AMERICAN PSYCHOLOGICAL ASSOCIATION

Personality Disorders: Theory, Research, and Treatment

ISSN: 1949-2715

2023, Vol. 14, No. 5, 534–544
https://doi.org/10.1037/per0000612

BPD Compass: A Randomized Controlled Trial of a Short-Term, Personality-Based Treatment for Borderline Personality Disorder

Shannon Sauer-Zavala[1], Matthew W. Southward[1], Martina Fruhbauerova[1], Stephen A. Semcho[1], Nicole E.Stumpp[1], Caitlyn O. Hood[1, 2], Michelle Smith[1], Sohayla Elhusseini[1], and Lauren Cravens[2]

[1] Clinic for Emotional Health, Department of Psychology, University of Kentucky

[2] Department of Psychiatry and Behavioral Science, Medical University of South Carolina

Borderline personality disorder (BPD) is a heterogeneous condition that is particularly associated with three broad personality dimensions: neuroticism (i.e., high negative affectivity), agreeableness (i.e., low antagonism), and conscientiousness (i.e., low disinhibition). The purpose of the present study was to explore whether treatment with BPD Compass, a novel personality-based intervention for BPD, results in greater reductions in BPD symptoms, neuroticism, agreeableness, and conscientiousness compared to a waitlist control (WLC) condition. We also aimed to characterize within-treatment effects for participants assigned to the BPD Compass condition and evaluate patients' satisfaction with treatment. Participants ($N = 51$; $M_{age} = 28.38$; 83.3% female; 93.8% White; 54.2% sexual minority) meeting DSM-5 criteria for BPD were enrolled in a randomized controlled trial to evaluate the efficacy of BPD Compass. Patients were randomly assigned to receive 18 sessions of BPD Compass or complete an 18-week waiting period. BPD Compass led to larger reductions in BPD symptoms (assessor-rated [$\beta = -0.47$] and self-reported [$\beta = -0.62$]) and neuroticism ($\beta = -0.37$), but not agreeableness ($\beta = 0.08$) or conscientiousness ($\beta = 0.10$), compared to the WLC condition. Within the BPD Compass condition, pre- to posttreatment improvements in BPD symptoms, neuroticism, and conscientiousness were significant and large in magnitude (Hedges' *g*s: −1.38 to −1.08). Patients were highly satisfied with BPD Compass and generally perceived it to be an appropriate length. Thus, BPD Compass may be an accessible and useful complement to more specialty or intensive treatments for BPD.

Keywords: borderline personality disorder, five-factor model, treatment, personality

Supplemental materials: https://doi.org/10.1037/per0000612.supp

Borderline personality disorder (BPD) is a severe psychiatric condition defined by impairment across several areas of functioning, including include emotional difficulties (labile affect and intense anger), interpersonal problems (efforts to avoid abandonment and unstable relationships), behavioral dysregulation (chronic suicidality, self-injury, and other impulsive actions), among others (American Psychiatric Association [APA], 2013). Despite this heterogeneity of impairments, researchers have shown that BPD symptoms can be understood as a manifestation of three personality dimensions drawn from the five-factor model of personality (FFM; Costa & McCrae, 1990): neuroticism (i.e., frequent and intense experiences of negative emotions), low agreeableness (i.e., a lack of compassion for or general mistrust of others), and low conscientiousness (i.e., disinhibition, disorganization, and

This article was published Online First January 2, 2023.

The authors would like to thank the individuals with BPD who participated in this trial; this research would not have been possible without their time, effort, and feedback. The authors would also like to extend their gratitude to the study therapists who provided compassionate care to their patients: Will Bowling, Alex Kelly, Jordyn Tipsword, and Rowan Hunt. The authors would also like to acknowledge the efforts of their research assistants: Christian Bugher, Elaina Cravens, Christy Hadley, Sara Shroyer, Kat Wright, and Heather Woodie.

Shannon Sauer-Zavala served as lead for conceptualization, methodology, project administration, and writing—original draft and contributed equally to data curation and supervision. Matthew W. Southward served as lead for data curation and supervision, contributed equally to conceptualization, investigation, project administration, and writing—review and editing, and served in a supporting role for writing—original draft. Martina Fruhbauerova served in a supporting role for formal analysis, project administration, and writing—review and editing. Stephen A. Semcho served in a supporting role for formal analysis, project administration, and writing—review and editing. Nicole E. Stumpp served in a supporting role for project administration and writing—review and editing. Caitlyn O. Hood served in a supporting role for conceptualization, data curation, project administration, and writing—review and editing. Michelle Smith served in a supporting role for project administration and writing—review and editing. Sohayla Elhusseini served in a supporting role for methodology, project administration, and writing—review and editing. Lauren Cravens served in a supporting role for project administration and writing—review and editing. Shannon Sauer-Zavala and Matthew W. Southward contributed to the formal analysis equally.

Supporting documents for this manuscript can be found at: https://osf.io/rxh63/

Correspondence concerning this article should be addressed to Shannon Sauer-Zavala, Clinic for Emotional Health, Department of Psychology, University of Kentucky, 343 Waller Avenue, Suite 205, Lexington, KY 40508, United States. Email: ssz@uky.edu

inefficiency). BPD has been significantly correlated with neuroticism ($r = .54$), low agreeableness ($r = -.24$), and low conscientiousness ($r = -.29$) in meta-analytic work (Samuel & Widiger, 2008), and profiles of FFM traits have been used to assess BPD and demonstrate nearly identical predictive validity as BPD symptoms (Miller et al., 2012; Trull et al., 2003).

The Alternative Model of Personality Disorders (AMPD; APA, 2013) in the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition) was designed in part to characterize personality dysfunction according to maladaptive aspects of the FFM. The AMPD is currently a hybrid model, linking categorically defined personality disorders, such as BPD, to dimensional ratings of FFM traits. In the AMPD, BPD is diagnosed, in part, by the presence of maladaptive aspects of neuroticism (i.e., negative affectivity), agreeableness (i.e., antagonism), and conscientiousness (i.e., disinhibition). Together, these traits are classified as Criterion B. When combined with other criteria (e.g., self and interpersonal dysfunction, pervasiveness, age of onset), these traits can be used to diagnose BPD.

Existing interventions for BPD tend to be focused on a single Criterion B dimension (for a review, see Sauer-Zavala, Southward, Hood, et al., 2022). For example, dialectical behavior therapy (DBT; Linehan, 1993) is designed to target emotional difficulties, which are analogous to the AMPD dimension of negative affectivity. DBT teaches patients skills to tolerate and change emotions. Relationally focused interventions for BPD, including psychodynamic treatments such as transference-focused therapy (TFP; Yeomans et al., 2015) and mentalization-based treatment (MBT; Bateman & Fonagy, 2004), are thought to engage the attachment insecurity that underscores antagonism in BPD (Agrawal et al., 2004). Of note, although the AMPD conception of BPD (APA, 2013) includes disinhibition as a component of BPD, existing treatments for this condition do not *directly* address this trait. Relegating impulsive behaviors to emotional and interpersonal contexts fails to account for mounting evidence that impulsivity in BPD results from specific impairments in response inhibition that are relatively independent from, but transact with, emotion-generating systems and early childhood experiences (Crowell et al., 2009; van Zutphen et al., 2015). Thus, a comprehensive BPD treatment must include strategies to address negative affectivity, antagonism, *and* disinhibition.

Moreover, each of the above approaches for treating BPD is relatively intensive and long-term. BPD, however, is a heterogenous condition that can result from 256 possible symptom combinations (APA, 2013), many of which are relatively less severe (Trull et al., 1997). Epidemiological estimates suggest that up to 97% of people with BPD are not acutely suicidal (i.e., did not attempt suicide in the past year; Grilo & Udo, 2021). Furthermore, extant treatments for BPD typically require extensive training for therapists and, as a result, access to specialist providers with the expertise in providing these more intensive, evidence-based treatments for BPD is limited (Iliakis et al., 2019). Thus, less intensive treatments may be appropriate and more accessible for many people with BPD, and, in fact, shorter courses of care that can be easily applied in generalist mental health settings are efficacious for this population (e.g., Black et al., 2004; Gunderson et al., 2018; Laporte et al., 2018; Zanarini et al., 2017), including for individuals who endorse acute suicide risk (McMain et al., 2009, 2022).

BPD Compass

In response to these limitations, we developed a treatment package for BPD that was designed to be comprehensive, yet relatively brief. BPD Compass, which loosely stands for Cognitive-Behavioral Modules for Personality Symptoms, (a) includes elements designed to engage the three higher order personality dimensions relevant to BPD described in the AMPD (i.e., negative affectivity, antagonism, and disinhibition) and (b) is delivered across 18 or fewer individual sessions. BPD Compass consists of four skill domains (i.e., values identification, cognitive flexibility, behavioral skills [i.e., alternative actions, exposure], and mindfulness) applied to the core personality-based dimensions described above.

Negative affectivity is addressed by countering the aversive, avoidant reactions to emotions that exacerbate these experiences over time (e.g., Barlow, Ellard, et al., 2014; Barlow, Sauer-Zavala, et al., 2014). By targeting emotional avoidance, rebound affective experiences are reduced, which over time can result in sustained decreases in neuroticism (Sauer-Zavala et al., 2021). Lower levels of agreeableness are associated with attachment insecurity, which can manifest as behaviors that function to protect a person in interpersonal contexts perceived as threatening (Young et al., 2006) and represent an actionable functional mechanism to address antagonism. Finally, theoretical accounts have suggested that changing expectancies about one's ability to follow through on tasks predicts increased conscientious behaviors (Magidson et al., 2014). High reward orientation (i.e., continuing to pursue rewards despite negative consequences) has also been implicated in maintaining disinhibition (Carver & White, 1994; Gray, 1987). Sauer-Zavala, Southward, Semcho, et al. (2022) detail how the skills in BPD Compass target these mechanisms.

We included cognitive-behavioral strategies because cognitive-behavioral therapy (CBT) is the primary theoretical orientation used by most providers in typical mental health service settings (Wolitzky-Taylor et al., 2019) and most training programs for clinical psychology focus on developing student competencies in delivering CBT (Heatherington et al., 2012). We also developed patient workbook and therapist session checklists (akin to other manualized CBT protocols) so that providers with a basic CBT background could use BPD Compass without specialized training.

Present Study

In the present study, we conducted a randomized controlled trial (RCT) to evaluate the efficacy of BPD Compass. People with BPD were randomized to receive either 18 sessions of BPD Compass or an 18-week waiting period (waitlist control [WLC] condition). Our primary hypothesis was that participants in the BPD Compass condition would demonstrate significantly larger reductions in and lower levels of BPD symptoms posttreatment relative to those assigned to WLC. As a secondary question, we examined differences in negative affectivity, antagonism, and disinhibition as a function of treatment condition. We also sought to characterize within-treatment effects in BPD symptoms in the BPD Compass condition. We hypothesized that these patients would demonstrate significant improvements across treatment. Finally, given that this was the first trial of BPD Compass, we sought to investigate patients' satisfaction with treatment and explore qualitative feedback about the treatment approach.

Method

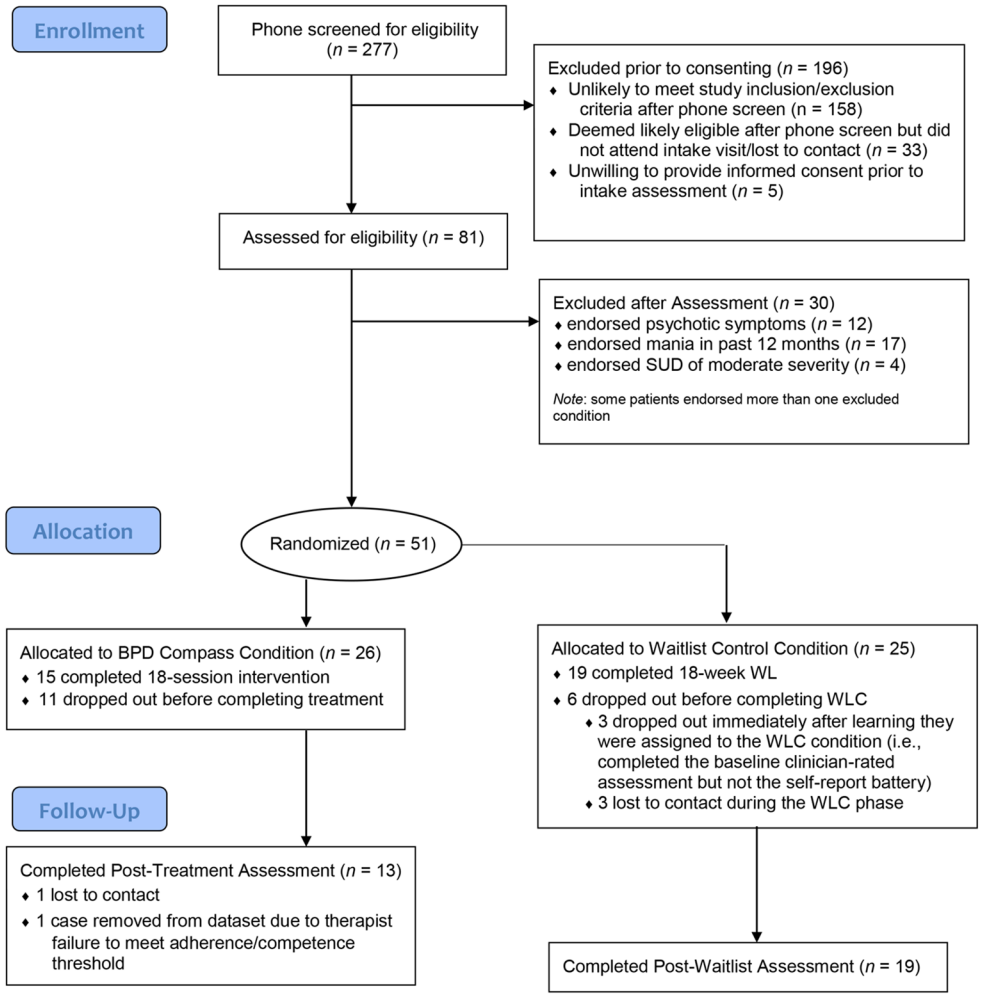
Participants

A sample of treatment-seeking adults was recruited across the state of Kentucky. Given that our primary outcome was BPD symptom improvement, people were included if they met DSM-5 criteria for BPD (assessed via the Structured Clinical Interview for DSM-5 Personality Disorders; First et al., 2015), refrained from concurrent behavioral treatment, and agreed to remain on a stable dose of psychotropic medication throughout the study period. Exclusion criteria were based on the well-being of participants and included difficulties that would warrant the prioritization of alternative care: uncontrolled bipolar I disorder or psychotic/delusional symptoms (i.e., a manic episode or delusions/hallucinations in the past 12 months), acute suicidal intent requiring immediate hospitalization, or an untreated substance use disorder that would be better addressed with supervised detoxification and/or medication management.

A total of 81 people consented to participate and completed an eligibility assessment (Figure 1). Of these, 30 were withdrawn for meeting one or more of the exclusion criteria above. The remaining 51 participants were randomized (1:1 ratio) to treatment condition: 26 (50.9%) were assigned to the BPD Compass condition and 25 (49.1%) were assigned to WLC (Figure 1). Demographic data are reported for $n = 48$, and baseline clinician-rated diagnostic data are reported for $n = 50$ because two patients dropped out after completing the clinician-rated assessment, but before providing baseline self-report data, and one patient was removed from all analyses due to a protocol deviation (Figure 1). Participants were 28.38 ($SD = 9.57$) years old on average, and the majority of the sample identified as female ($n = 40$; 83.3%), White ($n = 45$; 93.8%), and as a sexual minority ($n = 26$; 54.2%). On average, participants met criteria for three concurrent diagnoses at baseline. The most common comorbid diagnoses were generalized anxiety disorder ($n = 22$; 45.8%) and social anxiety disorder ($n = 22$; 45.8%), followed by major depressive disorder ($n = 16$; 33.3%), persistent depressive disorder ($n = 15$; 31.3%), and posttraumatic stress disorder ($n = 15$; 31.3%). See Table 1 for complete demographic and diagnostic information.

Figure 1

Recruitment Flow Diagram



Note. See the online article for the color version of this figure.

Table 1
Baseline Demographic and Diagnostic Characteristics

Characteristic	Total ($N = 48$)	BPD Compass ($n = 25$)	WLC ($n = 23$)
Age (*M*, *SD*)	33.74 (12.64)	33.71 (13.96)	32.88 (12.85)
Gender			
Female	40 (83.3)	21 (84.0)	19 (82.6)
Male	5 (10.4)	2 (8.0)	3 (13.0)
Genderqueer/nonbinary	5 (10.4)	2 (8.0)	3 (13.0)
Transgender	4 (8.3)	2 (8.0)	2 (8.7)
Other	1 (2.1)	1 (4.0)	0 (0.0)
Racial/ethnic background[a]			
White	45 (93.8)	23 (92.0)	22 (95.7)
African American	4 (8.3)	3 (12.0)	1 (4.3)
Indigenous/Native American	2 (4.2)	2 (8.0)	0 (0.0)
Latinx	4 (8.3)	3 (12.0)	1 (4.3)
Other	1 (2.1)	0 (0.0)	1 (4.3)
Heterosexual/straight	22 (45.8)	13 (52.0)	9 (39.1)
Bachelor's degree or higher	14 (29.2)	5 (20.0)	9 (39.1)
Married	5 (10.4)	0 (0.0)	5 (21.8)
Current psychotropic medication	32 (66.7)	18 (72.0)	14 (60.9)
Comorbid diagnoses[b]			
Bipolar II disorder	9 (18.8)	3 (12.0)	6 (26.1)
Obsessive–compulsive disorder	7 (14.6)	3 (12.0)	4 (17.4)
Social anxiety disorder	22 (45.8)	12 (48.0)	10 (43.5)
Generalized anxiety disorder	22 (45.8)	11 (44.0)	11 (47.8)
Panic disorder	12 (25.0)	5 (20.0)	7 (30.4)
Agoraphobia	4 (8.3)	0 (0.0)	4 (17.4)
Major depressive disorder	16 (33.3)	8 (32.0)	8 (34.8)
Persistent depressive disorder	15 (31.3)	6 (24.0)	9 (39.1)
Premenstrual dysphoric disorder	8 (16.7)	3 (12.0)	5 (21.8)
Posttraumatic stress disorder	15 (31.3)	5 (20.0)	10 (43.5)
Anorexia nervosa	0 (0.0)	0 (0.0)	0 (0.0)
Bulimia nervosa	3 (6.3)	1 (4.0)	2 (8.0)
Binge eating disorder	8 (16.7)	5 (20.0)	3 (13.0)
Substance use disorder	9 (18.8)	7 (28.0)	2 (8.7)
Diagnoses met (*M*, *SD*)	3.13 (2.03)	2.76 (1.42)	3.52 (2.50)

Note. Data are presented as a number (percentage) of patients unless otherwise indicated.
[a] Values may not sum to total in each column because participants could select multiple racial/ethnic backgrounds.
[b] Values may not sum to total in each column because participants could be diagnosed with multiple clinically significant diagnoses.

Eleven participants in the BPD Compass condition (42.3%) did not complete all 18 treatment sessions due to the time burden related to attending regular therapy sessions ($n = 8$; 72.7%) and worsening depressive symptoms that interfered with treatment motivation ($n = 3$, 27.2%). Additionally, data from one patient were removed from all analyses as their therapist did not meet the required adherence/competence threshold, and one patient (who completed all 18 sessions) was lost to contact before they completed the posttreatment assessment. In WLC, six participants did not complete study procedures: four participants (66.7%) withdrew immediately after learning they had been assigned to WLC, two of whom did not provide baseline self-report data following their clinician-rated assessment after learning of their condition, one participant (16.7%) found the baseline assessment aversive and did not wish to complete the postwaitlist (WL) assessment, and one participant (16.7%) was lost to contact. Thus, complete data are available for 32 patients. There were no baseline differences between those who completed all study procedures and those who dropped out in terms of age, gender, sexual orientation, income, neuroticism, agreeableness, or conscientiousness, $ps > .05$, $ds < 0.23$. By contrast, study completers were more likely to identify as White (vs. other demographic groups), $\chi^2(1, 48) = 5.33$, $p = .02$; married (vs. other relationship statuses), $\chi^2(5, 48) = 13.52$, $p = .02$; more highly educated, $U = 169$, $z = -2.31$, $p = .02$; and report fewer BPD symptoms, $t(46) = 2.59$, $p = .01$, 95% CI [1.19, 9.54], $d = 0.77$.

Procedures

All study procedures were approved by the University of Kentucky Institutional Review Board; study procedures were registered at clinicaltrials.gov: NCT04587518. (Primary outcomes [i.e., ZAN-BPD-CR and ZAN-BPD-SR] were preregistered, although the model specifications used to compare changes in these outcomes between conditions were not preregistered.) Study advertisements were posted on various online platforms, including social media, participant recruitment sites, and university listservs. Those interested completed an initial telephone screening that included the McLean Screening Instrument for BPD (MSI-BPD; Zanarini et al., 2003), along with supplemental questions to assess exclusion criteria.

Those deemed likely eligible completed a baseline semistructured diagnostic assessment via telehealth and self-report measures. Patients who met study inclusion criteria were randomly assigned (1:1) to the BPD Compass condition or WLC. Those assigned to the BPD Compass condition completed 18 therapy sessions within a 7-month treatment window. Although the goal was to hold sessions weekly, a treatment window allows for scheduling flexibility for both patients and therapists (e.g., vacations, illness). Patients completed brief questionnaires before and after each therapy session and, after their final session, they completed a posttreatment semistructured diagnostic assessment and self-report measures.

Participants assigned to WLC completed a brief self-report battery at Weeks 4, 8, 12, and 16 during their 18-week waiting period. We used these measures to monitor for clinical deterioration (e.g., worsening depression, increased suicidal thoughts, and behavioral urges) and ensure that participants were adhering to study inclusion criteria (i.e., refraining from concurrent psychological treatment or changing their medications). Although procedures were in place to withdraw any deteriorating WLC patients from the study and refer them to immediate care, these contingencies did not need to be implemented. Following the 18-week wait, participants in WLC completed post-WL semi-structured diagnostic assessments and self-report measures. They were then offered BPD Compass.

Treatment

BPD Compass is an 18-session cognitive-behavioral intervention designed to engage the three AMPD personality dimensions relevant

for BPD. The initial session is focused on psychoeducation about BPD and provides an overview of treatment content. Next, patients spend two sessions identifying their values and considering the extent to which they are currently living in accordance with them. Then, four sessions are dedicated to cognitive skills designed to help patients practice flexible thinking around emotion-provoking situations, maladaptive schemas about relationships, and beliefs about their ability to resist impulsive urges. The next six sessions incorporate common principles of behavior change by encouraging patients to identify unhelpful emotional, relationship, and impulsive actions and then to practice behaviors that bring patients closer to their values. Four more sessions involve mindfulness training to cultivate present-focused, nonjudgmental attention in response to the thoughts, sensations, and behavioral urges that arise from emotion-provoking situations, interpersonal conflicts, and triggers for impulsive actions. A final session is dedicated to relapse prevention. A detailed description of BPD Compass skills can be found in Sauer-Zavala, Southward, Hood, et al. (2022).

BPD Compass sessions were delivered in weekly, individual, 45- to 60-min sessions. All sessions were provided via a HIPAA-compliant telehealth platform (i.e., Zoom). Nine study therapists with 0–17 years of therapy experience provided the treatment: one licensed clinical psychologist (treatment developer SSZ) and six advanced clinical psychology graduate students. All the therapists had a CBT background. Specific BPD Compass training for student therapists included reading the patient workbook prior to taking study cases and weekly supervision with treatment developers in which review of the prior session and planning for the upcoming session occurred. Treatment developers (SSZ, MWS, and COH) certified each student therapist in the provision of BPD Compass by reviewing all sessions of their first case using a fidelity checklist developed for this study. All sessions were video-recorded, and 20% were randomly selected to be rated for competence by the treatment developers on a 5-point scale. Average adherence (i.e., fidelity to the protocol) was high (97.32%, $SD = 11.42$) and average competence, which captured therapeutic skills (e.g., time management, empathy), was adequate to good ($M = 3.61$, $SD = 0.99$).

Assessment

Clinician-rated diagnostic and severity assessments were administered by advanced doctoral students trained to reliability and masked to treatment condition. Self-report measures were collected using Research Electronic Data Capture (REDCap) links sent by assessors after each assessment or by therapists prior to each session.

Diagnostic Measures. To confirm study inclusion/exclusion criteria, participants completed a semistructured diagnostic assessment prior to randomization. First, the BPD module of the Structured Clinical Interview for DSM-5 Personality Disorders SCID-5 (First et al., 2015) was administered to ensure participants criteria for BPD. The SCID-II is a semistructured diagnostic interview used to determine the presence of personality disorders. It has demonstrated good psychometric properties and adequate convergent, discriminant, and predictive validity (Ryder et al., 2007). Additionally, modules from the Diagnostic Interview for Anxiety, Mood, and Obsessive–Compulsive and Related Neuropsychiatric Disorders (DIAMOND; Tolin et al., 2018), a semistructured diagnostic interview for DSM-5 disorders, were used to assess exclusion criteria. All diagnostic interviews were audio-recorded, and 20% of the tapes were rated by an assessor masked to the original ratings and randomization condition. Agreement regarding study eligibility (yes/no) was Krippendorff's $\alpha = 1.00$. (Krippendorff's $\alpha s \geq 0.80$ indicate reliable variables; αs between 0.67 and 0.80 indicate tentative reliability; Krippendorff, 2004.)

Assessors also used the DIAMOND to assign comorbid DSM-5 diagnoses at baseline. Each disorder was rated for subjective distress and/or degree of functional impairment using a 7-point (1–7) clinical severity rating (CSR) scale, with scores ≥ 3 indicating the presence of a disorder. Assessors demonstrated Krippendorff's $\alpha = 1.00$ on categorical ratings of clinically significant diagnoses and Krippendorff's $\alpha = 0.89$, 95% CI [0.68, 0.99], of dimensional severity ratings (CSRs) of each disorder.

BPD Symptom Severity. BPD symptom severity was assessed at baseline and posttreatment/WL with the clinician-rated version of the Zanarini Rating Scale for BPD (ZAN-BPD-CR; Zanarini, 2003), a continuous measure designed to capture changes in BPD symptom severity over time. Assessors rate the degree to which each of the nine DSM-5 criteria for BPD apply to participants during the previous week, using a 5-point scale with unique anchors for each item indicating *no symptoms* (0) to *severe symptoms* (4). Assessors demonstrated Krippendorff's $\alpha = 0.99$, 95% CI [0.97, 1.00], on ZAN-BPD dimensional severity ratings.

The self-report version of the ZAN-BPD (ZAN-BPD-SR; Zanarini et al., 2015) was also administered at baseline and posttreatment/WL assessments, and weekly for those in the BPD Compass condition. ZAN-BPD-SR items demonstrated McDonald's ωs: 0.84–0.88 at baseline and posttreatment/WL and $\bar{\omega} = 0.78$, range: 0.59–0.89, on average across all 18 sessions among those randomized to BPD Compass.

Personality Dimensions. The Big Five Inventory-2 (BFI-2; Soto & John, 2017) is a 60-item self-report measure designed to assess individual differences in the Big Five dimensions of personality. We administered the neuroticism (BFI-N), agreeableness (BFI-A), and conscientiousness (BFI-C) subscales, each of which includes 12 items. Ratings on each item range from 1 (*disagree strongly*) to 5 (*agree strongly*) and are averaged to create a total score for each subscale. Participants completed the BFI-2 at baseline and posttreatment/WL. The internal consistency of BFI-2 items at baseline and posttreatment/WL for each subscale were $\omega s_{\text{BFI-N}}$: 0.83–0.89, $\omega s_{\text{BFI-A}}$: 0.80–0.87, and $\omega s_{\text{BFI-C}}$: 0.84–0.88.

Treatment Satisfaction. In the postsession battery following the 18th session, participants reported their satisfaction with the treatment and how acceptable they found the treatment content and length. Satisfaction was rated on a 5-point Likert-type scale from 1 (*not at all satisfied*) to 5 (*extremely satisfied*) in response to the prompt, "Overall, how satisfied were you with the treatment?" Acceptability of treatment content was rated on a 5-point Likert-type scale from 1 (*not at all acceptable*) to 5 (*extremely acceptable*) in response to the prompt, "Overall, how acceptable was the treatment content to you?" Acceptability of treatment length was rated on a 5-point Likert-type scale from 1 (*not long enough*) to 5 (*much too long*) in response to the prompt, "Overall, how acceptable was the treatment length to you? In other words, did you think that the length of the treatment you received was not enough, just right, or too much?" In addition to these Likert-type ratings, patients were asked to provide open-ended responses to several questions: (a) "What was the most important thing you learned in

treatment?" (b) "In what ways did this treatment address the difficulties for which you sought help?" (c) "Were there difficulties you experience that this treatment did not address as well as you would have liked?" and (d) "What changes would you recommend to this treatment?"

Planned Analyses

Preliminary Analyses

We first evaluated participants' response validity on the ZAN-BPD-SR and BFI-2 by examining the variability in item responses and the person-total correlations on both measures (Curran, 2016; Code for study analyses is available at https://doi.org/https://osf.io/rxh63/). We then tested whether the demographic characteristics of patients assigned to the BPD Compass condition differed from participants assigned to WLC. We tested for between-group differences in age using an independent samples *t*-test; between-group differences in gender identity, sexual orientation, racial/ethnic background, and marital status using chi-squared goodness-of-fit tests, applying Fisher's exact test to address small cell sizes; and between-group differences in education and family income using Wilcoxon–Mann–Whitney *U* tests. We also used independent-samples *t*-tests to determine whether participants in each condition differed on our clinical variables of interest at pretreatment.

Treatment Efficacy

To assess the effect of treatment conditions on outcomes, we conducted a series of regressions using SPSS Version 27 (IBM Corp, 2020). For each study outcome (i.e., ZAN-BPD-CRV, ZAN-BPD-SRV, BFI-N, BFI-A, BFI-C), we regressed posttreatment scores onto a dummy coded variable representing treatment condition (WLC = 0, BPD Compass = 1), the corresponding pretreatment score, and an effect coded variable indicating whether the scores from a participant were (+0.5) or were not (−0.5) their last observation carried forward (LOCF). We used the LOCF for participants who did not complete all assessments. Because participants in the BPD Compass condition completed self-report measures of all variables of interest weekly, we used the LOCF from the final available session. Because the LOCF for WLC participants who did not complete their Week 18 assessment was their baseline assessment, we used listwise deletion instead. Similarly, because the LOCF for the ZAN-BPD-CR was the baseline assessment, we used listwise deletion for this measure as well. We calculated between-group effect sizes using Hedges' g, which includes a correction for small sample sizes.

Given that treatments for BPD have demonstrated large effects on BPD-related outcomes relative to WL conditions (Gratz et al., 2014; Kamalabadi et al., 2012), a total sample size of 50, assuming a one-tailed test with $\alpha = 0.05$ and a 1:1 allocation ratio between conditions, gave us 80% power to detect between-condition differences of $d \geq 0.72$ (Faul et al., 2009).

Characterizing Within-Condition Effects

We characterized changes in our outcomes of interest within each condition, again using the full intent-to-treat sample with LOCF. We used paired-samples *t*-tests to evaluate the difference between pre- and posttreatment scores on each clinical outcome for participants in the BPD Compass condition and the difference between Week 0 and Week 18 scores on each clinical outcome for those in WLC. We calculated within-group effect sizes using Hedges' *g*.

Because ZAN-BPD-SRV scores were collected weekly prior to each BPD Compass sessions, we were able to model change in this outcome across 18 sessions. Given the nested structure of the data (i.e., sessions within patients), we used hierarchical linear modeling (HLM) as implemented in the *nlme* package (Version 3.1-149; Pinheiro et al., 2022) in R (Version 4.0.3; R Core Team, 2020). We regressed ZAN-BPD-SRV scores on session number. We also modeled random intercepts, included a lag-1 autoregressive residual covariance structure, and used restricted maximum likelihood estimation.

Treatment Satisfaction, Acceptability, and Feedback

Finally, we explored participants' ratings of satisfaction with the treatment, as well as the acceptability of the content and length. We then summarized participants' qualitative feedback in response to the above-mentioned directed and open-ended questions.

Results

Preliminary Analyses

All participants demonstrated variability >0 in their baseline responses. Although three participants demonstrated negative person-total correlations on the ZAN-BPD-SR, all participants demonstrated positive person-total correlations on the BFI-2. Thus, we did not exclude any participants for questionable response validity. Participants in the BPD Compass and WL conditions did not significantly differ in age, gender identity, sexual orientation, education level, marital status, or family income at baseline, $ps > .05$, $d < 0.30$. Similarly, no significant differences between conditions were found at pretreatment on any personality or personality disorder variables ($ps > .70$, $ds < 0.16$), with the exception of neuroticism, $M_{difference} = 0.33$, $SD_{difference} = 0.13$, $t(47) = 2.53$, $p = .02$, 95% CI [0.07, 0.59], $d = 0.70$, for which WLC exhibited higher values.

Aim 1: BPD Compass Efficacy Relative to WLC

Examination of pre- and posttreatment means for all study outcomes revealed that change was in the expected direction (i.e., improvement) for patients in the BPD Compass condition, whereas change was relatively minimal in WLC (Table 2). Next, we examined the effect of condition on posttreatment outcomes, adjusting for the corresponding pretreatment scores (Table S1 in the online supplemental material). BPD Compass produced significantly larger reductions compared to WLC in both assessor-rated (ZAN-BPD-CRV; $B = -7.37$, $SE = 2.58$, $p = .01$, [−12.65, −2.08], $\beta = -0.47$) and self-reported (ZAN-BPD-SRV; $B = -9.87$, $SE = 2.25$, $p < .01$, [−14.43, −5.32], $\beta = -0.71$) BPD symptoms. Significant between-condition effects were also demonstrated for neuroticism (BFI-N; $B = -0.81$, $SE = 0.27$, $p = .01$, [−1.36, −0.26], $\beta = -0.55$). After 18 weeks of treatment or WL, the differences between conditions on these outcomes were large in magnitude: ZAN-BPD-CRV scores, $t(29) = -2.84$, $p = .01$, [−12.51, −2.04], Hedges' $g = -1.01$, [−1.74, −0.26]; ZAN-BPD-SRV

Table 2
Pre- and Posttreatment Means, Standard Deviations, and Within-Condition Effect Sizes for Personality and Personality Disorder Variables for the Intent-to-Treat Sample

	BPD Compass			Waitlist			Between-condition effects	
Clinical outcome	Pretreatment ($n = 25$) M (SD)	Posttreatment ($n = 25$) M (SD)	Hedges' g [95% CI]	Week 0 ($n = 25$)[a] M (SD)	Week 18 ($n = 18$) M (SD)	Hedges' g [95% CI]	Baseline Hedges' g [95% CI]	Post-Hedges' g [95% CI]
ZAN-BPD-CRV	16.04 (6.46)	6.62 (6.04)[b]	−1.12[c] [−1.66, −0.65]	15.00 (6.10)	13.89 (7.65)	−0.01 [−0.46, 0.45]	0.16 [−0.39, 0.71]	−1.01[c] [−1.74, −0.26]
ZAN-BPD-SRV	17.88 (7.97)	8.48 (6.24)	−1.16[c] [−1.66, −0.65]	17.39 (6.82)	13.88 (6.73)	−0.28 [−0.74, 0.18]	0.07 [−0.49, 0.62]	−0.82[c] [−1.44, −0.20]
BFI-N	4.25 (0.48)	3.84 (0.77)	−0.47[c] [−0.87, −0.06]	4.57 (0.43)	4.39 (0.51)	−0.29 [−0.81, 0.12]	−0.68[c] [−1.25, −0.11]	−0.78[c] [−1.33, −0.10]
BFI-A	3.34 (0.71)	3.35 (0.71)	0.02 [−0.36, 0.40]	3.37 (0.56)	3.45 (0.66)	0.24 [−0.36, 0.55]	−0.04 [−0.60, 0.52]	−0.15 [−0.75, 0.45]
BFI-C	2.48 (0.71)	2.71 (0.69)	0.45[c] [0.04, 0.85]	2.58 (0.73)	2.75 (0.78)	0.09 [−0.23, 0.69]	−0.14 [−0.69, 0.42]	0.05 [−0.65, 0.54]

Note. Within-condition Hedges' gs calculated by subtracting Time 1 scores from Time 2 scores. For between-condition Hedges' gs, BPD Compass = 1 and WLC = 0. Baseline = pretreatment for participants in the BPD Compass condition and Week 0 for participants in the waitlist control (WLC) condition; BFI-A = Big Five Inventory—Agreeableness Subscale; BFI-C = Big Five Inventory—Conscientiousness Subscale; BFI-N = Big Five Inventory—Neuroticism Subscale; CI = confidence interval; Post = Posttreatment for participants in the BPD Compass condition and Week 18 for participants in WLC; ZAN-BPD-CRV = Zanarini Rating Scale for Borderline Personality Disorder—Clinician-rated Version; ZAN-BPD-SRV = Zanarini Rating Scale for Borderline Personality Disorder—Self-report Version.
[a] $n = 23$ for ZAN-BPD-SRV, BFI-N, BFI-A, and BFI-C. [b] $n = 13$ for ZAN-BPD-CRV at posttreatment. [c] Nonoverlapping confidence intervals.

scores, $t(41) = -2.71$, $p = .01$, [−9.44, −1.38], $g = -0.82$, [−1.44, −0.20] and BFI-N scores, $t(41) = -2.58$, $p = .02$, [−0.97, −0.11], $g = -0.78$, [−1.40, −0.16].

Contrary to expectations, neither agreeableness (BFI-A; $B = 0.10$, $SE = 0.17$, $p = .56$, [−0.24, 0.44], $\beta = 0.07$) nor conscientiousness (BFI-C; $B = 0.15$, $SE = 0.20$, $p = .44$, [−0.25, 0.56], $\beta = 0.11$) demonstrated significantly different residualized change between conditions.

Consistent with these findings, differences between conditions after 18 weeks of treatment or WL were small for both agreeableness, $t(41) = -0.50$, $p = 0.62$, 95% CI [−0.54, 0.33], $g = -0.15$, [−0.75, 0.45] and conscientiousness, $t(41) = -0.17$, $p = .87$, [−0.49, 0.42], $g = -.05$, [−0.65, 0.54].

The results from the completer sample led to substantively similar conclusions as the intent-to-treat sample. Relative to WLC, BPD Compass led to significantly larger reductions in self-reported BPD symptoms (ZAN-BPD-SRV; $B = -9.65$, $SE = 2.36$, $p < .01$, 95% CI [−14.52, −4.78], $\beta = -0.62$) and neuroticism (BFI-N; $B = -0.60$, $SE = 0.23$, $p = .02$, [−1.07, −0.12], $\beta = -0.37$). Residualized change on agreeableness (BFI-A; $B = 0.11$, $SE = 0.16$, $p = .49$, [−0.22, 0.45], $\beta = .08$) nor conscientiousness (BFI-C; $B = 0.15$, $SE = 0.18$, $p = .42$, [−0.23, 0.53], $\beta = 0.10$) as a function of condition was not significant. The between-conditions comparisons after 18 weeks were also substantively unchanged. Compared to WLC, patients in BPD Compass reported large and significant differences in ZAN-BPD-SRV, $t(25) = -4.99$, $p < .01$, [−13.66, −5.76], $g = -1.56$, [−2.43, −0.676]; and BFI-N scores, $t(25) = -3.62$, $p < .01$, [−1.46, −0.40], $g = -1.43$, [−2.29, −0.55]; and very small nonsignificant differences in BFI-A, $t(25) = -0.50$, $p = .63$, [−0.77, 0.47], $g = -0.20$, [−0.97, 0.58]; and BFI-C scores, $t(25) = 0.63$, $p = .53$, [−0.44, 0.83], $g = 0.25$, [−0.53, 1.03].

Given that not all patients with BPD exhibit elevations in each BPD-relevant personality dimension, we explored the extent to which our sample was characterized by clinically significant deficits in agreeableness and conscientiousness and clinically significant elevations in neuroticism. We defined clinically significant deficits as T-scores $\leq$35 and clinically significant elevations as T-scores $\geq$65 based on a large, representative sample (Soto & John, 2017). Collapsed across treatment conditions, 8 patients (15.7%; $n = 5$ in the BPD Compass condition, $n = 3$ in WLC) demonstrated low levels of agreeableness at pretreatment and 20 patients (39.2%; $n = 10$ in BPD Compass, $n = 10$ in WLC) demonstrated low levels of conscientiousness. By contrast, 26 patients (51.0%; $n = 10$ in BPD Compass, $n = 16$ in WLC) exhibited high levels of neuroticism at pretreatment. At posttreatment, 8 patients demonstrated clinically low agreeableness (15.7%; $n = 6$ in BPD Compass, $n = 2$ in WLC), 15 patients demonstrated clinically low conscientiousness (29.4%; $n = 9$ in BPD Compass, $n = 6$ in WLC), and 18 patients exhibited clinically high neuroticism (35.3%; $n = 8$ in BPD Compass, $n = 10$ in WLC).

Aim 2: Characterizing Change in BPD Symptoms Across Conditions

We then examined the magnitude of improvement from pre- to posttreatment within both conditions. Patients in BPD Compass demonstrated medium-to-large improvements in assessor-rated BPD symptoms, $t(12) = -4.20$, $p < .01$, 95% CI [−12.03,

−3.81], $g = -1.13$, [−1.81, −0.43]; self-reported BPD symptoms, $t(24) = -5.89$, $p < .01$, [−12.69, −6.10], $g = -1.16$, [−1.66, −0.65]; neuroticism, $t(24) = -2.39$, $p < .01$, [−0.74, −0.05], $g = -0.47$, [−0.87, −0.06]; and conscientiousness, $t(24) = 2.27$, $p = .03$, [0.02, 0.44], $g = 0.45$, [0.04, 0.85] (Table 2). By contrast, increases in agreeableness (BFI-A; $t(24) = 0.08$, $p = .94$, [−0.19, 0.21], $g = .02$, [−0.37, 0.40]) were small in magnitude and not statistically significant. Patients in WLC exhibited small and nonsignificant improvements from Week 0 to Week 18 on all outcomes. Repeating these analyses in the completer sample rendered similar results. BPD Compass led to large improvements in ZAN-BPD-SRV scores, $t(8) = -4.36$, $p < .01$, [−17.84, −5.49], $g = -1.38$, 95% CI; BFI-N scores, $t(8) = -3.40$, $p = .01$, [−1.14, −0.22], $g = -1.08$, [−1.87, −0.25]; and BFI-C scores, $t(8) = 2.55$, $p = .03$, [0.03, 0.50], $g = 0.81$, [0.06, 1.53] and very small improvements in BFI-A scores, $g = 0.27$, [−0.34, 0.88]. Changes in WLC were small and nonsignificant for all outcomes.

For individuals in the BPD Compass condition, descriptive statistics for ZAN-BPD-SRV at each session are reported in Table S2 in the online supplemental material and visually depicted in Figure 2. Results from our HLM (see Table S3 in the online supplemental material) revealed BPD Compass was associated with significant decreases in BPD symptoms across the 18 treatment sessions, $B = -0.36$, $SE = 0.05$, $p < .01$, 95% CI [−0.46, −0.26]. Because nine therapists provided treatment, we also included the therapist as a fixed effect in our HLM as parameter estimates may be less biased when including factors with relatively few levels as fixed effects rather than random effects [McNeish & Stapleton, 2016]. The effect of therapist was nonsignificant, $B = 0.61$, $SE = 0.40$, $p = .14$, 95% CI [−0.22, 1.44], so we report the more parsimonious model in the main text.

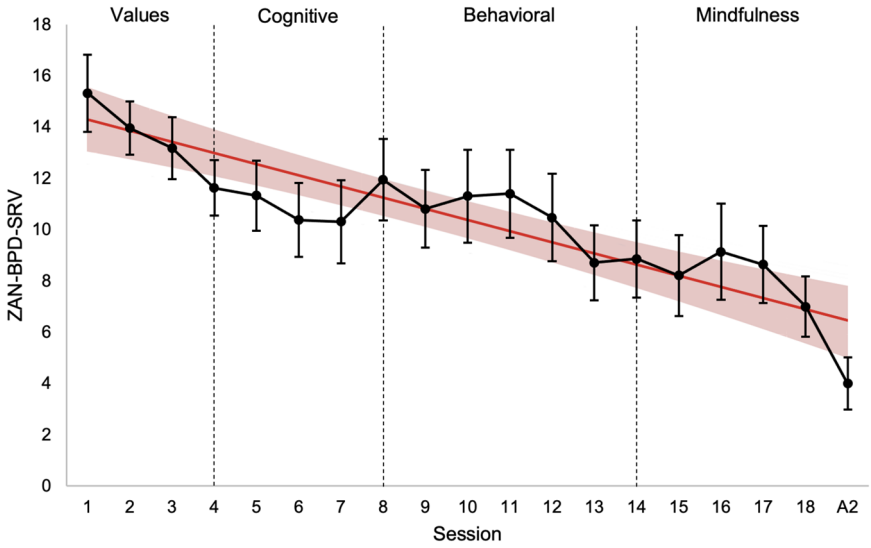
Aim 3: Characterizing Patient Satisfaction

Our third aim was to characterize patient satisfaction with BPD Compass. Data were available for 12 patients. On average, patients were highly satisfied with BPD Compass ($M = 4.50$, $SD = 0.69$) and found the content highly acceptable ($M = 4.41$, $SD = 0.67$). Given that BPD Compass is short-term relative to gold-standard treatments for BPD, we also evaluated patient impressions of the treatment's length. Seven out of 12 participants rated the treatment length as "just right." Three patients rated the treatment as "slightly too short" or "not long enough," and two patients rated the treatment as "slightly too long."

Given that this study was the first evaluation of BPD Compass, we also collected qualitative feedback from patients who completed the treatment (Table S4 in the online supplemental material). We first asked patients to reflect on the most important thing they learned in treatment. Four patients identified cognitive flexibility, three described mindfulness, acceptance, or tolerance of emotions, and three cited the ability to control impulsive or avoidant behaviors. When asked to describe how BPD Compass addressed their difficulties, several patients cited having new tools or coping skills to address stressors, whereas others emphasized the importance of sitting with strong emotions and waiting to react. Although most patients did not identify remaining difficulties that were not addressed by BPD Compass, two indicated that they would have liked more attention to addressing identity disturbance and detachment/derealization. Similarly, most patients did not recommend any changes be made to the treatment protocol, though two recommended making the reading material and worksheets more user-friendly, one requested more information about BPD symptom criteria, and one indicated that they would have liked treatment to be longer.

Figure 2

Average Self-Reported BPD Severity Prior to Each BPD Compass Session



Note. Error bars represent standard errors of the mean. A2 indicates the posttreatment assessment. Dotted lines separate modules, which are indicated by the titles above each section. All available data at each timepoint for individuals in the BPD Compass condition (*N*s ranged from 26 to 13). BPD Severity = Zanarini Rating Scale for BPD—Self-Report version. See the online article for the color version of this figure.

Discussion

This is the first RCT of BPD Compass, a modular, personality-based, cognitive-behavioral treatment for BPD. BPD Compass led to significantly larger reductions in assessor-rated and self-reported BPD symptoms compared to WL. These reductions were generally linear, with some variability by module. BPD Compass led to medium-to-large reductions in neuroticism but very small increases in agreeableness and conscientiousness relative to WL. Patients were highly satisfied with BPD Compass and generally perceived it to be an appropriate length.

BPD Compass led to large reductions in our primary outcome, BPD symptoms, compared to WL, with effect sizes between −1.56 and −0.82. Few researchers have compared treatments for BPD to WL (Cristea et al., 2017). Of those who have, effects on BPD outcomes are in line with the current results (*d*s: −0.80 to −1.20; Gratz et al., 2014; Kamalabadi et al., 2012). Similarly, the within-condition effect sizes of BPD Compass on BPD symptoms (*g*s: −1.38 to −1.13) were in line with those reported by several researchers testing a variety of treatments for BPD ($\bar{d} = -1.28$, range: −3.25 to 0.06; see Cristea et al., 2017). Together, these results suggest that BPD Compass is similarly efficacious in reducing BPD symptoms as other interventions for BPD.

BPD Compass led to relatively linear reductions on average in BPD symptoms. However, this linear trend masks potentially informative patterns of change within treatment. For instance, the steepest slopes tended to occur during the first three sessions targeting values identification and the last sessions targeting mindfulness and relapse prevention, which may indicate the greater potency of these sessions or common patterns of change when beginning or ending treatment (Niileksela et al., 2021). The cognitive skills module led to relatively small but consistent reductions in BPD symptoms. This pattern of results partially supports Keefe et al.'s (2016) findings that early cognitive work predicted reductions in personality disorder features for patients with comorbid cluster C personality disorders and major depressive disorder.

By contrast, both the behavioral and mindfulness modules involved increases in BPD symptoms followed by larger decreases in BPD symptoms than the cognitive module. These increases in symptoms may reflect initial engagement with experiences that activate BPD symptoms (e.g., avoided situations or thoughts), followed by habituation to and/or mastery of these experiences, leading to symptom reduction. These results extend naturalistic findings that people with BPD report momentary increases in negative affect when using mindfulness (Chapman et al., 2009, 2017; Southward et al., 2020) and extend results on the average pattern of change in BPD symptoms in response to behavioral skills training (Sauer-Zavala et al., 2020). Characterizing these trajectories of change in response to specific components may facilitate a more comprehensive understanding of how change unfolds in treatment for patients with BPD to better optimize and personalize interventions for this population.

Of course, each of the skill modules in BPD Compass is designed to target neuroticism, low agreeableness, and low conscientiousness. Given the strong relationship between BPD and neuroticism (Samuel & Widiger, 2008), it was not surprising that BPD Compass led to larger reductions in neuroticism than WLC and that patients in BPD Compass reported large reductions in neuroticism. These results suggest that BPD Compass leads to robust reductions in the frequency and intensity of negative emotions that may be at the higher end of meta-analytic estimates of personality change in treatment compared to control conditions ($d = 0.69$, 95% CI [0.45, 0.93]) and from pre- to posttreatment ($d = 0.57$, [0.52, 0.62]; Roberts et al., 2017).

By contrast, BPD Compass did not lead to significantly larger improvements in agreeableness or conscientiousness than WLC, with between-condition effect sizes in similar ranges as other treatments ($d_{\text{agreeableness}} = 0.23$, 95% CI [0.08, 0.38]; $d_{\text{conscientiousness}} = 0.06$, [−0.05, 0.16]; Roberts et al., 2017). Although patients in BPD Compass reported large and significant improvements in conscientiousness over the course of treatment that were at the higher end of meta-analytic estimates ($d = 0.19$, [0.14, 0.23]; Roberts et al., 2017), these results should be interpreted with caution given the lack of between-condition differences. The difference between changes in neuroticism and changes in agreeableness and conscientiousness may reflect several factors. First, over 50% of patients reported substantial elevations in neuroticism, whereas fewer than half reported deficits in agreeableness and conscientiousness, which may have contributed to ceiling effects. Although we observed that most immediate treatment participants with elevations in each domain at baseline were still elevated at posttreatment, most of these individuals did not complete the study (i.e., their data were LOCF). Future researchers may be encouraged to test BPD Compass with participants explicitly recruited to have substantial deficits in these dimensions and build in engagement strategies to reduce dropout. Alternatively, the skills taught in BPD Compass may target neuroticism or its functional mechanisms more directly than agreeableness or conscientiousness (Sauer-Zavala, Southward, & Semcho, 2022). Other skills (e.g., cooperation or goal regulation skills; Soto et al., 2022) may need to be incorporated to more directly target these dimensions and mechanisms. It is also possible that our measures of these personality dimensions are not as sensitive to weekly changes or do not capture the difficulties treatment-seeking patients may be experiencing. Finally, it is possible that BPD is most strongly associated with neuroticism and that BPD Compass exerts the majority of its effects through this mechanism.

Given the novelty of the treatment, we also assessed participants' satisfaction and feedback. Participants were very satisfied with the treatment and found the skills and personality focus highly acceptable. Importantly, most participants rated the length as "just right," suggesting that an 18-session protocol may be appropriate for a substantial proportion of treatment-seeking patients and offer a complementary alternative to longer interventions.

These results should be considered in light of the study's limitations. The sample was relatively small and only powered to detect large between-condition effects of interest. Patients assigned to BPD Compass did drop out at a relatively high rate compared to RCTs of BPD-focused treatments in general (Iliakis et al., 2021), although the dropout rate in the current study was comparable to other studies of BPD treatments with graduate student therapists (Cheavens et al., 2022). Given that the majority of dropout was reportedly due to the time burden associated with attending therapy sessions, this rate likely reflects the logistical limitations of treatment in general rather than the unique limitations of BPD Compass. These effects reflect adequate to good levels of therapist competence. These scores were relatively lower primarily because two therapists were treating their first patients in their clinical training as part of this study. Thus, these results may not be limited to expert therapists and instead may generalize to very novice therapists or providers with relatively less experience. Finally, we relied on self-report measures

of personality, but future researchers may be encouraged to complement these with informant and interview ratings of personality.

In this first RCT of BPD Compass, we found that the treatment led to large reductions in assessor-rated and self-reported BPD symptoms as well as neuroticism compared to a WLC condition. Although BPD Compass did not lead to significantly larger improvements in conscientiousness or agreeableness than WL, participants in the treatment condition did report large improvements in conscientiousness. Overall, patients reported high levels of satisfaction and acceptability after participating in BPD Compass, even when delivered by relatively novice therapists, suggesting it may be an accessible and useful complement to more specialty or intensive treatments for BPD.

References

Agrawal, H. R., Gunderson, J., Holmes, B. M., & Lyons-Ruth, K. (2004). Attachment studies with borderline patients: A review. *Harvard Review of Psychiatry*, *12*(2), 94–104. https://doi.org/10.1080/10673220490447218

American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).

Barlow, D. H., Ellard, K. K., Sauer-Zavala, S., Bullis, J. R., & Carl, J. R. (2014). The origins of neuroticism. *Perspectives on Psychological Science*, *9*(5), 481–496. https://doi.org/10.1177/1745691614544528

Barlow, D. H., Sauer-Zavala, S., Carl, J. R., Bullis, J. R., & Ellard, K. K. (2014). The nature, diagnosis, and treatment of neuroticism: Back to the future? *Clinical Psychological Science*, *2*(3), 344–365. https://doi.org/10.1177/2167702613505532

Bateman, A. W., & Fonagy, P. (2004). Mentalization-based treatment of BPD. *Journal of Personality Disorders*, *18*(1), 36–51. https://doi.org/10.1521/pedi.18.1.36.32772

Black, D. W., Blum, N., Pfohl, B., & St. John, D. (2004). The STEPPS Group Treatment Program for outpatients with borderline personality disorder. *Journal of Contemporary Psychotherapy*, *34*(3), 193–210. https://doi.org/10.1023/B:JOCP.0000036630.25741.83

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS Scales. *Journal of Personality and Social Psychology*, *67*(2), 319–333. https://doi.org/10.1037/0022-3514.67.2.319

Chapman, A. L., Rosenthal, M. Z., Dixon-Gordon, K. L., Turner, B. J., & Kuppens, P. (2017). Borderline personality disorder and the effects of instructed emotional avoidance or acceptance in daily life. *Journal of Personality Disorders*, *31*(4), 483–502. https://doi.org/10.1521/pedi_2016_30_264

Chapman, A. L., Rosenthal, M. Z., & Leung, D. W. (2009). Emotion suppression in borderline personality disorder: An experience sampling study. *Journal of Personality Disorders*, *23*(1), 29–47. https://doi.org/10.1521/pedi.2009.23.1.29

Cheavens, J. S., Southward, M. W., Howard, K. P., Heiy, J. E., & Altenburger, E. M. (2022). Broad strokes or fine points: Are dialectical behavior therapy modules associated with general or domain-specific changes? *Personality Disorders: Theory, Research, and Treatment*. Advance online publication. https://doi.org/10.1037/per0000557

Costa, P. T., & McCrae, R. R. (1990). Personality disorders and The Five-Factor Model of Personality. *Journal of Personality Disorders*, *4*(4), 362–371. https://doi.org/10.1521/pedi.1990.4.4.362

Cristea, I. A., Gentili, C., Cotet, C. D., Palomba, D., Barbui, C., & Cuijpers, P. (2017). Efficacy of psychotherapies for borderline personality disorder: A systematic review and meta-analysis. *JAMA Psychiatry*, *74*(4), 319–328. https://doi.org/10.1001/jamapsychiatry.2016.4287

Crowell, S. E., Beauchaine, T. P., & Linehan, M. M. (2009). A biosocial developmental model of borderline personality: Elaborating and extending Linehan's theory. *Psychological Bulletin*, *135*(3), 495–510. https://doi.org/10.1037/a0015616

Curran, P. G. (2016). Methods for the detection of carelessly invalid responses in survey data. *Journal of Experimental Social Psychology*, *66*, 4–19. https://doi.org/10.1016/j.jesp.2015.07.006

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

First, M. B., Williams, J. B. W., Benjamin, L. S., & Spitzer, R. L. (2015). *User's guide for the SCID-5-PD (Structured Clinical Interview for DSM-5 Personality Disorder)*. American Psychiatric Press.

Gratz, K. L., Tull, M. T., & Levy, R. (2014). Randomized controlled trial and uncontrolled 9-month follow-up of an adjunctive emotion regulation group therapy for deliberate self-harm among women with borderline personality disorder. *Psychological Medicine*, *44*(10), 2099–2112. https://doi.org/10.1017/S0033291713002134

Gray, J. A. (1987). Perspectives on anxiety and impulsivity: A commentary. *Journal of Research in Personality*, *21*(4), 493–509. https://doi.org/10.1016/0092-6566(87)90036-5

Grilo, C. M., & Udo, T. (2021). Association of borderline personality disorder criteria with suicide attempts among US adults. *JAMA Network Open*, *4*(5), Article e219389. https://doi.org/10.1001/jamanetworkopen.2021.9389

Gunderson, J., Masland, S., & Choi-Kain, L. (2018). Good psychiatric management: A review. *Current Opinion in Psychology*, *21*, 127–131. https://doi.org/10.1016/j.copsyc.2017.12.006

Heatherington, L., Messer, S. B., Angus, L., Strauman, T. J., Friedlander, M. L., & Kolden, G. G. (2012). The narrowing of theoretical orientations in clinical psychology doctoral training. *Clinical Psychology: Science and Practice*, *19*(4), 364–374. https://doi.org/10.1111/cpsp.12012

IBM Corp. (2020). *IBM SPSS statistics for Macintosh (Version 27.0)* [Computer software].

Iliakis, E. A., Ilagan, G. S., & Choi-Kain, L. W. (2021). Dropout rates from psychotherapy trials for borderline personality disorder: A meta-analysis. *Personality Disorders*, *12*(3), 193–206. https://doi.org/10.1037/per0000453

Iliakis, E. A., Sonley, A. K. I., Ilagan, G. S., & Choi-Kain, L. W. (2019). Treatment of borderline personality disorder: Is supply adequate to meet public health needs? *Psychiatric Services*, *70*(9), 772–781. https://doi.org/10.1176/appi.ps.201900073

Kamalabadi, M. J., Ahmadi, S. A., Etemadi, O., Fatehizadeh, M., Bahrami, F., & Firoozabadi, A. (2012). A study of the effect of couple dialectical behavioral therapy on symptoms and quality of marital relationships and mental health of Iranian borderline personality couples: A controlled trial. *Interdisciplinary Journal of Contemporary Research in Business*, *3*(9), 1480–1487.

Keefe, J. R., Webb, C. A., & DeRubeis, R. J. (2016). In cognitive therapy for depression, early focus on maladaptive beliefs may be especially efficacious for patients with personality disorders. *Journal of Consulting and Clinical Psychology*, *84*(4), 353–364. https://doi.org/10.1037/ccp0000071

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology*. Sage.

Laporte, L., Paris, J., Bergevin, T., Fraser, R., & Cardin, J.-F. (2018). Clinical outcomes of a stepped care program for borderline personality disorder. *Personality and Mental Health*, *12*(3), 252–264. https://doi.org/10.1002/pmh.1421

Linehan, M. (1993). *Cognitive–behavioral treatment of borderline personality disorder*. Guilford Press.

Magidson, J. F., Roberts, B. W., Collado-Rodriguez, A., & Lejuez, C. W. (2014). Theory-driven intervention for changing personality: Expectancy value theory, behavioral activation, and conscientiousness. *Developmental Psychology*, *50*(5), 1442–1450. https://doi.org/10.1037/a0030583

McMain, S. F., Chapman, A. L., Kuo, J. R., Dixon-Gordon, K. L., Guimond, T. H., Labrish, C., Isaranuwatchai, W., & Streiner, D. L. (2022). The effectiveness of 6 versus 12 months of dialectical behavior therapy for borderline personality disorder: A noninferiority randomized clinical

trial. *Psychotherapy and Psychosomatics*. Advance online publication. https://doi.org/10.1159/000525102

McMain, S. F., Links, P. S., Gnam, W. H., Guimond, T., Cardish, R. J., Korman, L., & Streiner, D. L. (2009). A randomized trial of dialectical behavior therapy versus general psychiatric management for borderline personality disorder. *American Journal of Psychiatry*, *166*(12), 1365–1374. https://doi.org/10.1176/appi.ajp.2009.09010039

McNeish, D., & Stapleton, L. M. (2016). Modeling clustered data with very few clusters. *Multivariate Behavioral Research*, *51*(4), 495–518. https://doi.org/10.1080/00273171.2016.1167008

Miller, J. D., Morse, J. Q., Nolf, K., Stepp, S. D., & Pilkonis, P. A. (2012). Can DSM-IV borderline personality disorder be diagnosed via dimensional personality traits? Implications for the DSM-5 personality disorder proposal. *Journal of Abnormal Psychology*, *121*(4), 944–950. https://doi.org/10.1037/a0027410

Niileksela, C. R., Ghosh, A., & Janis, R. A. (2021). The dose–effect and good enough level models of change for specific psychological concerns. *Journal of Consulting and Clinical Psychology*, *89*(3), 200–213. https://doi.org/10.1037/ccp0000635

Pinheiro, J., Bates, D., DebRoy, S., Sarkar, D., & R Core Team. (2022). *nlme: Linear and nonlinear mixed effects models* (Version 3.1-149) [Computer software]. Retrieved October 10, 2022, from https://CRAN.R-project.org/package=nlme

R Core Team. (2020). *R: A language and environment for statistical computing* (Version 3.4.1) [Computer software]. R Foundation for Statistical Computing. https://www.R-project.org/

Roberts, B. W., Luo, J., Briley, D. A., Chow, P. I., Su, R., & Hill, P. L. (2017). A systematic review of personality trait change through intervention. *Psychological Bulletin*, *143*(2), 117–141. https://doi.org/10.1037/bul0000088

Ryder, A. G., Costa, P. T., & Bagby, R. M. (2007). Evaluation of the SCID-II personality disorder traits for DSM-IV: Coherence, discrimination, relations with general personality traits, and functional impairment. *Journal of Personality Disorders*, *21*(6), 626–637. https://doi.org/10.1521/pedi.2007.21.6.626

Samuel, D., & Widiger, T. (2008). A meta-analytic review of the relationships between the five-factor model and DSM-IV-TR personality disorders: A facet level analysis. *Clinical Psychology Review*, *28*(8), 1326–1342. https://doi.org/10.1016/j.cpr.2008.07.002

Sauer-Zavala, S., Cassiello-Robbins, C., Woods, B. K., Curreri, A., Wilner Tirpak, J., & Rassaby, M. (2020). Countering emotional behaviors in the treatment of borderline personality disorder. *Personality Disorders*, *11*(5), 328–338. https://doi.org/10.1037/per0000379

Sauer-Zavala, S., Fournier, J., Jarvi Steele, S., Woods, B., Wang, M., Farchione, T., & Barlow, D. (2021). Does the unified protocol really change neuroticism? Results from a randomized trial. *Psychological Medicine*, *51*(14), 2378–2387. https://doi.org/10.1017/S0033291720000975

Sauer-Zavala, S., Southward, M. W., Hood, C. O., Elhusseini, S., Fruhbauerova, M., Stumpp, N. E., & Semcho, S. A. (2022). Conceptual development and case data for a modular, personality-based treatment for borderline personality disorder. *Personality Disorders*. Advance online publication. https://doi.org/10.1037/per0000520

Sauer-Zavala, S., Southward, M. W., & Semcho, S. A. (2022). Integrating and differentiating personality and psychopathology in cognitive behavioral therapy. *Journal of Personality*, *90*(1), 89–102. https://doi.org/10.1111/jopy.12602

Sauer-Zavala, S., Southward, M. W., Semcho, S., Stumpp, N., Fruhbauerova, M., & Hood, C. O. (2022, October 17). *BPD Compass: A randomized controlled trial of a short-term, personality-based treatment for borderline personality disorder*. PsyArXiv. https://doi.org/10.31234/osf.io/2j87r, October 13, 2022, preprint: not peer reviewed.

Soto, C. J., & John, O. P. (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, *113*(1), 117–143. https://doi.org/10.1037/pspp0000096

Soto, C. J., Napolitano, C. M., Sewell, M. N., Yoon, H. J., & Roberts, B. W. (2022). An integrative framework for conceptualizing and assessing social, emotional, and behavioral skills: The BESSI. *Journal of Personality and Social Psychology*, *123*(1), 192–222. https://doi.org/10.1037/pspp0000401

Southward, M. W., Semcho, S. A., Stumpp, N. E., MacLean, D. L., & Sauer-Zavala, S. (2020). A day in the life of borderline personality disorder: A preliminary analysis of within-day emotion generation and regulation. *Journal of Psychopathology and Behavioral Assessment*, *42*(4), 702–713. https://doi.org/10.1007/s10862-020-09836-1

Tolin, D. F., Gilliam, C., Wootton, B. M., Bowe, W., Bragdon, L. B., Davis, E., Hannan, S. E., Steinman, S. A., Worden, B., & Hallion, L. S. (2018). Psychometric properties of a structured diagnostic interview for DSM-5 anxiety, mood, and obsessive–compulsive and related disorders. *Assessment*, *25*(1), 3–13. https://doi.org/10.1177/1073191116638410

Trull, T. J., Useda, J. D., Conforti, K., & Doan, B.-T. (1997). Borderline personality disorder features in nonclinical young adults: Two-year outcome. *Journal of Abnormal Psychology*, *106*(2), 307–314. https://doi.org/10.1037/0021-843X.106.2.307

Trull, T. J., Widiger, T. A., Lynam, D. R., & Costa, P. T. (2003). Borderline personality disorder from the perspective of general personality functioning. *Journal of Abnormal Psychology*, *112*(2), 193–202. https://doi.org/10.1037/0021-843x.112.2.193

van Zutphen, L., Siep, N., Jacob, G. A., Goebel, R., & Arntz, A. (2015). Emotional sensitivity, emotion regulation and impulsivity in borderline personality disorder: A critical review of fMRI studies. *Neuroscience and Biobehavioral Reviews*, *51*, 64–76. https://doi.org/10.1016/j.neubiorev.2015.01.001

Wolitzky-Taylor, K., Chung, B., Bearman, S. K., Arch, J., Grossman, J., Fenwick, K., Lengnick-Hall, R., & Miranda, J. (2019). Stakeholder perceptions of the barriers to receiving and delivering exposure-based cognitive behavioral therapy for anxiety disorders in adult community mental health settings. *Community Mental Health Journal*, *55*(1), 83–99. https://doi.org/10.1007/s10597-018-0250-z

Yeomans, F. E., Clarkin, J. F., & Kernberg, O. F. (2015). *Transference-focused psychotherapy for borderline personality disorder: A clinical guide*. American Psychiatric Publishing.

Young, J. E., Klosko, J. S., & Weishaar, M. E. (2006). *Schema therapy: A practitioner's guide*. Guilford Press.

Zanarini, M. C. (2003). Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BPD): A continuous measure of DSM-IV borderline psychopathology. *Journal of Personality Disorders*, *17*(3), 233–242. https://doi.org/10.1521/pedi.17.3.233.22147

Zanarini, M. C., Conkey, L. C., Temes, C. M., & Fitzmaurice, G. M. (2017). Randomized controlled trial of web-based psychoeducation for women with borderline personality disorder. *Journal of Clinical Psychiatry*, *78*(3), 16m11153. https://doi.org/10.4088/JCP.16m11153

Zanarini, M. C., Vujanovic, A. A., Parachini, E. A., Boulanger, J. L., Frankenburg, F. R., & Hennen, J. (2003). A screening measure for BPD: The McLean screening instrument for borderline personality disorder (MSI-BPD). *Journal of Personality Disorders*, *17*(6), 568–573. https://doi.org/10.1521/pedi.17.6.568.25355

Zanarini, M. C., Weingeroff, J. L., Frankenburg, F. R., & Fitzmaurice, G. M. (2015). Development of the self-report version of the Zanarini Rating Scale for Borderline Personality Disorder. *Personality and Mental Health*, *9*(4), 243–249. https://doi.org/10.1002/pmh.1302