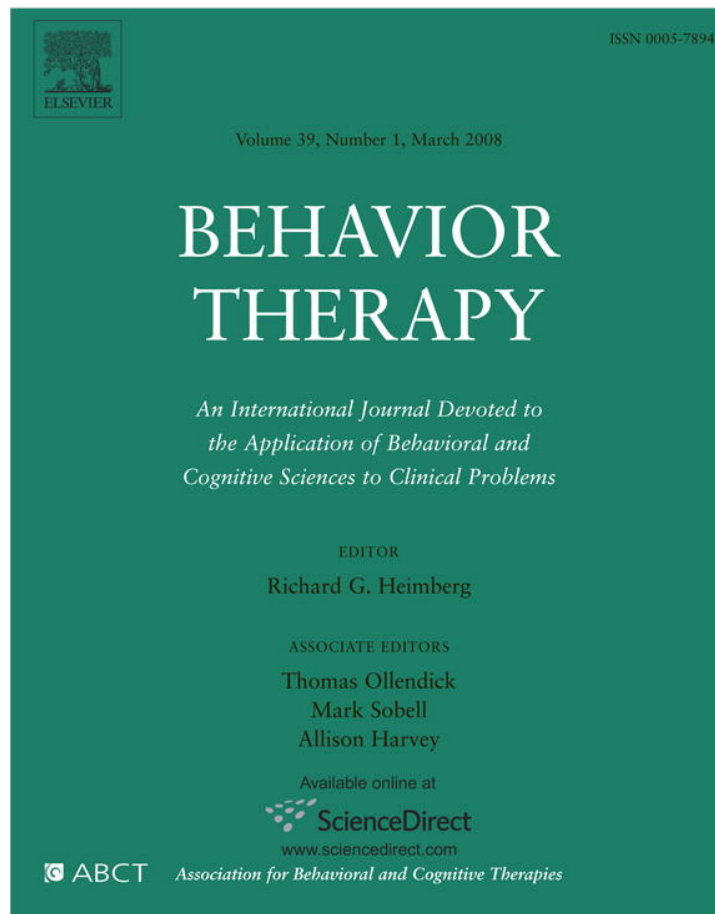


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Borderline Personality Characteristics and Treatment Outcome in Cognitive-Behavioral Treatments for PTSD in Female Rape Victims

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Many studies report that comorbid borderline personality pathology is associated with poorer outcomes in the treatment of Axis I disorders. Given the high rates of comorbidity between borderline personality pathology and posttraumatic stress disorder (PTSD), it is essential to determine whether borderline symptomatology affects PTSD treatment outcome. This study examined the effects of borderline personality characteristics (BPC) on 131 female rape victims receiving cognitive-behavioral treatment for PTSD. Higher BPC scores were associated with greater pretreatment PTSD severity; however, individuals with higher levels of BPC were just as likely to complete treatment and also as likely to show significant treatment response on several outcome measures. There were no significant interactions between type of treatment and BPC on the outcome variables. Findings suggest that women with borderline pathology may be able to benefit significantly from cognitive-behavioral treatment for PTSD.

RESEARCH INDICATES THAT A diagnosis of borderline personality disorder (BPD) is associated with poorer outcomes in the treatment of many Axis I disorders, including major depression (e.g., Ilardi, Craighead, & Evans, 1997), obsessive-compulsive disorder (Baer et al., 1992), bulimia nervosa (e.g., Ames-Frankel et al., 1992), and substance abuse (e.g., Verhuel, van den Brink, &

Hartgers, 1998). In addition, BPD is often an exclusion criterion in studies examining treatments for Axis I disorders. This contributes to the widespread notion that individuals with BPD will not benefit from treatments for Axis I conditions.

This is particularly problematic in the field of posttraumatic stress disorder (PTSD) because of the high rates of comorbidity between BPD and PTSD. In one study of 379 participants presenting with BPD, 61% of females and 35% of males also met diagnostic criteria for PTSD (Zanarini et al., 1998). Examined from the other direction, 76% of a small sample of male Vietnam combat veterans with PTSD had a comorbid diagnosis of BPD (Southwick, Yehuda, & Giller, 1993). Many studies demonstrate similarly high rates of comorbidity between PTSD and BPD (e.g., Allen, Huntoon, & Evans, 1999; Golier et al., 2003; Hyer, Woods, & Boudewyns, 1991; Shea, Zlotnick, & Weisberg, 1999; Sherwood, Funari, & Piekarski, 1990). In spite of the significant overlap between PTSD and BPD, research has shown that the addition of BPD does not significantly alter the symptom presentation of PTSD and vice versa (Zlotnick, Franklin, & Zimmerman, 2002; Zlotnick et al., 2003), suggesting that patients with both disorders do not appear to have a more severe clinical presentation than individuals with only one of these disorders.

There is, however, lingering concern that borderline symptomatology may impede progress in cognitive-behavioral treatment (CBT) for PTSD. Clinical lore suggests that the potentially high rates of anger, aggression, and self-harm typically present in those with more severe borderline personality pathology may interfere with intensive CBT methods such as exposure and cognitive restructuring of core schemas. In fact, two studies document

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deleterious effects of comorbid BPD on treatment retention and outcome. In a study of group CBT outcome, Cloitre and Koenen (2001) found that groups with at least one member with comorbid BPD showed (a) no change in PTSD and depression and (b) higher rates of anger and anger problems than groups without members with BPD. These results suggest that a diagnosis of BPD mitigates the effects of CBT for PTSD for both participants with BPD and without BPD when administered in a group setting. Another study compared individual CBT to individual present-centered therapy for female survivors of childhood sexual abuse and found that all women with a comorbid BPD diagnosis ($n=4$) dropped out of CBT, whereas no one with BPD dropped out of the present-centered treatment (McDonagh et al., 2005). McDonagh and colleagues conclude that CBT may not be well tolerated among individuals with "more complex clinical presentations" such as BPD.

A study examining the impact of borderline personality characteristics (BPC) on treatment outcome for chronic PTSD, however, found that women with BPC were able to benefit significantly from CBT (Feeny, Zoellner, & Foa, 2002). The study examined the effects of BPC on outcome in 72 female victims of sexual and physical assault participating in one of three treatment conditions (prolonged exposure, stress inoculation training, and a combination treatment condition). There were no significant differences in the dropout rate between BPC and non-BPC groups. Additionally, no significant posttreatment differences were found for PTSD diagnosis and severity, depression, state anxiety, trait anxiety, or social functioning. There was, however, a significant difference on end-state functioning scores, with only 11% of participants with BPC meeting criteria for good end-state functioning compared to 51% of participants without BPC. Thus, women with BPC demonstrated significant gains from CBT for PTSD despite greater overall impairment at the end of treatment than their non-BPC counterparts.

The aims of the current investigation were to further examine and clarify the effect of borderline personality characteristics on treatment outcome for PTSD. To do this, we sought to replicate and expand upon the findings of Feeny and colleagues (2002) by widening the scope of relevant outcome variables to include trauma-related symptoms and by using a larger sample of women in two different CBT treatments. The sample in the present study included 131 treatment-seeking female rape victims with PTSD drawn from a larger treatment outcome study (Resick, Nishith, Weaver, Astin, & Feuer, 2002). In addition to PTSD symptomatology, we

examined changes in depression and trauma-related sequelae often associated with borderline features (e.g., dissociation, anger). Finally, we used hierarchical linear modeling as a means of determining whether severity of BPC was related to pretreatment scores on various measures as well as whether severity of BPC affected rates of change as a result of treatment and through follow-up.

We hypothesized that participants with higher BPC scores would report higher levels of PTSD symptomatology, consistent with the extant literature. Second, in accordance with the findings of Feeny et al. (2002), we hypothesized that participants with higher BPC scores would demonstrate improvement in therapy but that they would not fare as well in terms of overall outcome as individuals with lower BPC scores. Because little is known about whether one type of PTSD treatment is more effective for individuals with a high degree of borderline symptomatology, exploratory analyses were conducted to determine if type of treatment influenced the relationship between BPC and outcome. Findings from this study have several implications for the inclusion of women with BPC in PTSD treatment outcome studies and will help refine our understanding of the specific effects of BPC on response to CBT for PTSD. With such high rates of comorbidity between PTSD and borderline personality features, it is essential to empirically explore the widespread, albeit largely unsupported, belief that those with a high degree of BPC cannot benefit from treatments for PTSD.

Method

PARTICIPANTS

Participants were part of a larger study designed to compare the efficacy of cognitive processing therapy (CPT), prolonged exposure (PE), and a waitlist control for the treatment of PTSD in female rape survivors (Resick et al., 2002). All participants included in this larger study experienced at least one completed rape 3 or more months prior to study participation and met full diagnostic criteria for PTSD according to the *DSM-IV* (American Psychiatric Association, 1994). Exclusion criteria included current involvement in an abusive relationship, being stalked, current psychosis, serious suicidal intent, parasuicidal behavior, illiteracy, and current drug or alcohol dependence.

All participants in the larger study who completed the Schedule for Adaptive and Nonadaptive Personality (SNAP; Clark, 1993) were included in the current study. Of the 171 participants in the intent-to-treat (ITT) sample described in Resick et

al. (2002), 40 were not given the SNAP, which served as the sole assessment of BPC, because the measure was added after the study had begun. Thus, the sample for the current study was 131. The average participant's age was 32.0 years ($SD=9.9$), with a mean of 14.4 years of education ($SD=2.4$). The majority of the women had never been married or were divorced or separated (73.3%). The sample was 68.7% White, 27.5% Black, and 5% from other racial backgrounds. Average length of time since the rape was 8 years ($SD=8.5$ years), with a median of 5.1 years, and a range of 3 months to 33 years.

MEASURES

Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1993). The SNAP is a 375-item inventory that includes diagnostic scales to assess personality disorder characteristics, including a scale that assesses features of BPD and that has demonstrated acceptable psychometric properties (Clark, 1996). The borderline personality dimensional scale is a continuous measure of borderline personality characteristics and is comprised of 28 yes/no items that are summed to create a score ranging from 0 to 28. In validation studies, the average score on the BPC dimensional scale for inpatients was 15.8 ($SD=6.1$) and for outpatients was 9.0 ($SD=5.0$); a score of 15 or greater has been shown to be indicative of significant borderline psychopathology (Clark, 1996). The SNAP was administered during the baseline assessment, prior to treatment randomization.

Clinician-Administered PTSD Scale (CAPS; Blake et al., 1990). The CAPS is a widely used semistructured interview with excellent psychometric properties (Weathers et al., 1992) that assesses PTSD according to the diagnostic criteria described in the *DSM-IV*. Each question is followed by a number of questions used to clarify the frequency and intensity of each symptom. For the purposes of this study, the total severity score was used as an indicator of overall PTSD symptomatology.

Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The BDI is a widely used 21-item self-report questionnaire that evaluates current symptoms of depression. The reliability and validity of this scale is high (Beck et al., 1961). Correlations with clinician ratings of depression ranged from .62 to .66 in a sample of female physical and sexual assault victims (Foa, Riggs, Dancu, & Rothbaum, 1993).

Trauma Symptom Inventory (TSI; Briere, 1995). The TSI is a 100-item measure of psychological sequelae of traumatic events. Ten clinical scales

assess anxious arousal, depression, anger/irritability, intrusive experiences, defensive avoidance, dissociation, sexual concerns, dysfunctional sexual behavior, impaired self-reference, and tension-reduction behavior. The TSI has been found to accurately predict PTSD status in 91% of cases in a general population study (Briere, 1995). In addition to PTSD, the TSI has been used to examine more complex sequelae of traumatic experience (e.g., dissociation; Resick, Nishith, & Griffin, 2003). Normative data have been reported (Briere, Elliott, Harris, & Cotman, 1995) and internal consistency estimates for the clinical scales range from 0.84 to 0.87 (Briere, 1995).

PROCEDURE

The design of the original study included initial randomization to one of three groups: CPT, PE, and waitlist. Those individuals in the waitlist condition were subsequently randomized to CPT or PE at the end of their wait period and were assessed prior to starting the active treatment and again after treatment. This delayed-onset group was not different in terms of treatment outcome than the groups that received immediate treatment (Resick et al., 2002). Because the purpose of this study was to examine the effects of borderline personality characteristics on treatment response, we chose to include individuals who received active treatment at any time, thereby including individuals who were first in the waitlist group. The assessments for this study included the pretreatment assessment (i.e., the assessment just prior to receiving active treatment), the posttreatment assessment (i.e., the assessment following the active treatment component), 3-month follow-up, and 9-month follow-up. The CAPS and BDI were administered at all time points, whereas the TSI was administered at pretreatment, posttreatment, and the 9-month follow-up only.

DATA ANALYSES

A *t*-test was computed to determine if BPC scores differed between individuals who prematurely dropped out of treatment and individuals who completed. Due to the longitudinal nature of our design, which produced a multilevel data structure (repeated measures nested within individuals), hypotheses about how BPC scores affected key outcome variables were tested using a random coefficients regression framework (see Raudenbush, 2001) with the Hierarchical Linear Modeling statistical package (HLM6; Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004). These analyses offer statistical advantage over a repeated-measures ANOVA because they use Full Estimation Maximum Likelihood (FEML) to account for missing data and

because they provide estimates for both slope (rate of change) and intercept (initial score). A series of 12 analyses were computed for the entire group to determine whether BPC scores affected the slope and intercept of the regression models for the 12 outcome variables (CAPS, BDI, and TSI subscales). To determine if there was a significant interaction with type of treatment, a variable was computed for the interaction between treatment condition (dummy coded as -1 for CPT and 1 for PE) and BPC.

For these analyses, time of the assessment was considered a Level 1 variable. The time measurement used in the modeling was the exact number of days from the first appointment at which assessments occurred (i.e., pretreatment appointment was Day 0 and all subsequent appointments were calculated as number of days from this initial date). Because the four time points occurred at pretreatment, posttreatment, 3 months, and 9 months posttreatment, it was assumed that the greatest rate of change would occur between pretreatment and posttreatment; thus, the slopes were specified to be curvilinear in shape. A natural logarithmic transformation of time was performed prior to the individual regression analyses (Moster & Tukey, 1977; Singer & Willett, 2003). This was verified by comparing a curvilinear model to a linear model and demonstrating that the curvilinear model was indeed superior in terms of reliability estimates for the slope coefficients, effect size estimations, and deviance statistics (Raudenbush & Bryk, 2002; Singer & Willett, 2003). The two Level 2 variables were BPC score and the BPC \times Treatment interaction term. Because of the number of tests calculated, a conservative alpha level of $p < .01$ was considered statistically significant.

Results

On the borderline personality dimensional scale of the SNAP, the participants had a mean BPC score of 11.83 ($SD = 4.98$), with scores ranging from 1 to 23. Thirty-nine women (25.2%) had scores of 15 or greater, indicative of a clinical level of psychopathology according to the SNAP manual (Clark, 1996). The BPC score was significantly correlated with pretreatment scores on the CAPS ($r = .29$, $p = .001$) and BDI ($r = .33$, $p < .001$), indicating that higher BPC scores were associated with higher levels of PTSD and depressive symptomatology at pretreatment.

Of the 131 participants, 47 participants dropped out of treatment after the pretreatment assessment, leaving 84 individuals who finished treatment and participated in the posttreatment assessment. There were no significant differences between women

who dropped out of therapy and those who completed therapy with regard to their initial CAPS or BDI scores. Seventy-seven women provided data at the 3-month follow-up, and 62 participated in the 9-month follow-up.

BPC AND TREATMENT DROPOUT

There was no significant difference in BPC scores between the dropout group ($M = 12.26$, $SD = 4.68$) and the completer group ($M = 11.60$, $SD = 5.16$), $t(129) = .73$, $p = .47$.

BPC AND TREATMENT OUTCOME

The interaction between type of treatment and BPC score was not significant for any of the outcome variables for either slope (all $ts < .99$, $ps > .10$) or intercept (all $ts < 1.26$, $ps > .10$). Table 1 shows the results from the HLM analyses for time and BPC scores (for ease of interpretation, the results of the nonsignificant BPC \times Treatment term are not included in the table). For interpretation purposes, "time slope" statistics indicate whether there were significant changes over time for the entire sample, independent of BPC score. A significant time slope statistic indicates that there were significant improvements on that variable over time in treatment and follow-up. The "BPC intercept" statistics indicate whether the BPC score significantly influenced pretreatment scores (i.e., if higher BPC scores were associated with higher pretreatment scores on the relevant outcome measure). The "BPC slope" statistics are measures of whether BPC score significantly influenced rates of change over time (i.e., treatment response).

Higher BPC scores were associated with higher pretreatment PTSD severity as measured by the CAPS. However, the nonsignificant slope values for the measure indicate that BPC status did not significantly affect rates of change over time. To further illustrate this outcome, Fig. 1 displays the patterns of mean CAPS scores for high and low BPC groups. These groups were created by performing a median split on the BPC score. As indicated by the figure, the high BPC group scored higher on the CAPS at pretreatment than the low BPC group. A similar finding was demonstrated for BDI scores; a higher BPC score was associated with a higher initial BDI score but did not significantly affect the slope.

BPC and complex sequelae of trauma. The 10 subscales of the TSI were similarly examined. All subscales, except Tension Reduction and Dysfunctional Sexual Behavior, demonstrated significant improvement over time as indicated by significant "time slope" values. For Tension Reduction and Dysfunctional Sexual Behavior, higher BPC was

Table 1
Results of hierarchical linear modeling (HLM) analyses for all outcome variables

Outcome variable	B	SE	t	p
CAPS				
Time slope	-8.47	1.01	-8.38	<0.001
BPC intercept	1.05	0.28	3.68	0.001
BPC slope	-0.05	0.08	-0.54	0.86
BDI				
Time slope	-2.31	0.45	-5.07	<0.001
BPC intercept	0.62	0.16	3.98	<0.001
BPC slope	-0.00	0.04	-0.09	0.93
TSI dissociation				
Time slope	-1.31	0.29	4.56	<0.001
BPC intercept	0.32	0.10	3.11	0.003
BPC slope	0.00	0.02	0.08	0.94
TSI defensive avoidance				
Time slope	-2.16	0.27	-7.90	<0.001
BPC intercept	0.14	0.09	1.48	0.14
BPC slope	0.00	0.02	0.19	0.85
TSI tension reduction				
Time slope	-0.10	0.15	-0.66	0.51
BPC intercept	0.46	0.08	5.96	<0.001
BPC slope	-0.05	0.01	-3.85	0.008
TSI sexual concerns				
Time slope	-0.92	0.30	-3.09	<0.001
BPC intercept	0.37	0.14	2.66	0.009
BPC slope	-0.04	0.03	-1.43	0.16
TSI impaired self reference				
Time slope	-1.45	0.30	-4.88	<0.001
BPC intercept	0.44	0.11	4.00	<0.001
BPC slope	0.00	0.02	0.08	0.94
TSI intrusive experiences				
Time slope	-1.68	0.31	-5.39	<0.001
BPC intercept	0.21	0.11	2.01	0.05
BPC slope	-0.01	0.02	-0.53	0.60
TSI dysfunctional sexual behavior				
Time slope	0.08	0.27	0.28	0.78
BPC intercept	0.55	0.13	4.34	<0.001
BPC slope	-0.07	0.02	-2.92	0.005
TSI depression				
Time slope	-1.53	0.27	-5.68	<0.001
BPC intercept	0.45	0.09	5.03	<0.001
BPC slope	0.01	0.02	0.24	0.81
TSI anger/irritability				
Time slope	-1.06	0.28	-3.84	<0.001
BPC intercept	0.59	0.09	6.59	<0.001
BPC slope	-0.02	0.02	-0.65	0.52
TSI anxious/arousal				
Time slope	-1.59	0.26	-6.24	<0.001
BPC intercept	0.31	0.08	3.94	<0.001
BPC slope	0.01	0.02	0.59	0.56

Note. BPC=Borderline Personality Characteristics Score; CAPS=Clinician-Administered PTSD Scale; BDI=Beck Depression Inventory; TSI=Trauma Symptom Inventory.

associated with higher pretreatment scores but was also associated with faster rates of change. Several other subscales demonstrated significant differences at pretreatment but similar rates of change, including Dissociation, Sexual Concerns, Impaired Self-Reference, Depression, Anger/Irritability, and Anxious Arousal. The remaining two TSI subscales (Defensive Avoidance and Intrusive Experiences)

demonstrated no significant effects of BPC on either pretreatment score or rate of change.

Discussion

This study adds to the growing body of literature on borderline personality characteristics and PTSD. By utilizing a larger sample of women with PTSD as well as more comprehensive analytic techniques, this study improves upon previous research in this area and suggests that women with borderline personality characteristics can benefit from CBT treatment for PTSD. Specifically, although women with higher BPC scores were likely to begin treatment with more severe scores on a number of variables, they were just as likely to demonstrate significant gains over time. Moreover, in contrast to other studies (e.g., McDonagh et al., 2005), there was no evidence that BPC was related to treatment dropout. There was no indication that higher BPC was associated with worse performance on any of the outcome variables with regard to rate of change over time. Finally, results indicate that type of CBT treatment (i.e., CPT vs. PE) did not relate to differential outcomes based on BPC score.

Notably, on the self-report measures indicative of associated PTSD symptomatology, namely the TSI subscales of Intrusive Experiences and Defensive Avoidance, BPC score did not affect levels of pretreatment severity or rates of change. This is in contrast to the interview-based CAPS, which indicated that high BPC individuals had greater severity at pretreatment. This discrepancy between the interview and self-report measures merits further exploration and could possibly indicate that, contrary to expectations, individuals with borderline pathology are not more likely to self-report greater levels of distress with regard to PTSD

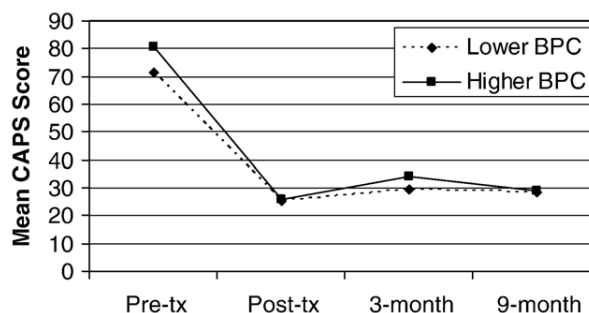


FIGURE 1 Effects of BPC score on changes in CAPS score over treatment and follow-up. (Note. BPC=Borderline Personality Characteristics. CAPS=Clinician Administered PTSD Scale. Lower BPC represents mean CAPS scores for individuals below the median BPC score. Higher BPC represents mean CAPS scores for individuals above the median BPC score.)

symptomatology. Alternatively, this discrepancy may be due to raters' bias against individuals with BPC symptomatology, such that interviewers are more likely to rate a participant as more severe in all domains if they also have borderline symptoms.

Interestingly, a number of the analyses demonstrated similar rates of improvement in BPD-related symptomatology as measured by the TSI, suggesting that CBT treatments for PTSD may positively affect comorbid symptomatology. The present investigation found greater rates of improvement for those higher in BPC scores on Tension Reduction and Dysfunctional Sexual Behavior scales than those lower in BPC scores and similar rates of improvement on Depression (as measured by the BDI and the TSI), Dissociation, Sexual Concerns, Impaired Self-Reference, and Anxious Arousal scales. The suggestion that treatment for Axis I pathology may reduce Axis II pathology has been noted previously (e.g., Hofmann et al., 1998). Further investigations examining the impact of CBT on Axis II pathology may offer additional techniques for improving existing treatments for comorbid conditions.

It is important to note that, as with Feeny and colleagues' study (2002), individuals with current self-harm behavior and serious suicidal ideation were excluded from the present study. Furthermore, a self-report questionnaire was used as the method of assessing BPC. These two limitations suggest that these results may not generalize to a more severe sample of individuals with borderline pathology or to a group formally diagnosed with borderline personality disorder.

Future research in this area should explore the specific manner in which BPC and PTSD symptomatology interact and respond to treatment. For instance, are there specific features of borderline pathology that are particularly well-suited for CBT treatments for PTSD and are there particular features that are not, or that are detrimental to treatment outcome? Additionally, a more careful examination of the temporal treatment course within this population would provide a better understanding of how change occurs. Do PTSD symptomatology and borderline pathology change simultaneously or is it necessary to improve in one domain before other domains can be positively affected? This would have implications for determining target order in individuals with complex clinical presentations.

In sum, results from this study lend support to the notion that future treatment development and outcome research for PTSD should not arbitrarily exclude individuals with borderline personality pathology and also should, on the other hand,

more clearly focus on the effects of borderline personality characteristics on PTSD treatment outcome. Given the high rates of comorbidity and the growing body of evidence that contradicts the prevalent assumption that individuals with borderline personality features will not benefit from evidence-based treatments for PTSD, these findings have significant implications for improving this group's access to effective treatments.

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