Randomized Controlled Trial of Web-Based Psychoeducation for Women With Borderline Personality Disorder

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ABSTRACT

Objective: To determine if internet-based psychoeducation for borderline personality disorder is effective in reducing symptom severity and improving psychosocial functioning.

Methods: Eighty women who met *DSM-IV* criteria for borderline personality disorder were randomly assigned either to the internet-based psychoeducation treatment group (n = 40) or to the internet-based control group with no psychoeducation (n = 40). Recruitment was conducted from July 2013 to March 2015. Subjects participated in 15 assessment periods that were divided into an acute phase (weeks 1–12) and a maintenance phase (months 6, 9, and 12). Main outcomes were assessed using the Zanarini Rating Scale for Borderline Personality Disorder.

Results: In the acute phase, women in the treatment group were found to have a significant decline in their scores on all 10 outcomes studied, while women in the control group had a significant decline on 7 of these outcomes. Two between-group differences were found to be significant—those in the treatment group reported a significantly greater decline in their impulsivity ($z = -1.98$, $P = .048$) and a significantly greater increase in their psychosocial functioning ($z = -1.97$, $P = .049$) than those in the control group. In the maintenance phase, those in the treatment group were found to have a significant decline in their scores on 9 of the 10 outcomes studied, while those in the control group had a significant decline in 3 of these outcomes. In terms of between-group differences, those in the treatment group reported a significantly greater decline in all 5 studied areas of borderline psychopathology: affective symptoms ($z = -2.31$, $P = .021$), cognitive symptoms ($z = -3.20$, $P = .001$), impulsivity ($z = -2.44$, $P = .015$), interpersonal difficulties ($z = -2.15$, $P = .032$), and overall borderline personality disorder symptoms ($z = -2.11$, $P = .035$).

Conclusions: Taken together, these results suggest that internet-based psychoeducation is an effective form of early treatment for reducing the symptom severity of borderline personality disorder for periods up to 1 year.

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Borderline personality disorder (BPD) is a common psychiatric disorder, the best epidemiologic evidence estimating that about 2% of American adults meet *DSM* criteria for BPD.[1–3] It has also been estimated that approximately 19% of psychiatric inpatients and approximately 11% of psychiatric outpatients meet criteria for BPD.[4] In addition, cross-sectional studies have found that BPD is associated with high levels of mental health service utilization[5] and a serious degree of psychosocial impairment.[6]

More recently, 2 NIMH-funded, methodologically rigorous, prospective studies of the long-term course of BPD have found that the symptomatic course of BPD is better than previously known.[7,8] More specifically, sustained remissions of BPD are common and recurrences are relatively rare. In addition, rates of completed suicide are substantially lower than those found in 4 follow-back studies of the long-term course of BPD that were conducted in the 1980s.[9–12]

There is also mounting evidence that BPD is a treatable illness. In particular, 6 comprehensive forms of psychotherapy have now been found to be superior to treatment as usual or another manualized treatment in reducing the symptoms of BPD. These manual-based psychotherapies are dialectical behavioral therapy,[13] mentalization-based treatment,[14] schema-focused therapy,[15] transference-focused psychotherapy,[16] systems training for emotional predictability and problem solving,[17] and general psychiatric management.[18] Taken together, the results of these trials suggest that psychodynamic therapies,[14,16] cognitive-behavioral treatments,[13,15,17] and therapies that are a combination of both approaches[18] are effective in the treatment of BPD.

In addition, medications have been found to "take the edge off" BPD symptoms. Before 1995, only 4 well-designed, double-blind pharmacotherapy studies had been conducted.[19–22] Since then, the results of 17 double-blind, placebo- or comparator-controlled trials have been published.[23–39] Collectively, the results of these studies suggest that second-generation antipsychotics, mood stabilizers, and antidepressants all have a modest effect on the severity of borderline psychopathology, but none are curative.

The recent research just reviewed suggests that BPD is a serious public health problem. It also suggests that it is a treatable illness with a substantially better prognosis than previously known. Despite all of these advances, clinical experience suggests that many patients with BPD are not told of their borderline diagnosis.[40] This practice is commonplace because those treating these patients fail to recognize the presence of BPD, believe BPD is too stigmatizing a diagnosis, or prefer to diagnose a disorder, such as bipolar disorder, that they believe is more responsive to treatment and, thus, has a better prognosis.

Such clinical practice often leaves patients with BPD thinking that they are "bad" people or the only one suffering from these symptoms. It can also lead to a fruitless search for a cure for their

"treatment-resistant" Axis I disorder—a disorder that they may well have but that is not their central problem.

Clinical experience also suggests that many of those who are informed of their borderline diagnosis are not given up-to-date information about BPD.[40] This is so because clinicians either are unfamiliar with the latest information concerning BPD or lack the time to teach their patients about BPD. Because of these factors, patients with BPD are deprived of the information they need to become informed consumers of mental health services and to plan for their future in a reasonable manner.

This practice stands in stark contrast to the psychoeducation efforts common for those with other serious psychiatric disorders. More specifically, studies have found that targeted psychoeducation is beneficial in the treatment of those with schizophrenia, bipolar disorder, and major depression.[41–44]

However, our group conducted a trial of psychoeducation for 50 young women who met rigorous criteria for BPD and who were randomly assigned to immediate psychoeducation (N = 30) or delayed psychoeducation (N = 20).[45] All instruction and assessment relied on clinically experienced research assistants and took place over 12 sessions. The main objective of this study[45] was to determine whether being taught the latest information concerning BPD leads to a decline in core BPD symptoms and an improvement in psychosocial functioning. The severity of general impulsivity (which excludes self-mutilation, suicide threats, and suicide attempts) and stormy relationships declined significantly more for those in the immediate treatment group than for those in the waitlist group. However, immediate psychoeducation concerning the BPD diagnosis did not result in significantly improved psychosocial functioning.

Despite widespread interest in implementing this psychoeducation program, the need for trained personnel and the resulting cost of the program prevented other centers from adopting this early form of treatment for BPD. Given this barrier to access, we developed a completely web-based instructional and assessment program for the psychoeducation of those with BPD.

METHODS

Study procedures were approved by the institutional review board of Partners Healthcare (Boston, Massachusetts), and the study was registered at ClinicalTrials.gov (identifier: NCT01719731). Recruitment of 80 women between the ages of 18 and 30 years was accomplished through internet-based advertising in the Boston area (primarily on Craigslist) from July 2013 to March 2015. These ads asked, "Are you extremely moody?" "Are you often distrustful of others?" "Do you frequently act in an impulsive manner?" and "Are your relationships very painful and difficult?" Subjects were initially screened by telephone to assess whether they met the *DSM-IV* criteria for BPD using the borderline module of the Diagnostic Interview for *DSM-IV* Personality Disorders.[46] A general psychiatric history was also taken at the time of first telephone contact. Potential subjects were excluded if they were currently in any type of psychiatric treatment.

Subjects were next invited to participate in a comprehensive face-to-face interview. At that time, the study procedures were fully explained and written informed consent was obtained. Five semistructured interviews were then administered to each subject by the project coordinator: (1) the Background Information Schedule,[47] which assesses demographic information, psychosocial functioning in the past 2 years, and lifetime psychiatric treatment; (2) the Structured Clinical Interview for *DSM-IV* Axis I Disorders[48]; (3) the Revised Diagnostic Interview for Borderlines (DIB-R)[49]; (4) the nonborderline modules of the Diagnostic Interview for *DSM-IV* Personality Disorders[46]; and (5) the clinician-administered version of the Zanarini Rating Scale for Borderline Personality Disorder.[50]

Inclusion/Exclusion Criteria

Subjects were included if they met both DIB-R and *DSM-IV* criteria sets for BPD. We chose this dual diagnostic set of criteria, which is standard for our research group, to ensure that we were recruiting core borderline patients with serious psychopathology. Subjects were excluded if they met current or lifetime criteria for schizophrenia or schizoaffective disorder. They were also excluded if they met current criteria for a physical condition that can cause serious psychiatric symptoms (eg, lupus, multiple sclerosis), serious substance abuse, or mental retardation or were acutely suicidal or fully manic at the time of diagnostic assessment.

Diagnostic Disclosure and Randomization

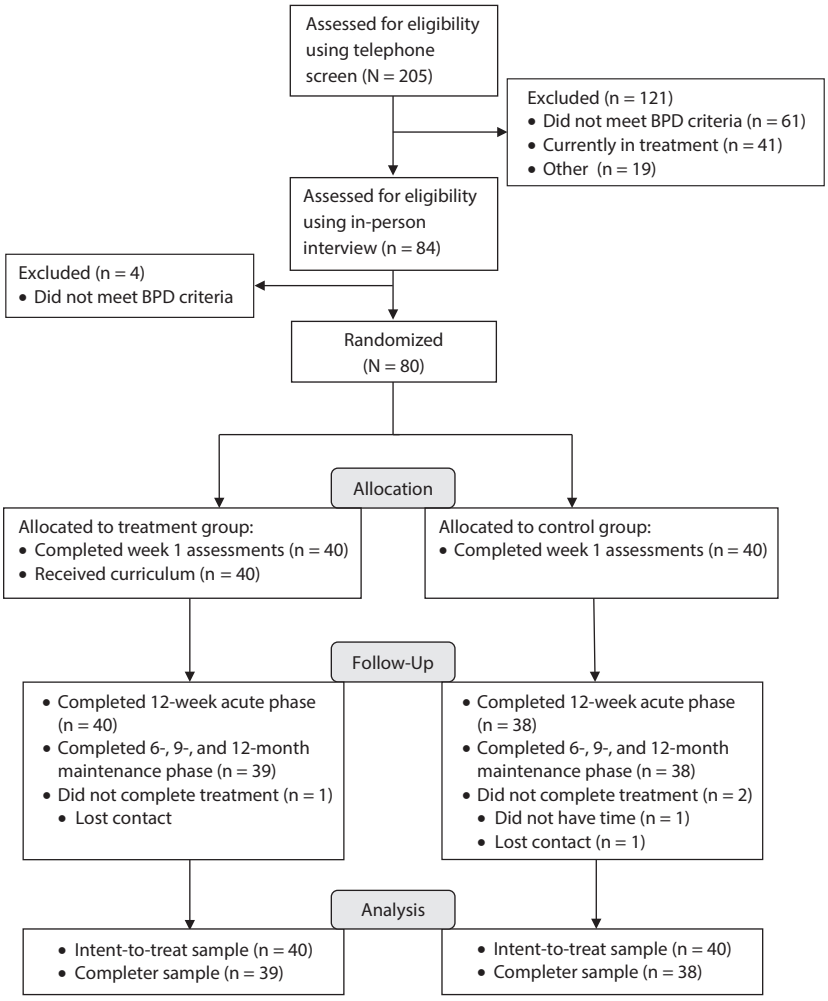
The study coordinator met with each subject and informed her about whether she met study criteria for BPD. For subjects meeting study criteria for BPD, the study coordinator used a disclosure script that the principal investigator developed more than a decade ago.[51]

Immediately after diagnostic disclosure, each subject found out if she had been randomly assigned (using a computer-generated list devised by our study statistician) to participation in our psychoeducation program or not. Half of the subjects were randomly assigned to this treatment and half were not. This design mirrors clinical practice in which some patients receive information about their borderline diagnosis and others do not.

Clinical Points

- Although psychoeducation programs are available for most major psychiatric disorders, there is no widely available psychoeducation program for patients recently diagnosed with borderline personality disorder.
- The results of this web-based instruction and assessment study suggest that teaching people with borderline personality disorder the latest comprehensive information about the disorder and tracking their symptomatic and psychosocial functioning over time leads to significantly greater gains during a year than those achieved by subjects who did not review the curriculum.

Figure 1. CONSORT Diagram of Subject Flow in the Randomized Controlled Trial



Abbreviation: BPD = borderline personality disorder.

The project coordinator provided each of the 80 subjects with a username and password to access the study website. She also provided basic instruction on how to use the website for the purpose of review of the curriculum and assessment of our major outcomes. Then each subject filled out 6 self-report measures housed on our website. Five of these self-report measures pertain to the past week: (1) the self-report version of the Zanarini Rating Scale for Borderline Personality Disorder,[52] (2) the Borderline Evaluation of Severity Over Time,[53] (3) the Sheehan Disability Scale,[54] (4) the Clinically Useful Depression Outcome Scale,[55] and (5) the Clinically Useful Anxiety Outcome Scale.[56] The other measure was the 24-item version of the Weissman Social Adjustment Scale[57] which pertains to the past 2 weeks.

Half of our subjects were randomly assigned to our psychoeducation treatment group and half to our control group who received no psychoeducation. Both groups participated in 15 assessment periods that were divided into an acute phase (weeks 1–12) and a maintenance phase (months 6, 9, and 12).

Psychoeducation Program

This program details the latest information on the following aspects of BPD: introductory information (history of diagnosis, stigma associated with disorder, and demographic characteristics associated with BPD), symptoms of BPD and alternative theories of how these symptoms fit together, co-occurring disorders, etiology, longitudinal course, psychosocial treatments, and psychotropic medications. The program is laid out like a book, with each topic being covered in its own chapter. For example, the chapter on etiology contains sections on childhood adversity, temperamental factors, family history of psychiatric disorders, and biological factors relevant to the development of BPD.

Data Analyses

Between-group differences in baseline demographic variables and clinical history variables were analyzed using χ^2 analyses for categorical variables and Student *t* test for continuous variables. Longitudinal regression modeling

Table 1. Baseline Demographic and Clinical Characteristics of Study Subjects

	Treatment Group (n = 40)		Control Group (n = 40)	
Variable	n	%	n	%
Marital status				
Ever married	1	2.5	2	5.0
Never married	39	97.5	38	95.0
Education				
High school graduate	12	30.0	9	22.5
Some college or technical school	21	52.5	24	60.0
College graduate	7	17.5	7	17.5
Race				
White	33	82.5	22	55.0
Black	3	7.5	6	15.0
Hispanic	2	5.0	6	15.0
Asian	1	2.5	5	12.5
Other	1	2.5	1	2.5
Lifetime *DSM-IV* Axis I diagnoses				
Any mood disorder	27	67.5	31	77.5
Any anxiety disorder	24	60.0	27	67.5
Any substance use disorder*	17	42.5	8	20.0
Any eating disorder	6	15.0	10	25.0
Axis II diagnoses				
Odd cluster	7	17.5	7	17.5
Anxious cluster	22	55.0	23	57.5
Dramatic cluster (excluding borderline personality disorder)	9	22.5	4	10.0
Psychiatric treatment history				
Any individual therapy	21	52.5	20	50.0
Any standing medication	13	32.5	6	15.0
Any hospitalization*	4	10.0	0	0.0
	Mean	SD	Mean	SD
Age, y	21.9	3.7	20.9	3.1
Global Assessment of Functioning	53.3	4.1	53.5	3.4
Socioeconomic status (1 = highest, 5 = lowest)	2.4	1.4	2.1	1.3

*$P < .05$.

methods were used to assess between-group differences on changes in the study's 10 outcome measures using all available panel data. Specifically, proportional odds regression (implemented using the ologit command, with the empirical or so-called "sandwich" estimator of the standard errors, in Stata version 14[58]) was used for ordinal outcome variables, and linear regression, fitted using generalized estimating equations (and implemented using the xtgee command in Stata version 14), was used for continuous outcome variables. Both sets of regression models used for these analyses appropriately account for the correlation among the repeated administration of our outcome measures over time.

For all 10 of our outcome measures, these models included the effects of group, a piecewise-linear time trend with breakpoint at end of acute phase (ie, separate linear trends during acute and maintenance phases, with possibly different slopes), and their possible interactions. These analyses were based on week 1 data through month 12 data taken together. However, we present acute and maintenance phase results separately for ease of understanding.

RESULTS

Two hundred five women responded to the internet ad for the study (Figure 1). Of these women, 121 were excluded after a telephone prescreening interview. Eighty-four women then participated in our comprehensive in-person assessment, and 80 met all of our inclusion and exclusion criteria. Forty of these 80 women were randomly assigned to our treatment group, and the other 40 were randomly assigned to our control group. All 40 women assigned to our treatment group completed the acute phase of the study (weeks 1–12), and 39 completed the maintenance phase of the trial. Thirty-eight of the women in our control group completed both the acute and maintenance phase of the study. Thus, 39 of the women in the treatment group (98%) and 38 of the women in the control group (95%) completed the trial.

Table 1 details the demographic and clinical characteristics of our 2 study groups. Most of our subjects were young, middle class, white women with some college education, who had never been married and were functioning in the low end of fair as assessed by the Global Assessment of Functioning.[59]

Sixty percent or more had a history of a mood or anxiety disorder. Both substance use disorders and eating disorders were less common. However, the rate of substance use disorders was significantly higher in the treatment group (43%) than in the control group (20%). The rate of odd and anxious cluster Axis II disorders was about the same for both study groups. However, the rate of nonborderline dramatic cluster disorders was higher in the treatment group than in the control group but nonsignificantly so.

About half of those in both groups had a history of individual therapy. Both taking standing medications and being hospitalized for psychiatric reasons were more common among those in the treatment group than in the control group, although only being hospitalized for psychiatric reasons was significant (10% vs 0%).

In the acute phase of the study (Table 2), those in the treatment group were found to have a significant decline in their scores on all 10 outcomes studied. Those in the control group were found to have a significant decline in their scores on 7 of these outcomes—all but the cognition and impulsivity sector scores on the Zanarini Rating Scale for Borderline Personality Disorder and the Social Adjustment Scale total score. Two between-group differences were found to be significant. More specifically, those in the treatment group reported a significantly greater decline in their impulsivity as measured by the Zanarini Rating Scale for Borderline Personality Disorder and a significantly greater increase in their psychosocial functioning as measured by the Social Adjustment Scale than those in the control group.

In the maintenance phase of the study (Table 3), those in the treatment group were found to have a significant decline in their scores on 9 of the 10 outcomes studied—all but the Sheehan Disability Scale total score. In contrast, those in the control group were found to have a significant decline in 3 of the 10 outcomes studied—the total score of the Borderline Evaluation of Severity Over Time, Sheehan Disability Scale, and Social Adjustment Scale. In terms of between-group differences, those in the treatment group reported a

Table 2. Acute Phase of Trial (Weeks 1–12) Outcome Measures

Outcome Measure	Treatment Group (n = 40)		Control Group (n = 40)		Odds Ratio or Mean Difference	95% CI	*Z* Score	*P* Value
	Baseline, Mean (SD)	12 Weeks, Mean (SD)	Baseline, Mean (SD)	12 Weeks, Mean (SD)				
ZAN-BPD								
Affective sector score[a]	5.25 (2.19)	3.15 (2.49)	5.05 (2.64)	3.76 (2.39)				
Control (Ctrl)					0.34	0.20 to 0.58	−3.99	< .001
Treatment (Tx)					0.22	0.13 to 0.37	−5.78	< .001
Ctrl vs Tx					0.64	0.31 to 1.34	−1.18	.239
Cognitive sector score[a]	2.43 (1.95)	1.63 (1.29)	1.95 (2.07)	1.89 (1.93)				
Control					0.65	0.40 to 1.06	−1.72	.086
Treatment					0.42	0.26 to 0.67	−3.66	< .001
Ctrl vs Tx					0.64	0.33 to 1.25	−1.31	.191
Impulsivity sector score[a]	1.68 (1.46)	1.13 (1.11)	1.00 (0.88)	1.58 (1.29)				
Control					1.22	0.74 to 2.00	0.77	.443
Treatment					0.58	0.34 to 0.99	−1.99	.046
Ctrl vs Tx					0.48	0.23 to 0.99	−1.98	**.048**[b]
Interpersonal sector score[a]	2.78 (1.58)	1.93 (1.85)	2.13 (1.79)	1.92 (1.85)				
Control					0.63	0.40 to 1.00	−1.97	.048
Treatment					0.37	0.23 to 0.60	−4.01	< .001
Ctrl vs Tx					0.59	0.30 to 1.16	−1.52	.128
Total score[c]	12.13 (5.88)	7.83 (5.80)	10.13 (5.86)	9.16 (6.18)				
Control					−2.30	−3.53 to −1.08	−3.68	< .001
Treatment					−4.01	−5.71 to −2.30	−4.62	< .001
Ctrl vs Tx					−1.70	−3.80 to 0.40	−1.59	.112
Other outcome measures								
BEST total score[c]	35.30 (9.97)	28.98 (10.39)	32.65 (9.04)	32.16 (12.45)				
Control					−3.02	−5.54 to −0.50	−2.35	.019
Treatment					−6.33	−8.90 to −3.77	−4.84	< .001
Ctrl vs Tx					−3.32	−6.91 to 0.28	−1.81	.071
Sheehan total score[c]	11.94 (6.95)	6.83 (6.08)	13.08 (6.05)	9.76 (7.51)				
Control					−4.32	−5.91 to −2.73	−5.33	< .001
Treatment					−4.16	−6.14 to −2.18	−4.12	< .001
Ctrl vs Tx					0.16	−2.38 to 2.69	0.12	.903
SAS total score[c]	1.63 (0.72)	1.13 (0.73)	1.53 (0.62)	1.44 (0.79)				
Control					−0.17	−0.36 to 0.02	−1.79	.073
Treatment					−0.45	−0.65 to −0.25	−4.45	< .001
Ctrl vs Tx					−0.27	−0.55 to −0.001	−1.97	**.049**[b]
CUDOS total score[c]	31.85 (12.94)	20.78 (13.93)	31.4 (13.65)	26.89 (17.08)				
Control					−7.07	−11.46 to −2.68	−3.15	.002
Treatment					−11.09	−15.01 to −7.17	−5.54	< .001
Ctrl vs Tx					−4.02	−9.91 to 1.87	−1.34	.181
CUXOS total score[c]	45.00 (16.14)	35.15 (15.03)	47.38 (17.38)	40.11 (17.72)				
Control					−7.39	−11.25 to −3.53	−3.75	< .001
Treatment					−8.32	−12.76 to −3.87	−3.67	< .001
Ctrl vs Tx					−0.93	−6.82 to 4.96	−0.31	.757

[a]Analyses pertain to ordered data.
[b]Bolded interaction terms indicate that the treatment group had a significantly better outcome than the control group.
[c]Analyses pertain to continuous data.
Abbreviations: BEST = Borderline Evaluation of Severity Over Time, CUDOS = Clinically Useful Depression Outcome Scale, CUXOS = Clinically Useful Anxiety Outcome Scale, SAS = Social Adjustment Scale, Sheehan = Sheehan Disability Scale, ZAN-BPD = Zanarini Rating Scale for Borderline Personality Disorder.

significantly greater decline in all 4 sector scores and the total score of the Zanarini Rating Scale for Borderline Personality Disorder.

DISCUSSION

In terms of between-group differences, those in the treatment group had significantly greater gains than controls in the acute phase of the trial in impulsivity and psychosocial functioning. They also had significantly greater gains than controls in the maintenance phase of the trial in all 4 sectors of borderline psychopathology as well as in the overall severity of borderline psychopathology. More specifically, the additional decline in overall severity of borderline psychopathology was by approximately half a standard deviation, often interpreted as a "medium" effect size.

In general, the course of the 2 study groups was quite different over time. In the acute phase of the study, those in the treatment group were found to have a significant decline in their scores on all 10 outcomes studied. Those in the control group were found to have a significant decline in their scores on 7 of these outcomes. However, in the maintenance phase of the trial, those in the treatment group were found to have a significant decline in their scores on 9 of the 10 outcomes studied. In contrast, those in the control group were found to have a significant decline in only 3 of the 10 outcomes studied.

Table 3. Maintenance Phase of Trial (Baseline to 12 Months) Outcome Measures

Outcome Measure	Treatment Group (n = 39) Baseline, Mean (SD)	Treatment Group (n = 39) 12 Months, Mean (SD)	Control Group (n = 38) Baseline, Mean (SD)	Control Group (n = 38) 12 Months, Mean (SD)	Odds Ratio or Mean Difference	95% CI	*Z* Score	*P* Value
ZAN-BPD								
Affective sector score[a]	5.25 (2.19)	3.18 (0.38)	5.05 (2.64)	4.29 (2.25)				
Control (Ctrl)					0.61	0.35 to 1.08	−1.70	.089
Treatment (Tx)					0.25	0.15 to 0.42	−5.25	< .001
Ctrl vs Tx					0.40	0.19 to 0.87	−2.31	**.021**[b]
Cognitive sector score[a]	2.43 (1.95)	1.62 (1.58)	1.95 (2.07)	2.39 (1.78)				
Control					1.37	0.85 to 2.22	1.30	.193
Treatment					0.39	0.22 to 0.71	−3.13	.002
Ctrl vs Tx					0.29	0.13 to 0.62	−3.20	**.001**[b]
Impulsivity sector score[a]	1.68 (1.46)	1.15 (1.66)	1.00 (0.88)	1.39 (0.95)				
Control					1.10	0.71 to 1.72	0.43	.666
Treatment					0.44	0.24 to 0.79	−2.74	.006
Ctrl vs Tx					0.40	0.19 to 0.83	−2.44	**.015**[b]
Interpersonal sector score[a]	2.78 (1.58)	1.72 (1.61)	2.13 (1.79)	2.05 (1.41)				
Control					0.91	0.55 to 1.51	−0.36	.719
Treatment					0.39	0.22 to 0.70	−3.18	.001
Ctrl vs Tx					0.43	0.20 to 0.93	−2.15	**.032**[b]
Total score[c]	12.13 (5.88)	7.67 (6.49)	10.13 (5.86)	10.13 (5.03)				
Control					−0.86	−2.50 to 0.79	−1.02	.307
Treatment					−3.75	−5.89 to −1.62	−3.44	.001
Ctrl vs Tx					−2.90	−5.59 to −0.20	−2.11	**.035**[b]
Other outcome measures								
BEST total score[c]	35.30 (9.97)	28.51 (11.28)	32.65 (9.04)	31.79 (11.98)				
Control					−3.28	−6.08 to −0.49	−2.30	.021
Treatment					−5.02	−8.70 to −1.34	−2.67	.008
Ctrl vs Tx					−1.74	−6.36 to 2.89	−0.74	.462
Sheehan total score[c]	6.83 (6.08)	8.81 (7.03)	9.76 (7.51)	10.71 (7.72)				
Control					−3.66	−5.60 to −1.71	−3.69	< .001
Treatment					−1.84	−4.27 to 0.58	−1.49	.136
Ctrl vs Tx					−1.82	−1.29 to 4.92	1.15	.252
SAS total score[c]	1.63 (0.72)	1.21 (0.73)	1.53 (0.62)	1.42 (0.73)				
Control					−0.21	−0.40 to −0.003	−1.99	.047
Treatment					−0.37	−0.60 to −0.14	−3.19	.001
Ctrl vs Tx					−0.17	−0.47 to 0.13	−1.09	.275
CUDOS total score[c]	31.85 (12.94)	24.18 (16.15)	31.40 (13.65)	31.21 (16.62)				
Control					−4.18	−8.68 to 0.32	−1.82	.069
Treatment					−6.92	−12.06 to −1.79	−2.64	.008
Ctrl vs Tx					−2.74	−9.57 to 4.09	−0.79	.432
CUXOS total score[c]	45.00 (16.14)	36.28 (16.78)	47.38 (17.38)	43.39 (16.47)				
Control					−2.90	−6.86 to 1.07	−1.43	.152
Treatment					−4.71	−9.40 to −0.02	−1.97	.049
Ctrl vs Tx					−1.81	−7.95 to 4.33	−0.58	.564

[a]Analyses pertain to ordered data.
[b]Bolded interaction terms indicate that the treatment group had a significantly better outcome than the control group.
[c]Analyses pertain to continuous data.
Abbreviations: BEST = Borderline Evaluation of Severity Over Time, CUDOS = Clinically Useful Depression Outcome Scale, CUXOS = Clinically Useful Anxiety Outcome Scale, SAS = Social Adjustment Scale, Sheehan = Sheehan Disability Scale, ZAN-BPD = Zanarini Rating Scale for Borderline Personality Disorder.

Taken together, these results suggest that those treated with psychoeducation about BPD achieve near-term improvements and maintain them over a year of follow-up. In contrast, controls who did not receive psychoeducation made gains in the acute phase of the study but, in many areas, returned to their baseline level of symptom severity over the maintenance phase of the trial.

Both study groups showed broad improvement in the weeks after their first visit. This improvement may have been due to the weekly online assessments that all subjects took. These assessments may have helped subjects to gauge how they were progressing. They may also have led subjects to think about their general situation and ways in which they could demonstrate agency over the course of their illness.

However, the knowledge about BPD gained by those in the treatment group may have been the reason why they maintained their acute-phase gains in the maintenance phase of the study, while those in the control group reverted to their baseline level of severity. Looked at another way, the treatment group simply had more information with which to form a cognitive map of BPD, its likely course, and treatment options.

The subjects in this study were symptomatic volunteers. Whether patients in a clinical setting would do as well is an open question. This form of treatment could be used in most clinical settings from outpatient to partial hospital to an inpatient unit. However, it probably would best be used in an outpatient setting, as substantial wait times for an initial appointment are common. Both the psychoeducation

aspect of this treatment and the online assessment aspect of this approach might be useful for those waiting to begin treatment as both seem to lead to significant outcomes symptomatically and psychosocially. However, we believe that online psychoeducation, due to its low cost, may be most effective for prospective patients with a mild form of BPD, who are probably similar to our symptomatic volunteers.

This study has 2 main limitations. The first is that subjects were symptomatic volunteers. The second is that only women were studied. Whether actual patients or men with BPD would have the same pattern of response is unknown.

Finally, it is important to note that internet-based psychoeducation is cost efficient. It could also readily be scaled to deal with widespread use in a variety of clinical settings.

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