treatment, skills training, and contingency management for parasuicidal behavior. In a pilot study, 24 female inpatients were assessed before and after 12 weeks of treatment. Significant improvements were observed in frequency of parasuicidal behavior, depression, anxiety, stress and overall psychiatric symptoms (32). Results were replicated in a subsequent RCT, in which women with BPD assigned a waitlist-TAU condition ($n = 31$) or inpatient DBT ($n = 19$). The inpatient group made significant gains in frequency of non-suicidal self-injury, depression, anxiety, and social and global functioning, whereas the TAU condition did not demonstrate significant improvements in any symptom domain. Overall, 42% of the inpatient DBT group exhibited clinically significant change, compared to 0% of the TAU group, and gains were maintained one month after treatment. While these findings are promising, there is also evidence that the duration and the extent of its integration into the inpatient program may be critical determinants of its effectiveness. For example, in one study, inpatients with PDs, including BPD, were randomized to receive either 10 sessions of a nontherapeutic discussion group or a DBT-based skills group (34). Both groups showed similar remission in symptoms, suggesting that the passage of time may account for some of the improvement observed; however, the frequency of acting out actually increased in the DBT group. In sum, findings suggest that inpatient DBT can be effective during longer-term hospitalizations (i.e., 3 months), when a DBT approach is reflected in many facets of treatment, however, it appears to be less helpful when a short-term group format is added to inpatient treatment as usual.

Also of note, DBT was initially developed to target parasuicidal behavior among individuals with BPD, the treatment has also been applied for patients with BPD and substance use disorders (35, 36, 37, 38, 39) as well as patients with BPD and bulimia nervosa or binge eating disorder (Palmer et al., 2003; Chen et al., 2008). These studies have produced

generally favorable results for reducing incidence of specific self-damaging behaviors, with mixed findings as to whether treatment gains generalize to all types of impulsive behavior.

Cognitive Behavior Therapy

The Borderline PD Study of Cognitive Therapy (BOSCOT) trial (40) was the first randomized controlled study to evaluate the effectiveness of traditional CBT for BPD. BOSCOT examined clinical outcomes in a sample of 106 patients with BPD, who received either TAU (community-based medication management and emergency services; $n = 52$) or TAU and up to 30 sessions of individual CBT (TAU+CBT; $n = 54$) over one year (patients attended an average of 16 sessions). The initial sessions of CBT were used for assessment and development of a cognitive case formulation (Davidson, 2007). Later sessions were devoted to cognitive restructuring (e.g., identifying and evaluating negative automatic thoughts and cognitive errors, and modifying dysfunctional schemas and core beliefs) and implementing behavioral change (e.g., decreasing self-defeating behaviors and practicing adaptive responding to problems). Gains were observed in both treatment groups over the course of treatment and at follow-up. Participants in TAU+CBT reported fewer suicide attempts during the study period than did participants in TAU. At follow-up, the TAU+CBT group also reported less anxiety, lower symptom distress and fewer dysfunctional cognitions. However, the conditions did not differ in terms of number of inpatient hospitalizations or emergency room visits, frequency of non-suicidal self-injury, psychiatric symptoms, interpersonal functioning and global functioning. Overall, CBT+TAU led to improved treatment outcomes in a handful of critical domains, when compared to a low-intensity TAU condition.

A recent study by Cottraux and colleagues (41) found that CBT for BPD was superior to Rogerian supportive counseling (SC) for some outcomes. Outpatients with BPD were randomized to receive one year of weekly CBT ($n = 33$) or SC ($n = 32$). Treatment completers were assessed at 6, 12 and 24 months. Participants in CBT and SC did not differ in terms of depression, anxiety, dysfunctional cognitions, suicidal and self-damaging behavior or quality of life. However, CBT was associated with more rapid improvements in hopelessness and trait-level impulsivity, higher ratings of the therapeutic relationship and better treatment retention. CBT also was associated with greater improvements in patient- and clinician-rated global symptom severity at the 24-month follow-up, which may suggest continued gains following treatment termination. However, this finding should be interpreted with caution because a high proportion of patients dropped out of treatment or were lost to follow-up, so an intent-to-treat analysis may have produced different results.

Manual Assisted Cognitive Therapy (MACT) is another CBT package that was developed to address the need for a brief, cost-effective intervention for patients with BPD (and other Cluster B personality disorders) who engage in non-suicidal self-injury (42). MACT is a six-session manualized treatment that combines traditional components of CBT (e.g., thought monitoring, psychoeducation) with elements of DBT (e.g., distress tolerance skills, functional analysis of incidents of non-suicidal self-injury). Treatment material is presented to the patient in the form of a workbook, which contains information about various skills and strategies for reducing episodes of self-damaging behavior. The therapist provides support as the patient completes the worksheets for content area MACT has been evaluated in a number of studies. In the preliminary study, patients with a cluster B PD and a recent episode of non-suicidal self-injury or suicide attempt were assigned to receive either TAU, which consisted of standard psychiatric care ($n = 16$) or MACT ($n = 18$). Even though patients received, on average, less than three of the six treatment sessions, patients in MACT demonstrated significant reductions in depression and inpatient days and a significant increase in future-oriented thinking at follow-up (42, 43). In a follow-up to this study,

participants with BPD were randomized to receive either TAU ($n = 15$) or MACT+TAU (44). Treatment uptake was excellent, with all participants completing all six MACT sessions. The addition of MACT to TAU was associated with a significant decrease in the frequency and medical severity of non-suicidal self-injury, however the treatment groups did not differ in length of time to repeat or suicidal ideation (44). Notably, these findings contrast with the results of a previous trial of MACT, which used a sample of patients with a recent suicide attempt or episode of non-suicidal self-injury who did not necessarily have a PD diagnosis. This study failed to find any benefit of MACT beyond the effects of TAU, which may be attributed to the fact that 40% of patients failed to attend a single session (i.e., the intervention consisted of the treatment manual alone). In sum, MACT appears to have clinical utility for individuals with BPD when delivered in conjunction with treatment as usual; however, in mixed-diagnosis samples, its effects may be negligible and treatment retention may be problematic.

Schema-Focused Therapy (SFT)

Critics of traditional CBT have observed that the demands and assumptions of CBT are at odds with the needs of patients with PDs (45). Specifically, CBT's structured, instructive, problem-focused approach may be ill-suited to patients who present with vague or diffuse problems, cognitive rigidity, poor emotional awareness or an interpersonal style that undermines collaborative relationships (46, 47). Schema-focused therapy (SFT) retains a cognitive theoretical framework, and suggests that PDs result from early maladaptive schemas that interfere with the individual's ability to meet his or her core needs. The individual develops patterns of avoidance and compensation to avoid triggering the schema, but these patterns become over-generalized and rigid. To modify early maladaptive schemas, SFT employs a broad range of techniques, including behavioral, psychodynamic, experiential and interpersonal strategies. As a result, the treatment is more flexible, elaborative and emotion-focused than traditional cognitive approaches (45). SFT treatments also tend to be longer, ranging from one to four years in duration (48).

The first systematic investigation of SFT as a treatment for BPD was published as a series of six case reports (29). Outpatients received SFT based on Young's (1996) treatment guidelines. They were assessed periodically over the course of 18–36 months of SFT, and again a year after treatment termination. All six patients showed progressive improvements in symptoms of depression, social functioning and global functioning. At follow-up, five had maintained treatment gains and three no longer met diagnostic criteria for BPD at the end of treatment. As a group, the patients remained mildly impaired at follow-up, however, improvements in symptoms, social and overall functioning were equivalent to a large effect size.

These findings have been replicated and broadened in two RCTs. Giesen-Bloo and colleagues (50) evaluated outcomes of patients who participated in either SFT ($n = 45$), or transference-focused psychotherapy (TFP; $n = 43$), a psychodynamic intervention. Patients received biweekly individual psychotherapy for up to three years. Relative to those in TFP, patients in SFT showed greater improvement across BPD symptom domains, including abandonment fears, relationships, identity disturbance, dissociation and paranoia, impulsivity and parasuicidal behavior. A symptomatic behavior composite, consisting of measures of general symptoms, defense style, PD-related beliefs, favored SFT over TFP throughout the course of treatment. At treatment termination, the treatment groups did not differ in terms of quality of life, however, patients in SFT made more rapid gains in this domain. Overall, a greater proportion of patients in SFT compared to TFP made clinically significant gains (66% vs. 43%) and met the BPD recovery criterion (46% vs. 24%),

suggesting that long-term, individual SFT is an effective treatment for individuals with BPD, and that it outperforms TFP in terms of symptomatic improvement (50)

Although SFT findings are promising, a long-term individual treatment may not be feasible in most mental healthcare settings. To address this concern, Farrell and colleagues (51) adapted SFT to be delivered in a group format over 30 sessions, as an adjunct to individual psychotherapy. The group treatment consisted of psychoeducation about BPD, skills training for emotional awareness and distress tolerance, and schema change work. The latter module focused on weakening maladaptive schemas enough to allow the patients to practice and apply other skills. Similar to individual SFT, in-session activities included cognitive restructuring, experiential activities (e.g., empty chair technique) and behavioral skills practice (51). Women with BPD were randomized to receive either TAU ($n = 16$) or eight months of group-SFT in addition to TAU ($n = 16$). Patients were assessed at baseline, post-treatment and six-month follow-up. Findings indicated a significant effect favoring SFT BPD symptoms, general psychiatric symptom severity, and global functioning. Patients in the SFT group showed improvements in all BPD symptom domains. At post-treatment, 94% of patients in the SFT group no longer met diagnostic criteria for BPD, whereas only 25% of the TAU group reached this criterion. In sum, SFT appears to reduce BPD symptoms and enhance overall functioning, whether it is delivered as a long-term individual psychotherapy or as a shorter-term adjunctive group treatment. Individual SFT compared favorably to long-term psychodynamic psychotherapy, delivered by well-trained and experienced clinicians.

Skills-Based Interventions

Skills training has emerged as an important component of treatment for patients with BPD. Skills training is based on the assumption that individuals with BPD lack the skills necessary to behave effectively in the situations they encounter. Skills training interventions aim to remediate these deficits by providing direct instruction, modeling, and opportunities for rehearsal and coaching (17). With skills in hand, patients are better able to avert crises or manage them without resorting to self-damaging behavior, which allows individual therapy to progress. Although DBT skills (described above) are widely adopted, two additional skills-based groups warrant mention. Like DBT, both interventions aim to reduce self-damaging behavior through the development of emotion regulation and other skills. However, in light of these similarities, there are important practical, conceptual and empirical differences among these interventions.

Systems Training for Emotional Predictability and Problem Solving (STEPPS) is a manualized skills-based group treatment designed to reduce the self-damaging behaviors associated with BPD. STEPPS is based on the premise that individuals with BPD have limited access to specific strategies to regulate emotions or manage behavior in a way that promotes emotional stability and that these difficulties are exacerbated by ineffective use of support systems (52). To address these deficits, STEPPS integrates a systems perspective with a traditional CBT skills training approach. STEPPS consists of 20 weekly group sessions, divided into four modules. The first component of treatment has the patient assemble a support system, which may be composed of family members, friends, significant others and health care providers (52). Members of the supportive team receive psychoeducation about BPD and are taught how to respond to the patient in a manner that reinforces the new behavioral skills. The next component of treatment involves psychoeducation for the patients, who are taught to identify the thoughts and emotions that contribute to problematic behavior. The next component consists of emotion management skills training, including strategies such as distancing, communicating and challenging thoughts. The final component consists of behavioral management skills such as goal-

setting, sleep hygiene, and avoiding self-damaging behavior. STEPPS assigns homework that includes daily monitoring of emotional intensity and skill use.

STEPPS has been evaluated in three RCTs, in which outpatients with BPD were assigned to either TAU or a combination of STEPPS+TAU, and with consistent results across studies (53, 54, 55). Compared to TAU, STEPPS+TAU is associated with greater improvements in BPD symptom severity, negative affectivity, trait impulsivity and global functioning, with gains maintained over a one-year follow-up. However, STEPPS does not appear to reduce frequency of non-suicidal self-injury or suicide attempts, nor does it reduce inpatient hospitalizations or emergency room visits. STEPPS also has been piloted sample of incarcerated women with BPD ($n = 12$; 56). From pre- to post-treatment, patients showed improvements in BPD symptom severity, negative affectivity and depression. Suicide attempts and acts of non-suicidal self-injury occurred too infrequently to identify a potential treatment effect. Taken together, STEPPS appears to reduce symptoms and symptomatic behaviors when used as adjunctive treatment, and there is preliminary evidence that it may be effective as a stand-alone treatment. In addition, findings highlight the feasibility of implementing STEPPS in a range of clinical settings.

Like STEPPS, Emotion Regulation Group Treatment (ERGT) is a brief, manualized skills-based group, developed to reduce non-suicidal self-injury among women with BPD (57). ERGT is based on the premise that individuals with BPD lack basic emotion regulation skills, which leads to self-damaging behavior in an effort to reduce strong negative affect. ERGT draws on an acceptance-based model, which defines emotion regulation as control over behavior while distressed, rather than control over the experience of emotions. This model highlights the functional aspects of emotional experience and the problems associated with attempts to avoid and control emotions (57; 58). Accordingly, ERGT focuses on understanding the functions of behaviors and emotions, reducing avoidant responses to emotion, and promoting emotional acceptance in the service of goal-directed behavior. The treatment consists of 14 weekly sessions. In the initial session, patients identify the functions of non-suicidal self-injury. Subsequent sessions include psychoeducation about the functions of emotions and the benefits of emotional willingness and skills training to enhance emotional clarity and awareness and promote adaptive emotion regulation skills. The final sessions are used to discuss values and plan for behavioral change that supports those values. Gratz and Gunderson (57) conducted a small RCT among women with BPD and a recent history of non-suicidal self-injury. Patients were randomized to receive either TAU ($n = 10$) or 14-weekly sessions of ERGT in addition to TAU ($n = 12$). Following treatment, patients in the ERGT group had significantly reduced their average frequency of non-suicidal self-injury: 42% of the ERGT+TAU group had reduced their frequency of non-suicidal self-injury by 75% or more, and 59% had reduced by 45% or more. Moreover, the ERGT group showed clinically significant reductions in symptoms of BPD, depression, anxiety and stress, emotion dysregulation and experiential avoidance, whereas patients in TAU failed to show improvements in any of the outcomes of interest. Given the small sample size and absence of follow-up data, findings should be considered preliminary; however, this is one of the first studies to show that a brief, skills-based intervention can produce clinically significant reductions in non-suicidal self-injury and BPD symptom severity.

Avoidant Personality Disorders

There are a total of seven studies that evaluate CBT for avoidant PD (AVPD), including one RCT and two open-trials of cognitive behavioral group therapy (CBGT), and one RCT, one open trial, and two case studies of individual CBT. Notably, given the high rates of comorbidity between AVPD and social phobia (approximately 30% of those with social phobia also meet diagnostic criteria for AVPD; 58), there is a substantial body of research

that examines the efficacy of treatment for social phobia among patients with co-occurring AVPD (59, 60). However, this review is limited to treatment outcome studies in which AVPD was targeted specifically (i.e., patients were selected on the basis of their AVPD diagnosis, and/or AVPD was considered the primary diagnosis).

Cognitive Behavioral Group Therapy (CBGT)

CBGT interventions for AVPD draw upon strategies that have been shown to be effective in treating social phobia and patients with interpersonal problems, including graduated exposure, cognitive restructuring and social skills training (62, 63). The core of CBGT treatments for AVPD is graduated exposure, in which patients are encouraged to approach situations that are feared or avoided. Group sessions are used to prepare for upcoming exposure exercises, and to review previous exposures, while also providing a real-world opportunity for sustained exposure to a social situation (52, 63). Another element of CBGT interventions is cognitive restructuring, which in this treatment, is used primarily facilitate willingness to participate in exposure exercises. Finally, some CBGT approaches include an interpersonal skills training component, based on the assumption that individuals with AVPD lack the social skills necessary to interact effectively or appropriately (62, 64).

Although CBGT interventions for AVPD include multiple treatment elements, findings suggest that multi-component treatments do not necessarily produce better outcomes. For example, Stravynski and colleagues (65) randomized 22 participants with AVPD and generalized social phobia either to a treatment that included exposure, skills training and cognitive restructuring ($n = 11$), or to a treatment that included only exposure and skills training ($n = 11$). Treatment consisted of 12 weekly group sessions. Both groups showed significant improvements in symptoms of depression, anxiety, and symptomatic behavior (e.g., fewer irrational beliefs, less social isolation), however, the inclusion of cognitive restructuring did not improve outcomes beyond the effects of exposure and skills training. In a subsequent trial, Stravynski and colleagues (64) questioned whether the didactic component of skills training was necessary, or whether informal exposure to skills through group discussions would produce similar improvements in social functioning. Patients with AVPD ($n = 21$) served as their baseline and participated in five sessions of skills training and five sessions of group discussions that addressed skills without providing instruction. Exposure homework was assigned in both treatments. In terms of overall social functioning, patients benefited as much from the general discussion group as they did from overt skills training. Findings suggest that patients with AVPD may not require explicit instruction to function effectively in social situations; rather, patients may benefit from the informal modeling of skills, planning, rehearsal and feedback that occur during group discussions.

Finally, Alden (62) conducted a randomized controlled trial comparing three active CBGT treatments to a waitlist control group ($n = 76$). Standard CBGT included exposure with a limited cognitive component (e.g., increasing awareness of fearful thoughts). The second group consisted of standard CBGT in addition to general social skills training (e.g., listening skills, assertiveness), and the final group consisted of standard CBGT plus intimacy-focused skills training (e.g., how to foster a friendship with an acquaintance). All active treatment conditions produced improvements in symptoms of anxiety and depression, reductions in symptomatic behavior (e.g., self-reported shyness, anxious mannerisms), and improvements in social functioning, with gains maintained three months after treatment. In general, the addition of skills training did not improve outcomes beyond the effects of the standard CBGT. However, the group that received of intimacy-focused skills reported greater involvement in and enjoyment of social activities than patients in the other active treatment conditions. Although patients in all treatment conditions made gains over the course of treatment, it is noteworthy that the majority of patients remained impaired in terms of self-

esteem, social reticence and overall social functioning. Alden (62) suggested that residual symptoms may be due to the brevity of GCBT. Consistent with this suggestion, there is evidence that the efficacy of CBGT may be compromised when treatment is delivered over a short period of time or in a small number of sessions. For instance, Renneberg and colleagues (63) found comparably modest rates of recovery following a very brief but intensive CBGT intervention. The treatment consisted of exposure and skills training delivered over four eight hour (full-day) group sessions. Although 40% of patients were considered recovered on their basis of one outcome score (fear of negative evaluation), much lower rates of recovery were observed for symptoms of depression (27% recovered), anxiety (25% recovered), social avoidance/distress (22% recovered), and overall social functioning (8% recovered). In sum, there is data to support the efficacy of short-term CBGT in reducing symptoms of AVPD, anxiety, depression, as well as symptomatic behaviors and overall social functioning. Although cognitive restructuring and skills training are both associated with positive gains in treatment, they do not seem to improve outcomes beyond the effect of graduated exposure. However, because many patients continued to experience significant impairment following CBGT, further research is warranted to identify the optimal treatment composition and dose. Longer-term, comprehensive interventions may be necessary to change longstanding cognitive and behavioral patterns (62, 65).

Individual CBT

Whereas studies of group treatment for AVPD found the strongest evidence for behavioral treatment components (i.e., exposure, skills training and rehearsal), the four published studies on individual CBT for AVPD favor a cognitively-oriented approach (67, 68). The cognitive model of AVPD holds that the emotional and behavioral problems associated with the disorder are based on dysfunctional schemata and irrational beliefs (69). Therefore CBT emphasizes the identification and modification of negative automatic thoughts and maladaptive schemata using thought monitoring, Socratic dialogue and disputation of irrational beliefs (10, 67, 68). In addition to cognitive restructuring, it is notable that the treatment includes a range of behavioral exercises, such as activity monitoring and scheduling, as well as behavioral experiments that are designed to highlight and undermine cognitive distortions. Notably, only one publication, a case study of individual CBT, included social skills training (67).

Strauss and colleagues (67) conducted an open trial of treatment outcomes among outpatients with AVPD ($n = 24$) and OCPD ($n = 16$). All patients received up to 52 weekly sessions of individual CBT and were assessed before and after treatment. Among those with AVPD, the majority reported clinically significant improvements across a range of symptoms and problematic behaviors. For example, 67% of patients no longer met diagnostic criteria for AVPD at the end of treatment, and 65% experienced remission of depressive symptoms. These encouraging findings were replicated in an RCT conducted by Emmelkamp and colleagues (68). Patients were assigned to CBT ($n = 26$), brief dynamic therapy (BDT; $n = 28$) or a waitlist condition ($n = 16$). The two active treatments consisted of 20 sessions delivered over six months, and patients were assessed at the end of treatment and six months after treatment termination. Although both CBT and BDT both produced significant improvements in anxiety symptoms, behavioral avoidance and dysfunctional beliefs at the end of treatment, CBT was significantly superior to BDT on all outcome measures. Moreover, BDT did not differ from the waitlist control condition on any measure at the end of treatment. At follow-up, treatment gains were maintained, with 91% of the CBT group and 64% of the BDT group no longer meeting diagnostic criteria for AVPD, a statistically significant difference.

Obsessive-Compulsive Personality Disorder (OCPD)

Individual CBT for OCPD has been evaluated in one open trial. In the study described above, Strauss and colleague (2006) conducted an open trial of traditional individual CBT (69). The trial, which included 16 patients with OCPD and 24 with AVPD, attended up to 52 weekly sessions of CBT. Results indicated that 53% of patients with OCPD showed clinically significant reductions in depressive symptoms, and 83% exhibited clinically significant reductions in OCPD symptom severity. Of note, the CBT-based approach was equally effective for both disorders (67).

Antisocial Personality Disorder (ASPD)

Only one treatment outcome study has evaluated CBT for ASPD. CBT for ASPD is a brief, structured treatment that applies a cognitive formulation to target the dysfunctional beliefs that underlie aggressive, criminal or self-damaging behaviors (13). Davidson and colleagues randomized men with ASPD and recent histories of aggression to receive either CBT ($n = 25$) or TAU ($n = 27$). Because of the exploratory nature of this study, patients in the CBT group received either 15 sessions over 6 months or 30 sessions over 12 months. Patients were assessed at baseline and followed up at 12 months. No group differences were observed in terms of depression, anxiety, anger, or negative beliefs about others. Patients in both treatment conditions reported lower frequency of verbal and physical aggression at follow-up, although the groups did not differ from one another. Patients who received six months of CBT showed trends for less problematic alcohol use, more positive beliefs about others, and better social functioning, but there was no significant effect for CBT on any of the outcomes assessed.

Comorbid PDs, PDNOS and Mixed PD Samples

The majority of interventions for PDs are disorder-specific and, as a result, treatment outcome research is usually conducted separately for each disorder. However, three RCTs have used samples composed of patients with different PDs, co-occurring PDs, or a diagnosis of PD not otherwise specified (PDNOS). For example, Springer and colleagues (34) conducted a small-scale RCT on an inpatient psychiatric unit. Of 31 patients, 6% received a diagnosis of PDNOS. Of the remaining patients, 65% had a primary diagnosis of a Cluster C PD, and 44% had a primary diagnosis of BPD, although co-occurring PDs were common. Patients were randomized to receive either 10 daily sessions of supportive group treatment ($n = 15$) or DBT skills ($n = 16$). The DBT group consisted of emotion regulation skills, interpersonal effectiveness training, and distress tolerance. The control condition was a “lifestyle and wellness” discussion group that was not intended to be therapeutic. Patients were assessed at baseline and at discharge. Both treatment groups improved over the course of treatment, and there were no group differences on measures of hopelessness, depression, suicidal ideation, anger, or coping-skill knowledge. Contrary to expectations, however, patients in the DBT-based group were more likely to “act out” (i.e., engaging in self-injurious behavior, threatening to harm oneself or others, attempting to leave the unit, refusing to eat for one day or more). Based on these findings, a brief inpatient DBT-based skills intervention may not enhance treatment outcome beyond the effects of a discussion group among a group of patients with mixed personality disorder diagnoses.

Muran and colleagues (71) examined treatment outcomes among outpatients with Cluster C PDs or a diagnosis of PDNOS. The majority of the patients (66%) were diagnosed with PDNOS, 19% met diagnostic criteria for multiple PDs, and 87% had comorbid Axis I psychopathology. Patients were randomly assigned to receive 30 weekly sessions of brief relational therapy (BRT), short-term dynamic therapy (BDT) or traditional CBT (i.e., cognitive restructuring, self-monitoring, and behavioral experiments). All three treatments

produced improvements in symptoms and functioning from pretreatment to post-treatment. Generally, the treatments yielded equivalent improvements in global functioning, depressive and PD symptoms, however, CBT was associated with significantly greater reductions in interpersonal problems, and BRT was associated with significantly better treatment retention. Findings provide evidence that symptoms and dysfunction related to complex personality pathology can be reduced by several treatment approaches, including CBT.

Finally, Lynch and colleagues have applied DBT for outpatients with personality pathology and comorbid MDD (72). In an initial pilot study, patients were randomized to receive antidepressant medication alone (MED) or antidepressant medication, the DBT skills group and weekly phone calls for skills coaching (DBT+MED). At the end of treatment, 71% of patients in the DBT group were in remission based on their depression scores, compared to 41% of patients in the medication group. At six-month follow-up, 75% of the DBT group was in remission compared to 31% of the medication group, a statistically significant difference. In a follow-up study, 65 patients with depression and a PD diagnosis received an 8-week trial of antidepressant medication; of these, 29% were classified as responders, and 23% dropped out. The remaining patients were randomized to receive either medication and case management (MED; $n = 14$) or medication and DBT (DBT+MED; $n = 21$). DBT consisted of 24 sessions of standard individual DBT and 28 weekly sessions of group skills training. At the post-treatment and follow-up assessments, the two treatment groups did not differ on measures of depressive symptoms, however, the DBT+MED group achieved remission more rapidly than the medication-only group. By the end of treatment, rates of remission from BPD were equivalent in the two groups, patients who received DBT showed greater reductions in BPD symptoms, including interpersonal sensitivity and aggression. In summary, DBT combined with antidepressant medication shows promise as a treatment for comorbid depression and PDs, beyond the effects of medication alone.

Other PDs

At the present time, there are neither RCTs nor open trials of CBT for schizotypal, schizoid, paranoid, dependent, narcissistic or histrionic PDs. However, there are a handful of case and empirical single-subject studies that describe cognitive behavioral interventions for the lesser-studied PDs, which may lay the groundwork for future treatment development.

For example, Williams (73) described cognitive behavioral treatment of a patient with paranoid PD (PPD) and MDD. The 11-session treatment aimed to reduce suspicious thoughts and decrease tension, anxiety and depressive symptoms. Treatment strategies included behavior and thought monitoring, cognitive restructuring, role-playing, and relaxation skills training. By the end of treatment, the patient experienced remission of his depression and diminished anxiety about others' intentions toward him; in addition, both the clinician and the patient noted improvements in symptomatic behavior and social functioning. Lynch and Cheavens (74) reported similarly encouraging outcomes for a patient with PPD, OCPD and MDD, who was treated with a modified DBT-based treatment. Specifically, whereas DBT for BPD targets emotional dysregulation and impulsive behavior, modified DBT for PDs focuses on reducing features which generally characterize Cluster C PDs such as emotional over-control, cognitive rigidity and risk aversion. The 28-week skills group includes modules on mindfulness, distress tolerance, and radical openness, in addition to a new module that provides skills for forgiveness and expressing loving kindness (74). The client received nine months of treatment: the first three months of treatment consisted of individual weekly DBT, and the last six months consisted of weekly individual DBT and weekly DBT skills training group (using the modified material). Individual treatment goals were to decrease fear and hostility in relationships, to tolerate criticism and to make decisions in ambiguous situations. Individual sessions involved exposure exercises, and skills included modules on mindfulness, distress tolerance and radical openness. At the end

of treatment, the patient was in remission from PPD, OCPD and MDD, and demonstrated improvements in interpersonal functioning and emotional well-being. Taken together, these studies highlight the potential utility of both CBT and DBT for PPD. These approaches led to distinct case conceptualizations, and different therapeutic strategies were emphasized in each treatment, however, both patients showed symptomatic and functional recovery across multiple symptom domains.

Two single-case designs have been used to describe Functional Analytic Psychotherapy (FAP) for histrionic PD (HPD). FAP is a radical behavioral approach in which the therapist uses principles of reinforcement to modify the patient's behavior (12). FAP cases are conceptualized in terms of problematic clinically-relevant behaviors and desirable clinically-relevant behaviors (i.e., adaptive alternatives). As target behaviors occur in session, the therapist blocks or reinforces them using natural contingencies (e.g., sharing feelings that the patient has evoked in the therapist), with the goal of creating behavioral change that generalizes to daily life (12; 75). Given its interpersonal emphasis, FAP may be well-suited to the needs of patients with interpersonal difficulties (76), including patients with PDs. For example, Callaghan and colleagues (77) described treatment of a patient with features of histrionic and narcissistic PDs. The patient's difficulties were characterized as involving problems identifying personal needs and values and identifying and responding to feedback from others. Over the course of 23-sessions, the patient displayed less dramatic behavior in session, was better able to identify and express his emotional experiences, demonstrated greater skill at noticing his impact on others, and became more successful in social interactions. Busch and colleagues (78) reported similarly encouraging findings using a FAP-CBT integration to treat a patient with HPD. Traditional CBT techniques were used in the first 11 sessions, and the final nine sessions used FAP techniques to decrease behaviors driven by attention- and approval-seeking or motivated by fear of disapproval and to increase genuine responding. During the FAP-focused portion of treatment, the patient experienced significant improvements in depressive symptoms and satisfaction with social relationships.

Conclusions

Research generally supports the conclusion that CBT is an effective treatment modality for patients with personality disorders, however more research is needed to develop further our understanding of how best to apply CBT principles and to provide more specific and unambiguous recommendations for how to treat PD symptoms. In order to provide such recommendations, further research would benefit from greater focus on parsing common and specific treatment factors of various CBT and other treatment approaches.

As described above, CBT offers several specific treatment techniques that appear to map onto the pathology of personality disorders well. For example, CBT approaches emphasize the connection between implicit, automatic thoughts and their underlying schemas, which are widely thought to be dysregulated and maladaptive in PDs. CBT approaches focus on practical goals such as skills training to address the common problem of social dysfunction in PDs, homework assignments that promote generalization of skills into regular life, and learning-based procedures designed to inhibit self-defeating or treatment-threatening behaviors common in PDs. Furthermore, because CBT is a practical and technique-based approach, it is generally amenable to selecting packages of treatment methods and augmenting treatments with other approaches to address what are often unique and complex symptom presentations in PDs. However, to test the specific utility of these CBT techniques, elements of CBT treatments that overlap with one another and with other treatments need to be identified and articulated more clearly. RCTs that have been conducted for PDs have

generally shown that most well-intentioned treatments designed to treat PDs are similarly effective, and are often usually more effective than treatment as usual.

However, the legacy and strength of behavior therapy is its focus on the functional mapping of specific therapeutic techniques with specific patient problems. Research at this molecular level carries the potential to supplement RCT methods in identifying specific factors and distinguishing them from both common factors as well as the specific factors of other approaches. A first step in the process of distinguishing common from specific factors might involve quantifying the ways in which treatments vary so that these differences can be tested directly, rather than be presumed based on the results of comparisons of overall treatment packages. For example, it has been argued that CBT is more structured than other approaches; if this is so, researchers should be able to quantify the degree of structure for any therapy and test the relation between therapeutic structure and treatment outcomes in specific patient populations. A second step would involve using multiple research methods to test different mechanisms of change implied by different approaches. For example, single subject and dismantling designs are well-suited to test the effectiveness of specific interventions in a way that RCTs cannot accommodate. Again these are complementary methods: single-subject designs often provide a justification for larger and more expensive randomized trials, and dismantling studies are often a logical follow-up to findings from RCTs that suggest the effectiveness of a given treatment package. A third step would involve effectiveness studies in naturalistic settings in which therapists use principles, but not necessarily manuals, from different theoretical approaches. It remains a fairly open question how well the results of highly controlled trials generalize to the community, where clinicians tend to be eclectic and typically do not rely closely on manuals. Indeed, common factors may play a particularly important role in naturalistic settings, so such settings represent an important potential arena for testing the effect of adding specific, CBT-based techniques. At the same time, research disseminating treatment manuals is needed to test whether community treatment would be enhanced by increasing consistency with manual-based treatments that have shown empirical promise. Finally, research should anticipate changes to the PD taxonomy proposed for DSMV, which places greater emphasis on dimensional personality traits (e.g., neuroticism, impulsivity) and domains of impairment (e.g., cognitive, interpersonal) that transcend diagnostic labels. Thus, future research may focus on the development of interventions that can be applied to maladaptive traits or dysfunctional behavioral patterns regardless of the particular PD. This approach also will facilitate targeted idiographic treatments that can be tailored to the unique needs of individual patients.

Ultimately, this practical and methodologically open-minded approach to studying psychotherapy for PD should lead to more specific recommendations for clinicians and patients who struggle with these common but difficult-to-treat diagnoses. Given the conceptual links between CBT and PD problems described above, we anticipate that many of these specific factors involve techniques that have long been used in cognitive and behavioral treatments. However, it is also clear that other treatments have specific strengths, as well, which may complement CBT approaches. As Branch (79) has argued, there is value in maintaining one's theoretical framework, while remaining open to technical eclecticism, such that techniques from a variety of approaches can be integrated as part of a cognitive behavioral intervention. In this way it is possible to continue to develop interventions that retain a cognitive behavioral framework while allowing flexibility in addressing the empirical and largely undecided question of how best to help patients with PDs.

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Table 1

Description and Population-Based Lifetime Prevalence of DSM-IV PDs

Disorder	Defining Characteristics	Prevalence
Paranoid	Extreme suspiciousness and mistrust of others, and tendency to view themselves as superior and unique. Constantly on guard and reactive to real or perceived threats.	2.3–4.4%
Schizoid	Restricted range of affect, interpersonal indifference and isolation.	3.1–4.9%
Schizotypal	Odd, eccentric behavior, distorted thoughts and perceptions, inappropriate affect and discomfort with social relationships.	3.3–3.9%
Narcissistic	Inflated self-importance, inability to empathize with others, and overemphasis on status.	0.0–6.2%
Histrionic	Need to be center of attention, exaggerated/ inappropriate emotionality, and seductiveness	0.0–1.8%
Borderline	Volatile interpersonal relationships, fear of abandonment, self mutilation/suicidality, impulsivity, and emotional instability	1.4–5.9%
Antisocial	Aggressive interpersonal interactions, impulsivity, lack of remorse, and defiant disregard for safety of self and others.	1.0–3.6%
Obsessive-Compulsive	Preoccupation with adherence to rules, orderliness, and control.	2.4–7.9%
Dependent	Persistent and pathological need to be with and gain approval of others.	0.5–0.6%
Avoidant	Low tolerance for negative emotions, few close relationships, and fear of rejection or ridicule in interpersonal interactions.	2.4–.2%

Table 2

Treatment Outcomes of CBT for PDs

Citation	Study Type	Subject(s)	Treatment	Duration, Frequency	Findings
Borderline PD					
Linehan et al. (20, 21, 22)	RCT	Outpatients with BPD and parasuicide <i>n</i> = 44 100% female	1. TAU 2. DBT	12 months of weekly individual DBT and skills group	1. Symptomatic behaviors: DBT > TAU 2. Social functioning: DBT > TAU 3. Global functioning: DBT > TAU
Turner (24)	RCT	Outpatients with BPD <i>n</i> = 24 76% female	1. CCT 2. DBT	49–84 individual sessions	DBT > CCT 1. Symptoms: DBT > CCT Decreased depression, anger, impulsivity, suicidal ideation 2. DBT > CCT symptomatic behavior: Decreased suicide, NSSI 4. Global Functioning: DBT > CCT
Koons et al. (23)	RCT	Outpatients with BPD <i>n</i> = 20 100% female	1. TAU 2. DBT	5 months of weekly individual DBT and skills group	1. Symptoms: DBT > TAU 2. Symptomatic behaviors: DBT > TAU
Verheul et al. (19)	RCT	Outpatients with BPD with and without substance dependence <i>n</i> = 58 100% female	1. TAU 2. DBT	12 months of weekly individual DBT and skills group	1. Symptomatic behaviors: DBT > TAU
Linehan et al. (25)	RCT	Outpatients with BPD and parasuicide <i>n</i> = 100 100% female	1. CTBE 2. DBT	12 months of weekly individual DBT and skills group	1. Symptoms: DBT = CTBE 2. Symptomatic behaviors: DBT > CTBE
Clarkin et al. (26)	RCT	Outpatients with BPD <i>n</i> = 90 83% female	1. ST 2. TFP 3. DBT	52 weekly sessions	1. Symptoms: SC = TFP = DBT 2. Symptomatic behavior: TFP > DBT = SC 3. Social functioning: SC = TFP = DBT 4. Global functioning: SC = TFP = DBT
McMain et al. (27)	RCT	Outpatients with BPD with 2+ self-injurious episodes in prior 5 years <i>n</i> = 180 90% female	1. GPM 2. DBT	Weekly sessions for one year	1. Symptoms: DBT = GPM 2. Symptomatic Behavior: DBT = GPM 3. Social Functioning: DBT = GPM
Harley et al. (80)	Controlled trial	Outpatients with BPD <i>n</i> = 45	1. DBT (w/DBT skills)	7 months of weekly individual and group sessions	1. Symptoms: Improvement in symptoms regardless of individual treatment

Citation	Study Type	Subject(s)	Treatment	Duration, Frequency	Findings
		92% female	2. Non-DBT individual + DBT skills		2. Symptomatic behavior: Improvement in symptoms regardless of individual treatment
Brassington & Kowitz (81)	Open trial	Outpatients with BPD n = 10 100% female	DBT	6 months of weekly individual DBT and skills group	1. Symptoms: Decreased BPD, depression, anxiety. Improved SCL-90-R
Prendergast et al. (82)	Open trial	Outpatients with BPD n = 11 100% female	DBT	6 months of weekly individual and group sessions	1. Symptomatic Behaviors: Decreased parasuicide and frequency of medically severe suicide attempts
Comtois et al. (28)	Open trial	Outpatients with BPD (community) n = 24 96% female	DBT	One year	1. Symptomatic Behaviors: Reduced self-injurious behaviors, psychiatric inpatient admissions, days, emergency room visits
Ben-Porath et al. (29)	Open trial	Patients with DBT and an Axis I diagnosis	DBT	Six months	1. Symptoms: Reduced suicidal thoughts 2. Symptomatic behaviors: Reduction in behaviors interfering with quality of life and therapy interfering behaviors
Hopko et al. (83)	Case study	Outpatient with BPD, OCPD, and MDD (community) Female	BA + DBT skills in individual therapy	12 weekly sessions	1. Symptoms: diminished depressive symptoms
Kerr et al. (30)	Case study	Outpatient with BPD (community) Female	DBT (No group skills, on-call system, or consultation team)	6 months	1. Symptoms: decreased suicidality and misery
Bohus et al. (32, 33)	RCT	Inpatients with BPD n = 50 100% female	1. WL-TAU 2. DBT (inpatient)	3 months inpatient treatment	1. Symptoms: DBT > TAU 2. Symptomatic Behaviors: DBT > TAU
Barley et al. (31)	Controlled trial	Inpatients with BPD	1. Inpatient TAU 2. DBT (inpatient)	Average of 103 inpatient days	1. Symptomatic behavior: Inpatient DBT > TAU
Davidson et al. (40)	RCT	Outpatients with BPD n = 106 84% female	1. TAU 2. TAU + CBT	Average of 16 sessions over 52 weeks	1. Symptoms: TAU+CBT>TAU 2. Symptomatic behaviors: TAU+CBT > TAU
Cottraux et al. (41)	RCT	Outpatients with BPD n = 65	1. SC 2. CBT	12 months of weekly sessions	1. Symptomatic behaviors: CBT > SC

Citation	Study Type	Subject(s)	Treatment	Duration, Frequency	Findings
Turner (84)	Open trial	Outpatients with BPD <i>n</i> = 4 50% female	CBT + Alprazolam	3× a week for 3 months, then weekly for 9–18 months	1. Symptoms: reduced BPD symptoms
Evans et al. (42) MacLeod et al. (43)	RCT	Individuals with Cluster B PDs and a parasuicide attempt in the past 12 months <i>n</i> = 34	1. MACT 2. TAU	6 weekly sessions	Lower suicide attempts, self-rated depressive symptoms, and cost of care in MACT. Improvements in positive future thinking.
Weinberg et al. (44)	RCT	Borderline personality disorder patients <i>n</i> = 30 100% female	1. TAU 2. TAU + MACT	6 weekly sessions	1. Symptomatic behavior: TAU+MACT > TAU
Nordahl & Nysæter (49)	Single case study series	Outpatients with BPD <i>n</i> = 6 50% female	1. SFP	65–120 weekly sessions	1. Symptoms: 50% of patients no longer met diagnostic criteria for BPD at the end of treatment
Blum et al. (53)	RCT	Outpatients with BPD <i>n</i> = 24 83% female	1. TAU 2. TAU + STEPPS	20 weekly group sessions	1. Symptoms: TAU+CBGT > TAU 2. Symptomatic behaviors: TAU+STEPPS = TAU
Black et al. (56)	Open Trial	Offenders with BPD <i>n</i> = 12 100% female	STEPPS	20 weekly sessions	1. Symptoms: BPD and depression 2. Symptomatic behaviors: decreased engagement in impulsive and self-damaging behaviors, increased positive coping
Gratz & Gunderson (57)	RCT	Outpatients with BPD and non-suicidal self-injury <i>n</i> = 22 100% female	1. TAU 2. TAU + ERGT	14 weekly sessions	1. Symptoms: TAU + skills group > TAU 2. Symptomatic behaviors: TAU + ERGT > TAU
Avoidant PD					
Alden (62)	RCT	Outpatients with AVPD <i>n</i> = 76 45% female	1. WL 2. CBGT 3. CBGT + social skills 4. CBGT + intimacy skills	10 weekly sessions	1. Symptoms : all CBGTs > WL; addition of skill modules did not improve outcomes beyond CBGT. 2. Social functioning: CBGT+intimacy focus > all other CBGTs; all conditions produced improvements.

Citation	Study Type	Subject(s)	Treatment	Duration, Frequency	Findings
Stravynski et al. (64)	RCT	Outpatients with AVPD <i>n</i> = 21	1. CBGT with social skills 2. CBGT with discussion	5 weekly sessions	1. Symptoms: Skills = Discussion 2. Symptomatic behaviors: Skills = Discussion
Renneberg et al. (63)	Open trial	Outpatients with AVPD <i>n</i> = 17 47% female	CBGT	32 hours over 4 days	1. Symptoms: Modestly improved at post-treatment assessment. 2. Symptomatic Behaviors: Improved at post-treatment assessment.
Stravynski et al. (65)	Open trial	Outpatients with AVPD <i>n</i> = 28%	CBGT	14 weekly sessions	1. Symptoms: improved at post-assessment
Emmelkamp et al. (68)	RCT	Outpatients with AVPD <i>n</i> = 62 52% female	1. WL 2. CBT 3. BDT	20 weekly sessions	1. Symptoms: CBT > BDT = WL 2. Symptomatic Behavior: CBT > BDT = WL
Strauss et al. (67)	Open trial	Outpatients with AVPD <i>n</i> = 24	CBT	Up to 52 weekly sessions	1. Symptoms: Improvements in depressive symptoms and PD symptoms;
Hyman & Schneider (70)	Case study	Outpatient with AVPD, GSP Female	CBT	21 weekly sessions	1. Symptoms: reduced at treatment termination
Hofmann (86)	Case study	Outpatient with AVPD, GSP Male	CBT	27 sessions over 18 months	1. Symptoms: below clinical cutoff on symptom measures at termination and follow-up 2. Symptomatic behaviors: improved interpersonal and occupational functioning.
Obsessive Compulsive PD					
Strauss et al. (67)	Open trial	Outpatients with OCPD <i>n</i> = 16	CBT	Up to 52 weekly sessions	1. Symptoms: Improvements in depressive symptoms and PD symptoms
Antisocial PD					
Davidson et al. (13)	RCT	Outpatients with ASPD and aggression <i>n</i> = 52 100% male	1. TAU 2. TAU + CBT	15 sessions over 6 months or 30 sessions over 12 months	1. Symptoms: TAU = TAU+CBT; both treatments produced reductions in symptoms 2. Symptomatic behaviors: TAU = TAU+CBT; both treatments reduced symptomatic behaviors. 3. Social functioning: TAU = TAU+CBT; both treatments produced improvement.

Citation	Study Type	Subject(s)	Treatment	Duration, Frequency	Findings
Other PDs, Comorbid PDs, PDNOS or Mixed PD Samples					
Muran et al. (71)	RCT	Outpatients with Cluster C or PDNOS <i>n</i> = 128 53% female	1. BRT 2. BDT 3. CBT	30 weekly sessions	1. Symptoms: BRT = BDT = CBT 2. Symptomatic behaviors: BRT = BDT = CBT
Springer et al. (34)	RCT	Inpatients with PDs <i>n</i> = 31 68% female	1. ST 2. DBT skills group	10 sessions daily sessions	1. Symptoms: DBT = TAU; both groups exhibited improvements in symptoms during the trial. 2. Symptomatic behaviors: DBT = TAU Both groups exhibited improvements in symptomatic behaviors during treatment.
Lynch et al. (72)	RCT	Outpatients with PDs and MDD Study 1: <i>n</i> = 34 (46% female) Study 2 <i>n</i> = 37 (46% female)	Study 1 1. MED 2. MED + DBT skills Study 2 1. MED 2. MED + DBT	Study 1: 28 weekly group sessions Study 2: 24 weekly group and individual sessions	Study 1 1. Symptoms: MED+DBT > MED (depression) Study 2 1. Symptoms: MED + DBT > MED (PD)
Williams (73)	Case study	Outpatient with PPD, MDD Male	CBT	11 weekly sessions	1. Symptoms: Remission of depressive symptoms during treatment 2. Symptomatic behaviors: Fewer suspicious comments and greater self-disclosure
Lynch & Cheavens (74)	Case study	Outpatient with PPD, OCPD, MDD Male	DBT (mod)	9 months of weekly individual DBT; 6 months of weekly skills group	1. Symptoms: no longer met diagnostic criteria for PPD, OCPD or MDD at follow-up. 2. Symptomatic behaviors: Diminished interpersonal sensitivity, aggression, improved interpersonal relationships at follow-up
Busch et al. (72)	Single subject	Outpatient with HPD Female	CBT + FAP	20 weekly sessions	1. Symptoms: Remission of depressive symptoms 2. Symptomatic behaviors: reduced engagement in aversive interpersonal behaviors in and out of session; greater perceived social support
Callaghan et al. (78)	Single subject	Outpatient with PDNOS (histrionic, narcissistic features)	FAP	23 weekly sessions	1. Symptomatic behaviors: fewer aversive interpersonal behaviors; greater involvement in

Citation	Study Type	Subject(s)	Treatment	Duration, Frequency	Findings
		Male			prosocial behaviors; improved emotional expression

ASPD = antisocial PD; A VPD = avoidant PD; BA = behavioral activation; BDT = brief dynamic therapy; BPD = borderline PD; BRT = brief relational therapy; CBGT = cognitive behavioral group therapy; CBT = cognitive behavioral therapy; CTBE = community treatment by experts; DBT = dialectical behavior therapy; ERGT = emotion regulation group treatment; FAP = functional analytic psychotherapy; GPM = general psychiatric management; GSP = generalized social phobia; HPD = histrionic PD; MACT = Manual Assisted Cognitive Therapy; MDD = major depressive disorder; MED = Medication management; OCPD = obsessive compulsive PD; PDNOS = PD not otherwise specified; PPD = paranoid PD; SC = supportive counseling; SFP = schema focused psychotherapy; ST = standard treatment; STEPPS = Systems Training for Emotional Predictability and Problem Solving; TAU = treatment as usual; TFP = transference focused psychotherapy; WL = waitlist control