

August 2002

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Recommended Citation

Yen, S., Shea, M. T., Battle, C. L., Johnson, D. M., Zlotnick, C., Dolan-Sewell, R., Skodol, A. E., Grilo, C. M., Gunderson, J. G., Sanislow, C. A., Zanarini, M. C., Bender, D. S., Bame-Rettew, J., & McGlashan, T. H. (2002). Traumatic exposure and posttraumatic stress disorder in borderline, schizotypal, avoidant, and obsessive-compulsive personality disorders: Findings from the Collaborative Longitudinal Personality Disorders Study. *Journal of Nervous and Mental Disease*, 190(8), 510-518.

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Traumatic Exposure and Posttraumatic Stress Disorder in Borderline, Schizotypal, Avoidant, and Obsessive-Compulsive Personality Disorders: Findings from the Collaborative Longitudinal Personality Disorders Study

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The association between trauma and personality disorders (PDs), while receiving much attention and debate, has not been comprehensively examined for multiple types of trauma and PDs. The authors examined data from a multisite study of four PD groups: schizotypal, borderline (BPD), avoidant, and obsessive-compulsive, and a major depression comparison group. Rates of traumatic exposure to specific types of trauma, age of first trauma onset, and rates of posttraumatic stress disorder are compared. Results indicate that BPD participants reported the highest rate of traumatic exposure (particularly to sexual traumas, including childhood sexual abuse), the highest rate of posttraumatic stress disorder, and youngest age of first traumatic event. Those with the more severe PDs (schizotypal, BPD) reported more types of traumatic exposure and higher rates of being physically attacked (childhood and adult) when compared to other groups. These results suggest a specific relationship between BPD and sexual trauma (childhood and adult) that does not exist among other PDs. In addition, they support an association between severity of PD and severity of traumatic exposure, as indicated by earlier trauma onset, trauma of an assaultive and personal nature, and more types of traumatic events.

—*J Nerv Ment Dis* 190:510–518, 2002

Though numerous studies have examined the associations between traumatic exposure, posttraumatic stress disorder (PTSD), and axis I disorders

(Acierno et al., 1999; Kessler et al., 1995; Perkonig et al. 2000), there has been relatively less empirical focus on the complex interactions between trauma, PTSD, and personality disorders (PDs). Among the PDs, the interface between PTSD and BPD has received the most attention (Gunderson and Sabo, 1993), with documented high rates of co-occurrence between the two disorders (McGlashan et al. 2000; Swartz et al., 1990; Zanarini et al., 1998). Furthermore, numerous studies have found higher rates of childhood sexual abuse (CSA), ranging from 26% to 71%, among individuals with BPD compared to other psychiatric populations (Herman et al., 1989; Laporte and Guttman, 2001; Links et al., 1988; Ogata et al., 1990; Paris et al., 1994; Westen et al., 1990), including those with other PDs (Laporte and Guttman, 1996; Zanarini et al., 1997; Zanarini et al., 1989). However, these associations are far from conclusive and may, in part, reflect biases that result from sampling methodology; *e.g.*, many studies were limited to inpatient samples, and several compared patients who met criteria for BPD to those who did not meet full criteria but exhibited features. These methodological limitations make it difficult to determine whether the association between borderline person-

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This work was funded by National Institutes of Mental Health (NIMH). Award sites are Brown University Department of Psychiatry and Human Behavior (MH50837), Columbia University and New York State Psychiatric Institute (MH50839), Harvard Medical School and McLean Hospital (MH50840), Texas A & M University (MH50838), Vanderbilt University (MH50838), and Yale University School of Medicine (MH50850). Principal investigators are John G. Gunderson, Thomas H. McGlashan, Leslie C. Morey (formerly at Vanderbilt University; now at Texas A&M University), M. Tracie Shea, and Andrew E. Skodol. This work was further supported by NIMH K05 1654 (Dr. McGlashan). This manuscript has been reviewed and approved by the Publications Committee of the Collaborative Longitudinal Personality Disorders Study.

This article was written while Dr. Dolan-Sewell was a faculty member at Brown University. The views expressed in this article are those of the authors and do not necessarily represent the views of the NIMH, NIH, DHHS, or the federal government.

ality disorder (BPD) and CSA is indeed specific, or whether the findings reflect a relationship between CSA and diagnostic severity.

In contrast to the previously cited studies, which largely used patient samples, Salzman et al. (1993) found a lower rate of CSA (16.1%) among nonclinical subjects with BPD or BPD traits. In another study that questions the association between BPD and CSA, Bernstein et al. (1998) examined various types of traumatic childhood experiences among adult patients with substance use disorders. Contrary to what was predicted, the results indicated that CSA was not related to any specific PD. However, physical abuse and neglect predicted antisocial traits, emotional neglect predicted schizoid PD, and emotional abuse was found to be a broad risk factor for all PDs. Furthermore, a recent metaanalysis of 21 studies examining BPD and CSA found only a moderate pooled r for this association (Fossati et al., 1999).

In a longitudinal study of a community sample of youths and mothers, Johnson et al. (1999) found that PDs were more than four times as likely to be diagnosed during early adulthood in individuals with documented childhood abuse or neglect. Specifically, documented CSA was associated with BPD symptoms, documented physical abuse was associated with antisocial and depressive PD symptoms, and neglect was associated with antisocial, avoidant (AVPD), borderline, narcissistic, and passive-aggressive PDs. While a strength of this study is the use of records corroborating abuse and neglect, it should be noted that associations are with symptoms rather than with disorders. Nonetheless, these results suggest that there may be differential associations between types of adverse childhood experiences and PDs.

The interface between trauma and PDs has also been extensively examined in combat veterans with PTSD. Southwick et al. (1993) found high rates of borderline, obsessive-compulsive (OCPD), avoidant, and paranoid PDs among PTSD combat veterans. More recently, a study of inpatient veterans revealed that 79% of participants had at least one PD, with avoidant, paranoid, obsessive-compulsive, and antisocial being the most prevalent (Bollinger et al. 2000). These studies suggest a strong association between combat-related trauma and/or PTSD and personality dysfunction, but with limited specificity regarding type of personality pathology. Since most of these studies did not use a comparison group, it is difficult to ascertain the exact association between PD and combat PTSD beyond that which can be attributed to a general psychiatric disturbance.

Much can be gained from more comprehensive sampling procedures. One study examined PD fea-

tures among outpatient combat veterans, inpatients with a history of sexual abuse, and outpatients with a history of sexual abuse, and compared them to PD profiles of five non-PTSD psychiatric samples identified through literature review (Shea, et al., 1999). Results suggest that some specificity of PD features is shared by various trauma samples. Specifically, the four PDs most frequently represented across all groups were paranoid, borderline, schizotypal (STPD), and self-defeating PDs.

The combined findings from the reviewed studies suggest a lack of specificity between combat PTSD and specific PDs, and between different types of childhood traumas and specific PDs. These studies also point to a questionable association between CSA and BPD, in which conflicting results may reflect differences in sampling methodologies. No study, to the best of our knowledge, has assessed various types and aspects of traumatic exposure among a large sample of individuals selected for multiple PDs, including but not limited to BPD. We expect that a comprehensive examination of traumatic exposure using informative comparison groups would reveal a specific relationship between BPD and sexual traumas beyond what can be attributed to severe PD disturbance. In addition, we hypothesize a significantly higher rate of co-occurrence between BPD and PTSD when compared to other PDs. Furthermore, we expect to find an association between severe PDs (STPD and BPD) and severe traumatic conditions (earlier onset, more types of traumatic events, assaultive and personal traumas).

Methods

This investigation is part of the Collaborative Longitudinal Personality Disorders Study (CLPS), a prospective, naturalistic, multisite study conducted at four sites across the northeastern United States. The overall development, aims, design, and sample characteristics of CLPS are described elsewhere (Gunderson et al. 2000). The following is an overview of the study participants and assessment procedures relevant to the present investigation.

Participants

Participants between the ages of 18 and 45 years were recruited from treatment clinics affiliated with the four CLPS sites. Additional treatment-seeking individuals were recruited from fliers and advertisements. Individuals with acute substance intoxication or withdrawal, active psychosis, IQ less than or equal to 85, cognitive impairment, or a history of either schizophrenia, schizophreniform, or schizoaffective disorders were excluded from participation.

Individuals were eligible to participate if they met screening and diagnostic criteria as assessed by the Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV; Zanarini et al., 1996) for at least one of the four PDs targeted in the CLPS (STPD, BPD, AVPD, OCPD) or if they met criteria for the comparison group, major depressive disorder (MDD) as assessed by the Structured Clinical Interview for DSM-IV axis I Disorders (SCID-I/P; First et al., 1996) without PD. To maximize accuracy of PD diagnoses, interviewers' diagnoses had to receive convergent support from one other method of axis II assessment, either the self-report Schedule for Adaptive and Nonadaptive Personality (SNAP; Clark, 1993) or the clinician-rated Personality Assessment Form (PAF; Shea et al., 1987).

Participants who met criteria for more than one of the four targeted PDs (65.1% of PD sample) were assigned to one diagnostic group to allow for group comparisons. Group assignment was based on an algorithm that took into account the level of severity associated with these disorders, with assignment either to BPD or to STPD; the more severe disorders took precedence over AVPD or OCPD. Assignment between diagnoses of comparable severity (STPD vs. BPD; AVPD vs. OCPD) was determined by stronger endorsement on the SNAP or PAF.

The total CLPS study group ultimately consisted of 668 participants. Fifteen participants had missing or incomplete trauma information, and were therefore not included in these analyses. Our final sample comprised 653 participants who were assigned to one of five diagnostic groups: STPD ($N = 86$), BPD ($N = 167$), AVPD ($N = 153$), OCPD ($N = 153$), or the comparison group, MDD with no PD ($N = 94$). All participants were provided with a full explanation of study procedures and signed a written informed consent form.

Measures

Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV; Zanarini et al., 1996). The DIPD-IV was the primary instrument used to assess axis II PDs. This semistructured interview consists of questions that assess each criterion of the 10 DSM-IV PDs. In the present study, interrater and test-retest reliability of the DIPD-IV (Kappa) for the four study PDs were .68 and .69 for BPD, .68 and .73 for AVPD, and .71 and .74 for OCPD, respectively. The interrater reliability sample was insufficient to calculate Kappa for STPD; the test-retest Kappa for STPD was .64 (Zanarini et al. 2000).

Structured Clinical Interview for DSM-IV Axis I Disorders/Patient Version (SCID-I/P; First et al., 1996). The SCID-I/P is a reliable semistructured interview used to diagnose major axis I disorders as defined by the *DSM-IV*, including posttraumatic stress disorder. In the CLPS, reliability of SCID-I/P diagnoses ranged from .57 to 1.00 depending on the disorder, with a median Kappa of .76. Test-retest reliability ranged from .35 to .78, with a median Kappa of .64. Interrater reliability Kappa for PTSD was .88 and test-retest Kappa was .78. For MDD, interrater reliability Kappa for MDD was .80 and test-retest Kappa was .61 (Zanarini et al., 2000).

SCID Trauma Addendum (adapted from Resnick et al., 1996). Information on exposure to traumatic events was obtained from the SCID Trauma Addendum using the DSM-IV definition for criterion A trauma (*i.e.*, exposure to actual or threatened death, serious injury, or physical integrity) for PTSD (American Psychiatric Association, 1994). This interview was administered in conjunction with the SCID-I, and contains prompts regarding respondents' history of 10 specific traumatic events (listed in Table 2), as well as "other extraordinarily stressful events" not listed. However, rape and unwanted sexual contact were not assessed as mutually exclusive events. For inclusion in the analyses of the present study, responses in the "other extraordinarily stressful events" category had to meet the conditions for DSM-IV criterion A trauma. Individual examination of these cases revealed that they could each be reclassified into one of the existing categories. For each positive event identified, additional information was assessed, such as age at first occurrence, age at most recent occurrence, and whether the participant believed they might be killed or seriously injured as a result of the event.

Data Analyses

The occurrence of specific traumatic events, average age of earliest traumatic event, average number of different types of traumatic events, and lifetime (current or history) PTSD status were examined for each of the four PD groups (STPD, BPD, AVPD, OCPD) and for the comparison group (MDD). In addition, variables were created in order to examine rates of childhood sexual abuse (defined as unwanted sexual contact occurring at age 17 years or younger) and childhood physical assault (defined as being physically attacked at age 17 years or younger). Analyses of variance were performed on continuous variables such as age of first trauma

TABLE 1
Demographic Information

	STPD (86) N (% cell)	BPD (167) N (% cell)	AVPD (153) N (% cell)	OCPD (153) N (% cell)	MDD (94) N (% cell)
Age, yrs (M/SD)	34.7 (7.8)	32 (7.9)	32.7 (8.1)	32.7 (8.4)	32.9 (7.9)
Sex ^a (n%)					
Female	39 (45.3)	123 (73.7)	100 (65.4)	91 (59.5)	56 (59.6)
Male	47 (54.7)	44 (26.3)	53 (34.6)	62 (40.5)	38 (40.4)
Ethnicity (n%)					
White	62 (72.1)	119 (71.3)	127 (83.0)	121 (79.1)	71 (75.5)
Minority	24 (27.9)	48 (28.7)	26 (17.0)	32 (20.9)	23 (24.5)
Marital status (n%)					
Married/Living Together	13 (15.1)	42 (25.1)	41 (26.8)	46 (30.1)	21 (22.3)
Not married	73 (84.9)	125 (74.9)	112 (73.2)	107 (69.9)	73 (77.7)
Education ^b (n%)					
HS degree or less	34 (39.5)	62 (37.1)	45 (29.4)	15 (9.8)	14 (14.9)
Post-HS +					
Employment ^c (n%)	52 (60.5)	105 (62.9)	108 (70.6)	138 (90.2)	80 (85.1)
Employment ^c (n%)					
Employed	23 (26.7)	51 (30.5)	63 (41.2)	71 (46.4)	51 (54.3)
Not employed	63 (73.3)	116 (69.5)	90 (58.8)	82 (53.6)	43 (45.7)

^a $\chi^2(4) = 21.2$.*

^b $\chi^2(4) = 46.7$ *; STPD/BPD vs. AVPD/OCPD: $\chi^2(1) = 23.1$.*

^c $\chi^2(4) = 23.2$ *; STPD/BPD vs. AVPD/OCPD: $\chi^2(1) = 12.5$.*

* $p < .001$.

onset, and mean number of types of traumatic exposure. Chi-square analyses, using a stepwise strategy, were conducted to determine significant group differences on categorical variables such as traumatic exposure and lifetime PTSD. When the overall chi-square analysis was significant, specific hypothesized relationships (*e.g.* BPD vs. other groups for sexual traumas, PTSD; STPD/BPD vs. AVPD/OCPD/MDD for all other variables) were tested. If significant, post hoc pairwise comparisons between individual groups were conducted.

When applicable and necessary, additional analyses were conducted by removing data from those participants ($N = 25$) with comorbid BPD who were assigned to the STPD group based on stronger endorsement of STPD features. This served to clarify the interpretation of results pertaining to the STPD group. Comorbidity of STPD in the BPD group was not a concern since only nine participants were affected.

Results

Table 1 shows demographic information on the participants by diagnostic group. The overall mean age of this sample was 32.8 years. Seventy-six percent were white, 63% were women, 75% were not married or living with a partner at baseline, 74% were educated beyond high school, and 40% reported some employment at intake. Chi-square analyses indicated differences on sex, education, and employment.

Table 2 displays data on trauma history by diagnostic group.⁵ In our sample of 653 participants, 532 (81.5%) reported a DSM-IV criterion A traumatic event and 378 (58%) reported a trauma in more than one category. While high rates of trauma were evident across all PD groups, 91.6% of those in the BPD group endorsed a specific trauma. The overall chi-square analyses revealed a significant difference between groups for trauma history ($\chi^2(4) = 19.1$, $p < .001$), with a significantly higher proportion of BPD participants reporting a history of trauma, compared to participants in the MDD, AVPD, and OCPD groups ($\chi^2[1] = 8.8$, $p = .003$; $\chi^2[1] = 14.9$, $p < .001$; $\chi^2[4] = 14.9$, $p < .001$ respectively), but not the STPD group, even after removing those with comorbid BPD from the analyses.

As seen in Table 2, the most common types of traumas reported across all groups were serious accident and physically forced unwanted sexual contact (38% each). In examining specific trauma types, some experiences, particularly sexual traumas, were endorsed disproportionately across PD groups. Since 10 trauma types (including rape) were examined, multiple comparisons were addressed by using a Bonferroni-corrected significance level of .005 for the overall chi-square analyses, for each type of trauma. As hypothesized, a significantly higher rate of BPD participants

⁵ Results presented are based on PD cell assignments described in methods section. We also examined these variables using strictly DIPD ratings. Findings were consistent with what is presented.

TABLE 2
Types of Trauma: Number of Participants and Percentage of PD Cell

	STPD (N = 86)	BPD (N = 167)	AVPD (N = 153)	OCPD (N = 153)	MDD (N = 94)	χ^2 (4)
Military combat (N = 17)	1 (1.2)	5 (3.0)	4 (2.6)	2 (1.3)	5 (5.3)	4.55
Serious accident (N = 248)	34 (39.5)	68 (41.2)	48 (31.4)	57 (37.5)	41 (38.2)	4.92
Unwanted sexual contact ^a (N = 247)	34 (39.5)	92 (55.1)	52 (34.2)	43 (28.1)	26 (27.7)	32.38**
Rape ^b (N = 144)	19 (22.1)	61 (36.5)	34 (22.2)	18 (11.8)	12 (12.8)	34.49**
Attacked by knife/gun (N = 182)	30 (34.9)	63 (37.7)	34 (22.2)	32 (20.9)	23 (24.5)	16.82
Attacked—no weapon ^c (N = 217)	45 (52.3)	74 (44.3)	40 (26.1)	40 (26.1)	18 (19.1)	38.70**
Serious injury (N = 141)	22 (25.6)	43 (25.7)	29 (19.0)	29 (19.0)	18 (19.1)	4.10
Feared killed/serious injury (N = 143)	19 (22.4)	45 (26.9)	24 (15.7)	26 (17.0)	30 (31.9)	13.52
Witness injury/killing (N = 214)	41 (47.7)	59 (35.3)	45 (29.4)	41 (26.8)	28 (29.8)	12.81
Witness sexual abuse ^d (N = 38)	5 (5.8)	22 (13.3)	4 (2.6)	4 (2.6)	3 (3.2)	23.62**
Trauma history ^e (N/% group)	73 (84.9)	153 (91.6)	116 (75.8)	116 (75.8)	74 (78.7)	19.1**

^a BPD vs. all others: χ^2 (1) = 28.3***, BPD > STPD, AVPD, OCPD, MDD (each).*
^b BPD vs. all others: χ^2 (1) = 3.9*, BPD > STPD, AVPD, OCPD, MDD (each).*
^c STPD/BPD vs. AVPD/OCPD: χ^2 (1) = 35.47***, STPD, BPD > AVPD, OCPD, MDD (each).*
^d BPD vs. all others: χ^2 (1) = 22.4***, BPD > MDD, AVPD, OCPD (each).*
^e STPD/BPD vs. AVPD/OCPD: χ^2 (1) = 16.9***, BPD > MDD, AVPD, OCPD (each).**
 * p < .05; ** p < .01; *** p < .001.

TABLE 3
Trauma Characteristics and PTSD among Participants who Reported a Traumatic Event

	STPD (N = 73)	BPD (N = 153)	AVPD (N = 116)	OCPD (N = 116)	MDD (N = 74)	Total (N = 532)
Lifetime PTSD (N/%) ^a	29 (39.7%)	78 (51.0%)	43 (37.1%)	25 (21.6%)	15 (20.3%)	190 (35.7%)
No. trauma categories (M/SD) ^b	3.2 (1.7)	3.1 (1.7)	2.4 (1.4)	2.4 (1.4)	2.6 (1.7)	2.7 (1.6)
Age (yrs) first trauma (M/SD) ^c	12.4 (8.8)	11.3 (7.3)	13.5 (8.6)	15.2 (8.9)	14.5 (8.2)	13.2 (8.4)
Physical force/sex: age first event	11.6 (6.9)	12.6 (7.5)	13.2 (7.2)	15.0 (7.4)	15.8 (8.4)	13.4 (7.5)
Rape: age first event	14.1 (6.8)	14.2 (8.1)	14.4 (6.5)	15.7 (7.1)	18.1 (8.2)	14.7 (7.5)

^a χ^2 (4) = 34.0***, BPD > all other PDs***, STPD/BPD > AVPD/OCPD.***
^b F = 6.3***, BPD/STPD > AVPD/OCPD.***
^c F = 4.18**, BPD < all other PDs.**
 * p < .05; ** p < .01; *** p < .001.

endorsed having experienced sexual traumas, including physical force/unwanted sexual contact (55.1%) and rape (36.5%), compared to each of the other PD groups and the MDD comparison group.⁵ A significantly larger proportion of BPD participants reported witnessing sexual abuse (13.3%) when compared to the AVPD, OCPD, and MDD groups (but not STPD). With regard to nonsexual traumas, physical attack (with and without weapon) was endorsed by a higher percentage of participants with more severe PDs (STPD, BPD) than those with less severe PDs (AVPD and OCPD) and MDD.

Table 3 displays trauma characteristics and PTSD diagnostic status among those who reported traumatic exposure.⁵ Of the 532 participants with trauma histories, 191 (36%) had lifetime PTSD. Among those with a history of traumatic exposure, BPD participants reported the highest proportion of lifetime PTSD (51%) compared to all other groups combined (χ^2 [1] = 25.6, p < .001). When comparing severe PDs to other PDs, those with severe conditions reported significantly higher rates of lifetime PTSD, even after the removal of comorbid BPD from

the STPD group (χ^2 [1] = 16.3, p < .001). Furthermore, STPD and BPD participants endorsed more categories of traumatic exposure when compared to participants in each of the other groups (F = 6.2, p < .001).

An examination of trauma type and lifetime PTSD also revealed the differential associations of specific types of traumatic exposure with PTSD. Because many participants experienced multiple types of traumatic exposure, it is difficult to draw definitive conclusions from these relationships. However, a conservative conclusion is that with most trauma types, the PTSD did not develop in the majority of participants reporting traumatic exposure. The exceptions are military combat, physical force/unwanted sexual contact, and rape. Only 17 participants reported military combat in our sample, 10 (59%) with lifetime PTSD and 8 (47%) with current PTSD at the time of assessment. Of 247 participants reporting physical force/unwanted sexual contact, lifetime PTSD was diagnosed in 141 (57.1%) and 100 (40.5%) had current PTSD at the time of assessment. Among those 143 participants who reported being

TABLE 4
Childhood Traumas and PTSD by Diagnostic Group

	STPD (<i>N</i> = 86)	BPD (<i>N</i> = 167)	AVPD (<i>N</i> = 153)	OCPD (<i>N</i> = 153)	MDD (<i>N</i> = 94)	χ^2 (4)
Childhood sexual abuse (<i>N</i> /% cell) ^a	25 (29.1)	63 (37.7)	34 (22.2)	32 (20.9)	17 (18.1)	19.1***
Lifetime PTSD (<i>N</i> /% CSA in cell)	14 (56.0)	44 (69.8)	20 (58.8)	16 (50.0)	5 (29.4)	10.2*
Never PTSD (<i>N</i> /% CSA in cell)	11 (44.0)	19 (30.2)	14 (41.2)	16 (50.0)	12 (70.6)	
Childhood physical assault (<i>N</i> /% cell) ^b	34 (40.0)	57 (34.1)	35 (23.1)	29 (19.2)	14 (15.1)	26.5***
Lifetime PTSD (<i>N</i> /% CPA in cell)	14 (41.2)	37 (64.9)	14 (40.0)	10 (34.5)	3 (21.4)	14.0**
Never PTSD (<i>N</i> /% CPA in cell)	20 (58.8)	20 (35.1)	21 (60.0)	19 (65.5)	11 (78.6)	

* $p < .05$; ** $p < .01$; *** $p < .001$.

^a BPD > all other PDs: $\chi^2(1) = 16.0$ ***; BPD > AVPD, OCPD, MDD (each)**;

^b STPD/BPD > AVPD/OCPD/MDD: $\chi^2(1) = 23.8$ ***

raped, lifetime PTSD was diagnosed in the majority (105 [72.9%]), with 75 (52.4%) endorsing current PTSD at intake. Furthermore, there was a significant relationship between number of trauma categories endorsed and PTSD ($F[1,531] = 82.08, p < .001$).

Age of first traumatic exposure (for all types of trauma) was examined across PD groups (Table 3). As predicted, BPD participants reported the mean age of earliest trauma (11.3 years; $F = 4.18, p = .002$). Those in the severe PD groups had a significantly earlier age of traumatic onset ($F = 13.6, p < .001$). In examining the mean ages of first onset of physical force/unwanted sexual contact and first onset of rape, there were no significant differences between PD groups.

However, when we examined childhood traumas categorically (Table 4), there were significant overall group differences for both CSA and childhood physical assault (CPA).⁵ With regard to CSA, participants in the BPD group reported the highest rate of abuse (37.7%), which was significantly higher than the rate reported by all other groups combined ($\chi^2[1] = 16.0, p < .001$). Specific pairwise differences were found between BPD and AVPD ($\chi^2[1] = 9.3, p = .002$), OCPD ($\chi^2[1] = 11.3, p = .001$), and MDD ($\chi^2[1] = 11.2, p = .001$). Among those who reported CSA, there was an overall significant group difference in lifetime PTSD rate ($\chi^2[4] = 10.21, p < .037$). When BPD was compared to all other groups combined, those in the BPD group had a significantly higher rate of PTSD ($\chi^2[1] = 5.84, p < .016$). A specific pairwise difference was found between BPD and MDD ($\chi^2[1] = 9.2, p = .002$).

Overall group differences also existed in rates of CPA ($\chi^2[4] = 26.51, p < .001$), with STPD participants endorsing the highest proportion (25.6%); this remained after removing those with co-occurrent BPD from analyses. Posthoc comparisons did reveal significant group differences between the more severe PDs (STPD and BPD) and all other groups ($\chi^2[1] = 23.8, p < .001$). Similar to findings with

regard to CSA, there was a significant association between PTSD and PD groups among those who reported CPA ($\chi^2[4] = 13.98, p = .007$), with those in the BPD group reporting the highest rates of BPD compared to all other groups ($\chi^2[1] = 12.2, p < .001$).

Given that women are more likely to be victims of CSA and that our BPD group was predominantly female, post hoc analyses regarding childhood traumas, PDs, and sex were conducted to elucidate our findings. When examining the overall sample, there were significant sex differences in rates of CSA ($\chi^2[1] = 25.0, p < .001$), with women reporting higher rates of CSA (33.3% vs. 15.3%). Furthermore, when examining only those in the BPD group, there was no significant difference in rates of CSA between BPD men and women, despite the statistically significant difference in CSA among the overall sample.

Discussion

The overall results from these descriptive analyses reveal a high rate of traumatic exposure and PTSD across all study groups, and particularly high rates of sexual traumas among individuals with BPD. While the rate of traumatic exposure in this sample (82% across all diagnostic groups) is high, it is comparable to rates of traumatic exposure documented by some community epidemiological surveys; *e.g.*, Breslau et al. (1998) reported 90% using DSM-IV definition of criterion A trauma. Kessler et al. (1995) did report a lower rate of traumatic exposure (60.7% in men and 51.2% in women). However, in that study, a more conservative DSM-III-R definition of criterion A trauma was used (Breslau and Kessler, 2001). One apparent difference between our findings and previous research is in types of traumatic exposure that are most frequently experienced. According to the National Comorbidity Survey (Kessler et al., 1995), the most frequently reported types of traumas were of an impersonal or nonassaultive nature (*i.e.*, witnessing trauma, life-

threatening accident, natural disaster). In contrast, two of the most frequently reported traumas in the present study were unwanted sexual contact using physical force, and being attacked with the intent to kill or injure, but without the use of a weapon. This relative disproportion of assaultive traumas in our PD sample as compared to epidemiological samples suggest that more severe traumas (such as sexual assault and personal attack) may be a significant factor in the development of PDs. Alternatively, there may be shared risk factors (*e.g.*, chaotic family environment, parental psychopathology) for both vulnerability to assaultive traumatic exposure and the development of a severe PD. Furthermore, despite the early age at which the first traumatic event was reported for our sample, the possibility that some PD traits may have preceded the traumatic event cannot be ruled out.

The elevated frequency of personal and assaultive traumas is due to significant rates of sexual and physical assault among individuals with either STPD or BPD. Specifically, 55% of BPD participants reported physically forced unwanted sexual contact, and 52%⁶ of STPD participants reported being attacked with the intent to kill or injure. Furthermore, individuals in these PD groups reported a higher rate of exposure to multiple types of trauma. Since traumatic experiences that involve assaultive violence are typically associated with a higher conditional probability of developing PTSD (Kessler et al., 1995), it is not surprising that 39.7% of STPD participants and 51% of BPD participants reported lifetime PTSD. In contrast, 29.3% of other PD participants and 20.3% of MDD participants reported lifetime or current PTSD. This finding is particularly salient given that a history of major depression has been demonstrated to substantially increase the odds of presenting with PTSD in participants who have reported rape and physical assault (Acierno et al., 1999). The rates found in our study suggest that PDs are more strongly associated with PTSD than even MDD.

Our findings do suggest a stronger association between BPD and all types of sexual trauma (adult and childhood; physically forced unwanted sexual contact, rape, witnessing sexual abuse) when compared to other PD groups. While other studies have stated similar conclusions, our study is the first to compare BPD with multiple PD samples. Our rate of CSA in the BPD group is largely commensurate with rates reported in earlier studies (range, 26%–71%) cited above, and substantially higher than the 16%

reported by the nonclinical BPD sample (Salzman et al., 1993). While many of our participants were recruited from various treatment clinics, many were recruited from advertisements aimed at treatment-seeking individuals who may or may not have been in treatment, thus resulting in more comprehensive sampling. In addition, the lack of a significant sex difference among BPD participants with CSA, in spite of a significant sex difference in CSA among the overall sample, suggests that our findings regarding a specific association between BPD and CSA are not attributable to sex.

Our categorical examination of childhood traumas revealed a significantly higher proportion of participants in the BPD condition reporting physically forced unwanted sexual contact prior to age 18 years. This finding seems to suggest that as predicted and discussed, there is a specific association between BPD and CSA. However, this also suggests that age of sexual abuse onset may not be a discriminating determinant of BPD (as opposed to PDs in general). Furthermore, given that a minority (38%) of BPD participants reported CSA, it is clear that etiological investigations of BPD need to consider other determinants as well as other parameters of childhood abuse (*e.g.*, perpetrator, chronicity, type of abuse, neglect).

Our results also reveal an interesting relationship between PTSD, CSA, and BPD. Specifically, among those who endorsed a history of CSA, those in the BPD group had significantly higher rates of PTSD when compared to all other diagnostic groups combined. One possibility is that the association between BPD and PTSD is artifactual due to an overlap in diagnostic criteria. However, if this were the case, one would expect to find a similar pattern with MDD and PTSD since both share a similar degree of overlap in features. In contrast, our findings revealed a significantly different association between BPD and PTSD compared to MDD and PTSD. Another explanation is that PTSD may be considered a proxy for trauma severity, such that an experience severe enough to lead to the development of PTSD would also increase risk for BPD features. However, this does not explain why this effect would be specific to BPD as opposed to other PDs and major depression. Alternative explanations that cannot be addressed by our data include the possibility that both conditions share some risk factors that were unmeasured in the present study, and the possibility that BPD traits are a risk factor for traumatic exposure and/or PTSD. Such questions warrant further exploration in future prospective studies.

Although our results are based on data collected as part of a longitudinal study, the present analyses

⁶ When those with co-occurrent BPD are excluded from analyses, 48% of STPD participants endorsed being physically attacked without a weapon.

are based on cross-sectional, retrospective data collected at baseline. While we have established specific associations, causality cannot be established. The reliance on cross-sectional data precludes our ability to discern whether personality adaptations occurred in response to the trauma and/or PTSD, or whether diffuse character pathology predisposed individuals to experience traumatic events and PTSD. A further limitation of our study is that traumatic events were assessed retrospectively. While it may be argued that psychiatric symptoms may be associated with biased memory or reporting of early traumatic life events, there is little evidence to suggest that PD patients are likely to overreport adverse events. Rather, discrepant accounts are more likely due to underreporting by nondisordered participants (Maughan and Rutter, 1997).

In conclusion, our results indicate high rates of traumatic exposure, especially assaultive traumatic events, in this PD sample. Consistent with other studies, particularly high rates of sexual traumas were reported among BPD participants. Furthermore, our results demonstrate a specific association between sexual trauma (childhood or adult) and BPD that does not exist between sexual trauma and other PDs. Our findings that those with severe PDs report more types of traumatic exposure and an earlier onset have etiological implications that need to be explored. Future prospective examinations are needed in order to provide empirically derived models that can explain the complex interactions between specific types of trauma, PTSD, and PDs.

References

- Acierno R, Resnick H, Kilpatrick DG, Saunders B, Best C (1999) Risk factors for rape, physical assault, and posttraumatic stress disorder in women: Examination of differential multivariate relationships. *J Anxiety Disord* 13:541–563.
- American Psychiatric Association (1994) *Diagnostic and statistical manual of mental disorders* (4th ed). Washington, DC: American Psychiatric Association.
- Bernstein DP, Stein JA, Handelsman L (1998) Predicting personality pathology among adult patients with substance use disorders: Effects of childhood maltreatment. *Addict Behav* 23: 855–868.
- Bollinger AR, Riggs DS, Blake DD, Ruzek JI (2000) Prevalence of personality disorders among combat veterans with post-traumatic stress disorder. *J Trauma Stress* 13:255–270.
- Breslau N, Kessler RC (2001) The stressor criterion in DSM-IV posttraumatic stress disorder: An empirical investigation. *Biol Psychiatry* 50:699–704.
- Breslau N, Kessler RC, Chilcoat HD, Schultz LR, Davis GC, Andreski P (1998) Trauma and posttraumatic stress disorder in the community. *Arch Gen Psychiatry* 55:626–632.
- Clark LA (1993) *Schedule for nonadaptive and adaptive personality (SNAP)*. Minneapolis, MN: University of Minnesota Press.
- First MB, Gibbon M, Spitzer RL, Williams JBW (1996) *Structured clinical interview for DSM-IV Axis I disorders—Patient version (SCID-I/P)*. New York: Biometrics Research Department, New York State Psychiatric Institute.
- Fossati A, Madeddu F, Maffei C (1999) Borderline personality disorder and childhood sexual abuse: A meta-analytic study. *J Personal Disord* 13:268–280.
- Gunderson JG, Sabo AN (1993) The phenomenological and conceptual interface between borderline personality disorder and PTSD. *Am J Psychiatry* 150:19–27.
- Gunderson JG, Shea MT, Skodol AE, McGlashan TH, Morey LC, Stout RL, Zanarini MC, Grilo CM, Oldham JM, Keller MB (2000) The Collaborative Longitudinal Personality Disorders Study: Development, aims, design, and sample characteristics. *J Personal Disord* 14:300–315.
- Herman JL, Perry JC, van der Kolk BA (1989) Childhood trauma in borderline personality disorder. *Am J Psychiatry* 146:490–495.
- Johnson JG, Cohen P, Brown J, Smailes EM, Bernstein DP (1999) Childhood maltreatment increases risk for personality disorders during early adulthood. *Arch Gen Psychiatry* 56:600–606.
- Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB (1995) Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry* 52:1048–1060.
- Laporte L, Guttman H (1996) Traumatic childhood experiences as risk factors for borderline and other personality disorders. *J Personal Disord* 10:247–259.
- Laporte L, Guttman H (2001) Abusive relationships in families of women with borderline personality disorder, anorexia nervosa and a control group. *J Nerv Ment Dis* 189:522–531.
- Links PS, Steiner M, Offord DR, Eppel A (1988) Characteristics of borderline personality disorder: A Canadian study. *Can J Psychiatry* 33:336–340.
- Maughan B, Rutter M (1997) Retrospective reporting of childhood adversity: Issues in assessing long-term recall. *J Personal Disord* 11:19–33.
- McGlashan TH, Grilo CM, Skodol AE, Gunderson JG, Shea MT, Morey LC, Zanarini MC, Stout RL (2000) The Collaborative Longitudinal Personality Disorders Study: Baseline axis I/II and II/II diagnostic co-occurrence. *Acta Psychiatr Scand* 102: 256–264.
- Ogata SN, Silk KR, Goodrich S, Lohr NE, Westen D, Hill EM (1990) Childhood sexual and physical abuse in adult patients with borderline personality disorder. *Am J Psychiatry* 147: 1008–1013.
- Paris J, Zweig-Frank H, Guzder J (1994) Psychological risk factors for borderline personality disorder in female patients. *Compr Psychiatry* 35:301–305.
- Perkonig A, Kessler RC, Storz S, Wittchen HU (2000) Traumatic events and post-traumatic stress disorder in the community: Prevalence, risk factors and comorbidity. *Acta Psychiatr Scand* 101:46–59.
- Resnick HS, Falsetti S, Kilpatrick DG, Freedy JR (1996) Assessment of rape and other civilian trauma-related post-traumatic stress disorder: Emphasis on assessment of potentially traumatic events. In TW Miller (Ed), *Stressful life events* (2nd ed, pp 231–266), Madison: International Universities Press, Inc.
- Salzman JP, Salzman C, Wolfson AN, Albanese M, Looper J, Ostacher M, Schwartz J, Chinman G, Land W, Miyakawaki E (1993) Association between borderline personality structure and history of childhood abuse in adult volunteers. *Compr Psychiatry* 34:254–257.
- Shea MT, Glass DR, Pilkonis PA, Watkins J, Docherty JP (1987) Frequency and implications of PDs in a sample of depressed inpatients. *J Personal Disord* 1:27–42.
- Shea MT, Zlotnick C, Weisberg R (1999) Commonality and specificity of personality disorder profiles in subjects with trauma histories. *J Personal Disord* 13:199–210.
- Southwick SM, Yehuda R, Giller EL (1993) Personality disorders in treatment-seeking combat veterans with posttraumatic stress disorder. *Am J Psychiatry* 150:1020–1023.

- Swartz M, Blazer D, George L, Winfield I (1990) Estimating the prevalence of borderline personality disorder in the community. *J Personal Disord* 4:257-272.
- Westen D, Ludolph P, Misle B, Ruggins S, Block J (1990) Physical and sexual abuse in adolescent girls with borderline personality disorder. *Am J Orthopsychiatry* 60:55-66.
- Zanarini MC, Frankenburg FR, Dubo ED, Sickel AE, Trikha A, Levin A, Reynolds V (1998) Axis I comorbidity of borderline personality disorder. *Am J Psychiatry* 155:1733-1739.
- Zanarini MC, Frankenburg FR, Sickel AE, Yong L (1996) *The diagnostic interview for DSM-IV personality disorders (DIPD-IV)*. Belmont, MA: McLean Hospital.
- Zanarini MC, Gunderson JG, Marino MF, Schwartz EO, Frankenburg FR (1989) Childhood experiences of borderline patients. *Compr Psychiatry* 30:18-25.
- Zanarini MC, Skodol AE, Bender D, Dolan R, Sanislow C, Schaefer E, Morey LC, Grilo CM, Shea MT, McGlashan TH, Gunderson JG (2000) The Collaborative Longitudinal Personality Disorders Study: Reliability of axis I and II diagnoses. *J Personal Disord* 14:291-299.
- Zanarini MC, Williams AA, Lewis RE, Reich RB, Vera SC, Marino MF, Levin A, Yong L, Frankenburg FR (1997) Reported pathological childhood experiences associated with the development of borderline personality disorder. *Am J Psychiatry* 154:1101-1106.