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A 5-Day Dialectical Behavior Therapy Partial Hospital Program for Women with Borderline Personality Disorder: Predictors of Outcome from a 3-Month Follow-up Study

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Abstract

Objective—This study describes naturalistic 3-month follow-up after discharge from a 5-day partial hospitalization dialectical behavior therapy (DBT) program for women diagnosed with borderline personality disorder (BPD). We also examined individual BPD criteria as predictors of treatment response.

Methods—Fifty women diagnosed with BPD were consecutively recruited from a partial hospital DBT program, 47 of whom (94%) completed all assessments including baseline (prior to discharge) and 3-months post-discharge assessments. Most continued with some combination of individual psychotherapy and pharmacotherapy, and all had the option of continuing with weekly DBT skills classes. Baseline scores were compared to 3-month scores using paired two-tailed non-parametric (sign) tests. Regression analyses were conducted to identify predictors of outcome.

Results—Depression, hopelessness, anger expression, dissociation, and general psychopathology scores significantly decreased over the 3-month follow-up interval, although scores on several measures remained in the clinical range. Those who endorsed emptiness, impulsivity, and relationship disturbance demonstrated improvement on a number of outcomes, while those who endorsed identity disturbance and fear of abandonment had less improvement on some outcomes.

Conclusion—These findings illustrate 1) that improvement occurred over a 3-month interval on a number of measures in patients receiving treatment as usual following discharge from a partial hospitalization program, and 2) that BPD is a complex, heterogeneous disorder for which there is no single pathognomonic criterion, so that each criterion should be considered individually in determining its potential effect on treatment outcomes.

Keywords

borderline personality disorder; partial hospital treatment; dialectical behavior therapy; impulsivity; emptiness; self-injury; depression

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Expeditious and effective treatment for borderline personality disorder (BPD) is a significant public health need. It is estimated that between 7%–22% percent of psychiatric outpatients[1] and 19% of inpatients[2] meet criteria for this disorder. Suicidality and self-injury are common among these patients, with 70%–75% of patients with BPD having a history of at least one act of deliberate self-harm.[3] Estimated rates of completed suicide average around 10%.[4] Functional deficits may be extreme, comorbid diagnoses are the norm, mental health utilization costs are great, and treatment dropout rates are high in the population of patients with BPD.

Despite the heterogeneity and morbidity of BPD, recent data have challenged longstanding beliefs about the chronicity and treatment resistance of this disorder. Data from several large-scale, naturalistic, longitudinal studies demonstrate that many of the diagnostic criterion behaviors do remit.[5–7] Furthermore, randomized, controlled treatment studies have found that psychosocial interventions, specifically dialectical behavior therapy (DBT), mentalization based therapy (MBT), and schema-focused therapy (SFT), can be effective in treating BPD.[8–14] However, these treatments are long-term, with a minimum duration of 1 year.

The American Psychiatric Association's guidelines echo the consensus that long-term individual psychotherapy is required for successful treatment of BPD.[15] However, patients with BPD often utilize more intensive services such as inpatient hospitalization,[16] with an estimated 20% of psychiatric inpatients meeting diagnostic criteria for BPD.[17] Patients with BPD also face practical challenges in sustaining weekly outpatient psychotherapy.[16] DBT has been adapted for shorter durations of treatment and use in more intensive settings.[18–20] However, adaptations requiring 3-month inpatient stays[18,19] are not consistent with standard practice in the United States. Such patients are also at risk of becoming so accustomed to being in an inpatient setting that a return to normal life outside the institution is impeded and that any treatment gains made are not easily generalized to more normative settings.

Partial hospitalization represents a modality that may address the needs of many patients in a more cost-effective and practical manner. DBT has been modified for delivery in intensive outpatient and partial hospitalization programs,[20,21] but very little research has been done concerning the outcome of such treatments. One study of 87 patients in a 3-week intensive DBT program found that patients showed statistically significant improvements on measures of depression (medium effect size) and hopelessness (small effect size),[20] but no improvement on a measure of social functioning. However, there is no information on the post-discharge status of these patients, so the question remains whether the treatment gains were sustained after discharge.

BPD is a heterogeneous disorder that encompasses diverse criteria across affective, behavioral, interpersonal, and cognitive dimensions. Results of treatment outcome studies that presume homogeneity on the basis of the BPD diagnosis are likely to underrepresent the variability within their samples. Other studies of BPD have reported that affective instability[22] and impulsivity[23] have been associated with suicidal behaviors. These two traits have also been identified as particularly strong predictors of poor functioning and outcome in young adults with BPD.[24] Identification of specific criteria associated with specific outcomes might allow more precise targeting of interventions.

In this article, we report findings from a 3-month naturalistic follow-up after discharge from a 5-day partial hospital program based on an adaptation of DBT. The length of stay in this program is consistent with the typical duration of inpatient psychiatric hospitalizations. The purpose of this investigation was two-fold: 1) to determine whether women with BPD enrolled in this 5-day partial hospitalization DBT program showed clinically significant improvement 3 months post-discharge, and 2) secondarily, to examine whether specific BPD criteria at baseline predicted treatment outcome. We hypothesized that patients with affective instability

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and impulsivity would be less likely to have positive outcomes. Our data are largely descriptive, we did not have a comparison group, and treatment after discharge was naturalistic and therefore varied among participants. However, we believe that descriptive data of this nature (i.e., follow-up from a "real-world" setting) can be very informative.

METHOD

Participants

Participants were recruited consecutively from a 5-day DBT partial hospitalization program for women who exhibit BPD features. DBT has received extensive empirical support and has been adapted for use in a wide variety of settings and for a wide range of disorders. Details of this program have been described elsewhere.[21] In general, the program adapted core functions of standard outpatient DBT to a brief-stay intensive setting (average length of stay 3–7 days). The program offered individual therapy, skills training, and medication management from 9:00 AM to 3:30 PM, 5 days a week to women with BPD traits or other treatment-resistant conditions. Each day began with mindfulness practice in which patients focused on observing their experience, followed by homework review. The mid-morning skills groups were selected from each of the DBT skills modules (mindfulness, emotion regulation, interpersonal effectiveness, and distress tolerance) and targeted thoughts, attention, relationships, emotions, or distressing situations. Given the length of the program, it was not possible to cover all of the DBT skills; thus the morning skills group was intended to provide an overview of each skills module with a focus on selected specific skills within that module. The afternoon groups were theoretical and psychoeducational (e.g., radical acceptance, biosocial theory, and use of reinforcement), and a late afternoon group was devoted to skills practice. The intensive phase was followed by an optional outpatient DBT skills class for 6 months.

Participants were recruited for this study while in the program and were followed for 3 months after discharge from the partial hospital program. Patients were referred from both inpatient and outpatient sources. Thus, for some, the program was a step-down from inpatient care, while for others it was an intervention to mitigate the need for inpatient hospitalization. Given the patient population of the program, the sample was restricted to female participants. To be enrolled, eligible participants had to be between 18 and 65 years of age and meet full criteria for BPD. Exclusion criteria were diagnoses of schizophrenia, bipolar disorder, cyclothymic disorder; substance dependence; or mental retardation. All participants signed an informed consent form, and the study protocol was approved by the institutional review boards of the hospital and its university affiliate. Participants were followed to assess outcomes of naturalistic treatment at 1 and 3 months after discharge. Because the results from the 1- and 3-month follow-up intervals were largely consistent, we present only the data from the 3-month follow-up as the longer duration has more relevance.

Fifty women were enrolled into the study, 47 (94%) of whom provided data at all three assessment points. All of the patients had at least one symptom in each of the three BPD clusters: affective, behavioral, and interpersonal. Of the 47 patients, 41 (87%) continued with outpatient treatment, typically not DBT, with over half receiving weekly therapy; 42 patients (89%) received psychotropic medications during this 3-month interval. Only 1 participant did not receive treatment with therapy or medications. All participants had the option of continuing with free weekly DBT skills class for the entire duration of follow-up.

Assessment

Participants were approached about the study just prior to discharge and those who agreed to participate completed the baseline assessment at that time. The baseline assessment was done at discharge from the partial hospital program rather than at admission, because it was felt that

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doing a 3-hour clinical interview on the first day of admission would be too disruptive and would interfere with initiation of therapy.

To determine eligibility for the study, participants were administered the Structured Clinical Interview for DSM-IV-Axis II Disorders (SCID-II).[25] The SCID-II is a semi-structured diagnostic interview that assesses for the presence of personality disorders, with ratings for each of the nine DSM-IV BPD criteria. All clinical interviews were conducted by either the principal investigator or trained research assistants who were supervised through the review of audiotaped interviews. The SCID-II was administered at baseline only.

Using a battery of self-report forms, a range of symptoms and behaviors associated with BPD were assessed at baseline and at 3 months including self-injury, depression, hopelessness, dissociation, anger expression, and general psychopathology.

The ***Beck Depression Inventory*** (BDI)[26] is a 21-item self-report measure for depression. It is widely used and has demonstrated reliability, with a mean internal consistency of 0.86 for psychiatric patients. A score in the range of 10–18 indicates mild/moderate depression, 19–29 indicates moderate/severe depression, and 30–63 indicates severe depression.

The ***Beck Hopelessness Scale*** (BHS)[27] is a self-report instrument for assessing hopelessness containing 20 true-false statements. It has demonstrated high internal reliability across diverse clinical and nonclinical populations (reliabilities range from 0.87 to 0.93). A score in the range of 9–14 indicates moderate hopelessness, while a score of 15–20 corresponds to severe hopelessness.

The ***Dissociative Experiences Scale*** (DES)[28] is a 28-item scale that assesses dissociative symptoms. It has subscales for amnesia, depersonalization, and absorption; for our purposes we analyzed the overall score. Test-retest reliability is reported to be 0.84 and internal reliability is 0.83. A score of 30 or higher indicates high likelihood of dissociative identity disorder.

The ***State-Trait Anger Expression Inventory*** (STAXI)[29] is a 57-item self-report measure of anger expression. It has three subscales: state anger, trait anger, and anger expression. For our purposes, we utilized the composite STAXI score. Internal consistencies for all scales and subscales range from 0.70 to 0.90.

The ***Brief Symptom Inventory*** (BSI)[30] is a 53-item self-report measure of general psychopathology. It has nine subscales; for our purposes we used the global severity index (GSI). The test-retest reliability of the GSI is excellent (0.90), and the internal consistency of all the individual scales is adequate and ranges from 0.71 to 0.85.

The ***Self-Injury Questionnaire*** (SIQ) was adapted from the Parasuicide History Interview[11] by the current investigators to reduce participant burden. We were specifically interested in the 3-month post-discharge interval. Participants were asked how many times they had attempted suicide or intentionally harmed or injured themselves over the previous 3 months, using specific types of methods (e.g., cutting, overdose). For the purpose of our analyses, all types of self-injury were combined into a dichotomous variable to indicate whether the patient had or had not engaged in self-injury.

Analytic Strategy

Changes in symptoms between the time the patients were discharged from the partial hospitalization program and 3-month follow-up were evaluated using paired two-tailed nonparametric (sign) tests for continuous outcome measures (due to skewness in the follow-up outcome variables). McNemar tests were used for the categorical outcome measure of self-

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injury. In addition, regression analyses were conducted in two steps to determine predictors of treatment response for each of the six primary outcome measures (BDI, BSI, STAXI, DES, BHS, and self-injury). Self-injury was defined as whether or not the patient engaged in self-injury (i.e., deliberate, non-lethal self-mutilation) during the follow-up period between hospital discharge (baseline) and 3-month follow-up. For the other five outcomes, dependent variables reflecting treatment response were created by calculating change scores on each measure from hospital discharge (baseline) to 3 month follow-up. Change variables were checked for normality.

In the first regression step, change on each outcome was predicted from its baseline score (if significant) plus one of the nine BPD criteria. Although a p value < 0.05 is generally considered to indicate significance, for these multiple analyses, we used a more conservative cut-off for clinical significance ($p < 0.01$) to reduce the likelihood of results being due to a type I error. In the second step, each predictor that was significant ($p < 0.01$) or showed a trend toward significance (trend-significant) ($p < 0.05$) was entered into multivariate analyses predicting follow-up values of each outcome variable. Nonsignificant predictors were removed, and final multivariate analyses were reported.

RESULTS

Means and standard deviations of outcome measures for the entire sample are shown in Table 1. Results from pre-post sign tests indicated that the sample as a whole improved significantly on all continuous outcome measures from baseline to 3 months later. Of the 43 women (91% of the total sample who completed follow-ups) who endorsed the BPD criterion of past suicide attempts or self-injury, 16 (37%) reported self-injury during the 3-month follow-up period; this difference was statistically significant ($\chi^2 = 25.0$, $p < 0.001$). Follow-up results and predictors of improvement on each of the outcome measures are described below. Results of the multivariate analyses are shown in Table 2.

Self-injury

In univariate analyses, unstable relationships significantly ($p < 0.01$) and impulsiveness trend-significantly ($p < 0.05$) predicted abstinence from self-injury over the 3-month follow-up period. The BPD criterion of self-injurious behaviors at baseline was not a significant predictor of self-injury during follow-up in the univariate analyses. Those who endorsed unstable relationships were significantly less likely to self-injure during the 3-month follow-up than those who did not. Only 21% of the 33 patients who endorsed unstable relationships at baseline self-injured during the 3-month follow-up period, whereas 64% of the patients not endorsing unstable relationships at baseline self-injured during this time period. Similarly, those who endorsed impulsiveness at baseline were trend-significantly less like to self-injure during the 3-month follow-up than those who did not; 24% of the 33 patients endorsing impulsiveness at baseline self-injured during the follow-up period compared with 57% of those who did not endorse impulsiveness.

Depressive Symptoms

Endorsement of emptiness trend-significantly predicted more improvement on the BDI. No other predictors were significant or trend-significant. Because baseline BDI score was not a significant predictor of change in BDI scores, it was not used as a covariate in these analyses. Because only emptiness predicted change in BDI scores in the univariate analysis, the univariate analysis was the final analysis (see Table 2). The 44 patients endorsing emptiness showed trend-significantly more improvement on the BDI than the 3 patients not endorsing this criterion. Mean BDI scores for patients reporting emptiness improved from 33.0 to 27.0

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over 3 months; mean scores for those not reporting emptiness actually deteriorated from 29.00 to 33.8.

Hopelessness

After accounting for baseline BHS score, only the criterion of frantic efforts to avoid abandonment was significantly predictive of change in hopelessness in the univariate analysis; thus, the univariate analysis was the final analysis (see Table 2). Those who did not endorse frantic efforts to avoid abandonment improved on hopelessness more than those who did endorse this item. The 14 women who did not endorse frantic efforts to avoid abandonment improved on the BHS from a baseline mean of 11.6 to 5.9. In contrast, those who endorsed frantic efforts to avoid abandonment showed less improvement, with mean scores decreasing from 13.7 to 11.8.

Dissociative Symptoms

After accounting for baseline DES score, endorsement of emptiness also predicted significantly more improvement in DES scores. No other BPD criteria were significant predictors; therefore the univariate analysis was the final analysis (see Table 2). Mean DES scores for patients reporting emptiness improved from 26.4 to 19.3 over 3 months; mean scores for those not reporting emptiness deteriorated from 31.1 to 36.8 during the same time period.

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Anger

In the univariate analyses, endorsing the BPD impulsiveness criterion predicted significantly more improvement in STAXI scores, and endorsing frantic efforts to avoid abandonment predicted trend-significantly less improvement in STAXI scores. Baseline STAXI scores did not predict change in STAXI scores. In the multivariate analyses, frantic efforts to avoid abandonment was no longer significant, so it was dropped from the final model, which includes only impulsiveness and is shown in Table 2. The mean STAXI scores of the 33 patients meeting the impulsivity criterion improved from 96.5 to 85.0; whereas the 14 non-impulsive patients showed increases in anger scores over the course of treatment (means of 89.1 at baseline and 95.4 at 3 months).

Global Distress

In the univariate analyses, endorsement of emptiness predicted significantly more improvement in BSI scores, unstable relationships predicted trend-significantly more improvement in BSI scores, and unstable identity predicted trend-significantly less improvement in BSI scores. Intake BSI scores did not predict change in BSI scores. When the three predictors were entered into a multivariate analysis, unstable relationships was no longer predictive, so it was removed from the model. The final multivariate model has two significant predictors of greater change in BSI scores: emptiness and lack of unstable identity (see Table 2). Mean BSI scores improved from 2.18 to 1.75 for patients endorsing emptiness, and deteriorated from 1.61 to 2.13 for patients not endorsing emptiness. Mean BSI scores of the 12 patients without identity disturbance improved from 2.24 to 1.54; the 35 patients with identity disturbance improved somewhat less, from scores of 2.11 to 1.86.

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DISCUSSION

Overall Outcomes

Women with borderline traits enrolled in a brief partial hospitalization program with a DBT orientation were assessed during the admission for baseline levels of depression, global distress, anger expression, dissociation, and hopelessness. Reassessment 3 months after discharge to naturalistic follow-up (which included referral to DBT skills training classes)

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showed statistically significant improvement on hopelessness and dissociation ($p < 0.01$ for each) and on depression, anger expression, and general psychopathology ($p < 0.05$ for each). However, examination of the raw scores on several measures suggested that symptom levels remained in the clinical range. For example, depression scores moved from the severe to moderate/severe range on the BDI, and hopelessness remained in the moderate range on the BHS. The design of this study prohibits the conclusion that improvements were a result of the treatment received during partial hospitalization, but it is encouraging to note that patients who received a treatment targeting their presenting problems generally showed statistical improvement on a variety of outcomes, and most continued treatment on an out-patient basis. Future studies on the effects of short-term intensive treatments are warranted by the severity of BPD as well as the high utilization of intensive psychiatric services by individuals with this illness.

Predictors of Outcome

In terms of predictions of outcome based on BPD criterion behaviors, the results are mixed. Emerging consensus concerning the features of BPD proposes four core elements: 1) unstable relationships (intense, unstable relationships, abandonment fears, and emptiness); 2) affective instability (marked reactivity of mood, inappropriate anger, or anxiety, or a shift between anxiety and depression; 3) impulsivity (acting without concern for longer term consequences, especially with regard to non-suicidal self injury); and 4) aggression (unstable identity and anger which is intense, often inappropriate, and may be unexpressed or poorly controlled). We predicted that those who endorsed affective instability and impulsivity would have poorer treatment outcomes, compared with those who did not endorse these criteria, since these characteristics have been associated with poor functioning.

Our hypothesis was not supported by the data, and in fact, we found results to the contrary. See Table 3 for an illustrative overview of each criterion and its effects on each outcome measure.

Impulsivity—

Those who endorsed impulsivity improved on anger expression, while non-impulsive patients reported increased anger expression over the 3-month follow-up interval. This finding cannot be attributed to regression to the mean as the mean anger expression scores of the impulsive and non-impulsive groups crossed, and both groups' scores remained high. A more likely explanation is that this is a function of DBT treatment, which encourages individuals to seek a dialectical synthesis. In the present context, that could mean encouraging non-impulsive individuals who had relatively lower anger expression to express more anger, while encouraging those whose anger expression scores were high to reduce anger expression to more socially normative levels.

Furthermore, those who endorsed impulsivity at baseline were more likely to abstain from self-injury (at the trend-level significance of $p < 0.05$), possibly reflecting the treatment emphasis in DBT targeting self-destructive behaviors, which are typically more problematic in impulsive individuals.

Unstable relationships—

Those who reported a pattern of unstable relationships reported a greater reduction in self-injury than those who did not report such a pattern. Both unstable relationships and self-injury are targets of DBT; self-injury is prioritized as a top target in the treatment hierarchy, while an entire skills module is devoted to interpersonal effectiveness. Unfortunately, we did not assess the patients' pattern of unstable relationships at the 3-month follow-up to determine whether it is possible that improvement in relationships might be a reason for the decrease in self-injury. Our decision not to reassess for BPD features at 3 months

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was based on the presumption of chronicity. However, empirical findings coupled with clinical observations suggest that these features can be present intermittently.[4–6]

Identity disturbance—The 14 women who endorsed identity disturbance did not improve as much as those who did not endorse this criterion with respect to general psychopathology as assessed on the BSI. For the majority of women enrolled in a 5-day partial hospitalization program, identity disturbance was perhaps not the most imminent problem that would be targeted for treatment, particularly in DBT which prioritizes treatment of self-destructive behaviors. Identity disturbance is a criterion unique to BPD that has received less attention than other criteria, such as affective instability or impulsivity, which are not unique to BPD. It is possible that identity disturbance represents a core feature of BPD that is more recalcitrant and can negatively affect treatment prognosis.

Abandonment fears—Participants who endorsed frantic efforts to avoid abandonment showed less improvement on hopelessness than those who did not endorse this item. It is quite plausible that these symptoms are associated or share a common feature, such as a negative or pessimistic outlook. Furthermore, they may not be as directly addressed by DBT skills training as other BPD symptoms.

Emptiness—Our most dramatic and surprising finding was with regard to emptiness, a BPD feature that is rarely studied. Patients endorsing emptiness improved while patients not endorsing this criterion deteriorated over the 3-month study period on three different outcome measures, general psychopathology, dissociation, and depression. In our sample, the majority reported emptiness while only three did not report emptiness, making it even more surprising that we were able to obtain significant effects on three measures. The rate of endorsement for emptiness in our sample (94%) is substantially higher than has been reported in other samples of patients with BPD (e.g., 71%–73%[32,33]). This may reflect the fact that the recruitment site was an intensive program designed specifically for women with BPD or BPD features and was arguably more homogeneous than a general patient population. Closer inspection of data from the 3 participants who did not endorse emptiness did not suggest any obvious commonality; they were diverse with regard to their baseline symptom profiles and level of depression.

One of the few empirical investigations of the BPD emptiness criterion found that it had a robust correlation with hopelessness and depression, and that, with the exception of the self-injurious behavior criterion, it had the largest association with suicidal ideation of any BPD criterion.[34] In our sample, meeting the criterion of emptiness was not associated with BDI depression scores ($r = 0.05$, $p > 0.05$) or with BHS hopelessness scores ($r = 0.10$, $p > 0.05$) at baseline, and those who endorsed emptiness showed greater improvements in depression and dissociative symptoms than those who did not. It is possible that emptiness may be targeted by the mindfulness skills of DBT, a module that is fundamental to DBT and repeated more often than other skills; thus those who endorse it may gain additional benefits from DBT compared with those who do not.

However, there may be a simpler explanation. The Women's Partial Program was developed in 1995, when DBT was quite new. (Study recruitment occurred from 1999 to 2000). There was considerable excitement concerning the novel implementation of this new treatment, the first to promise relief from a painful condition. The program was run by an intensively trained and enthusiastic staff who considered themselves, in the DBT mode, "a community of therapists treating a community of patients," echoing the "one-team model" recommended in MBT, "which allows but contains splits and minimizes the risk that they are dangerously enacted." (Bateman and Fonagy,[35] p. 146). Resources were devoted to program evaluation and research, so that patients received careful assessment and more than the usual feedback about their condition, and many may have felt part of a larger context and mission. All were referred

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to a program of DBT skills classes for 6 months without additional charge. The groups met in the same space as the partial program, allowing for informal “curbside consultation” from the partial staff, even after discharge. In addition, the program offered a variety of opportunities to connect to the program and to other patients in a social way: weekly public lectures, holiday parties, and a patient-led support group. In short, the Women’s Partial Program offered a validating community to women, many of whom had felt alone in their suffering, with treatment that offered a non-pejorative formulation of their problems that made sense to them and which targeted the very problems that had plagued them.

If emptiness is closely related to feelings of hopelessness, loneliness, and isolation,[34] surely such a program would go a long way towards the amelioration of that experience, at least in the short term. If emptiness is the inner experience associated with feeling the lack of the presence of a caring other, surely involvement with an engaged and engaging staff would tend to counter such feelings, especially when the program afforded multiple naturally occurring opportunities for brief staff encounters. For the patients who were most likely to endorse emptiness, this program would have the greatest impact. As the 3-month assessment was mid-way through the skills group, the results may have had much to do with the infusion of informed hopefulness from a dedicated team of clinicians.

Limitations

This study has a number of limitations, including a small sample size and relatively small effect sizes. Another limitation is that, due to the relatively short duration of the program (5 days) and related logistical considerations, we were not able to administer pre- and post- treatment assessments on the patient’s admission and discharge dates. Conducting the baseline battery, which involved a lengthy diagnostic interview, on patients’ first day in the program would have interfered with the provision of therapeutic treatment. Most importantly, we did not have a comparison group, and most participants were in outpatient treatment during the 3-month follow-up interval; therefore, we cannot attribute their improvement to the partial hospital program alone.

CONCLUSIONS

Despite the limitations discussed above, several significant findings emerged. First, patients with BPD can improve after discharge from a 5-day hospitalization program. Many symptoms, both those directly related to BPD (self-injury, anger expression, and dissociation) and those that are not considered core features (depression, hopelessness, general psychopathology) improved (slightly) in the group as a whole. However, in general, scores at the 3-month follow-up remain high and in the clinical range and reflect the need for continued treatment. Thus, while improvement is possible, our results do suggest that those diagnosed with BPD remain clinically and functionally impaired.

Second, patients with BPD present with a heterogeneous symptom profile and show a heterogeneous response to treatment. Unexpectedly, endorsement of impulsivity, emptiness, and unstable relationships at baseline were associated with greater improvement on at least one measure of distress at follow-up. We propose that these criteria may be specifically targeted by DBT skills groups (e.g., emptiness by mindfulness, impulsivity by distress tolerance, and unstable relationships by interpersonal effectiveness), but we do not have the data to substantiate this. While all patients were given the option of attending DBT skills classes during the 3-month follow-up interval, we do not have data on frequency of attendance. However, our data do indicate the importance of attending to patient-related variables when examining treatment outcome, a perspective that is often not considered in spite of recent reports suggesting that these factors may account for as much as one third of the variance in treatment outcomes.[35] Our findings regarding BPD criteria as predictors of treatment outcome, which

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were contrary to our expectations, suggest that BPD is a heterogeneous disorder and that clinicians should take individual patient factors into account, particularly in the administrations of manualized therapies.

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Table 1

Symptom scores upon discharge from the partial hospital program and at 3-month follow-up (N = 47)

	Partial hospital discharge Mean (SD)	3-month follow-up Mean (SD)	Pre-post effect size[a]
Beck Depression Inventory (BDI)	33.5 (12.4)	27.3 (14.8)[†]	0.45
Beck Hopelessness Scale (BHS)	13.0 (5.5)	10.0 (6.7)[*]	0.49
Dissociative Experiences Scale (DES)	26.7 (18.9)	20.4 (16.6)[*]	0.35
State-Trait Anger Expression Inventory (STAXI)	94.3 (22.4)	88.2 (26.9)[†]	0.25
Brief Symptom Inventory General Severity Index (BSI)	2.1 (0.7)	1.8 (0.8)[†]	0.40

[a]Cohen's d = $(M_1 - M_2)/(s_{pooled})$. Per recommendations by Dunlop et al.,[31] the pooled standard deviation was not corrected for the amount of correlation between the discharge and follow-up scores, and thus did not artificially inflate effect size estimates.

[*]Follow-up scores significantly different from hospital discharge score ($p < 0.01$)

[†]Follow-up scores significantly different from hospital discharge score ($p < 0.05$ on sign test)

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Table 2

BPD criteria as predictors of symptom improvement

Variable	B	SE B	β	R^2
Predictors of abstinence from self-harm				
Endorsement of unstable relationships	2.0	0.76	Wald = 7.0*	
Endorsement of impulsiveness	1.5	0.75	Wald = 4.2†	0.23[a]
Predictors of BDI[b] improvement				
Endorsement of emptiness	10.8	5.1	0.30†	0.09
Predictors of BHS improvement				
Higher intake hopelessness score	0.38	0.14	0.36†	
Lack of frantic efforts to avoid abandonment	4.6	1.7	0.37*	0.22
Predictors of DES improvement				
Higher intake DES score	0.28	0.07	0.50*	
Endorsement of emptiness	14.1	5.1	0.34*	0.35
Predictors of STAXI improvement				
Endorsement of impulsiveness	19.1	6.5	0.41*	0.17
Predictors of BSI improvement				
Endorsement of emptiness	0.98	0.32	0.40*	
Lack of unstable identity	0.48	0.18	0.35*	0.27

[a] Cox and Snell R^2, a conservative estimate

[b] See Table 1 for full names of measures

* $p < 0.01$;

† $p < 0.05$;

B = unstandardized regression coefficient; SE B = standard error of the unstandardized regression coefficient; β = standardized regression coefficient

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Table 3

Relationship between BPD criteria and outcome measures

Criterion	SIQ[a]	BDI	BHS	DES	STAXI	BSI
Abandonment fears			↑			
Unstable relationships	↓					
Identity disturbance						↑
Impulsivity	↓ (gray)				↓	
Self-injury						
Affective instability						
Emptiness		↓ (gray)		↓		↓
Anger						
Dissociation/Paranoia						

Notes. ↓ predicts improvement, decrease in score; ↑ predicts less improvement than those who did not endorse item; black arrows indicate significance ($p < 0.01$) and gray arrows indicate trend toward significance ($p < 0.05$);

[a]See Table 1 for full names of measures.