

Complex Posttraumatic Stress Disorder in Patients With Borderline Personality Disorder and Somatoform Disorders

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Disorders of Extreme Stress Not Otherwise Specified (DESNOS), also known as Complex posttraumatic stress disorder, was assessed in a sample ($N = 472$) of adult psychiatric patients with confirmed diagnoses of Borderline Personality Disorder (BPD), Somatoform Disorders (SoD), comorbid BPD + SoD, or Affective or Anxiety Disorders (Psychiatric Controls, PC). BPD + SoD patients had the most extensive childhood trauma histories and were most likely (38%) to meet DESNOS criteria, followed by BPD (26%), PC (17%), and SoD (10%). The BPD + SoD and BPD-only groups reported significantly higher levels of DESNOS symptoms than the SoD or PC groups, and did not differ from each other except for greater severity of DESNOS somatic symptoms by the BPD + SoD group. DESNOS warrants further investigation with psychiatrically impaired adults as a potential independent syndrome or as a marker identifying a subgroup of affectively or both affectively and somatically dysregulated patients diagnosed with BPD who have childhood trauma histories.

Keywords: PTSD, borderline personality disorder, somatoform disorders, DESNOS, childhood trauma

Sequelae of early life “neurodevelopmental injury” (Kaffman, 2009) have been described as epidemic and understudied. Adults who were exposed to chronic interpersonal trauma often demonstrate complex psychological disturbances that are not fully captured by the posttraumatic stress disorder (PTSD) diagnosis (Ford, Stockton, Kaltman, & Green, 2006; Van der Kolk, 2005; Van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). Increasing complexity of psychological trauma exposure has been shown to be strongly associated with corresponding increases in the extent, severity, and range of clinically significant symptoms in childhood and adolescence (Cloitre et al., 2009; Elliott, Alexander, Pierce, Aspelmeier, & Richmond, 2009; Finkelhor, Ormrod, & Turner, 2007; Ford, Connor, & Hawke, 2009; Ford, Elhai, Connor, & Frueh, 2010; Holt, Finkelhor, & Kantor, 2007; Richmond, Elliott, Pierce, Aspelmeier, & Alexander, 2009) and in adulthood (Briere, Kaltman, & Green, 2008; Chapman et al., 2004; Edwards, Holden, Felitti, & Anda, 2003). In adulthood, these complex traumatic stress reactions may constitute a syndrome of Complex PTSD (Herman, 1992) or Disorders of Extreme Stress Not Otherwise Specified (DESNOS; Van der Kolk et al., 2005) that includes

problems with affect dysregulation, dissociation, somatization, and shattered or altered basic beliefs.

Complex PTSD increasingly has been recognized as a potential prognostic factor (Ford, Hawke, Alessi, Ledgerwood, & Petry, 2007; Ford & Kidd, 1998), a consideration for treatment planning (Cook, Schnurr, & Foa, 2004; Courtois, Ford, & Cloitre, 2009; Ford & Cloitre, 2009; Ford, Courtois, Steele, Hart, & Nijenhuis, 2005), and a treatment outcome domain (Brand, Classen, McNary, & Zaveri, 2009; Cloitre, Koenen, Cohen, & Han, 2002; Cohen & Hien, 2006; Resick, Nishith, & Griffin, 2003) of relevance to clinical practice and research with survivors of psychological trauma.

However, Complex PTSD was not codified as a diagnosis in the fourth edition of the American Psychological Association’s (APA) *Diagnostic and Statistical Manual* (APA, 2000). Although the *DSM-IV* Subcommittee on PTSD favored the creation of a separate diagnosis to capture the psychiatric symptomatology related to chronic exposure to interpersonal trauma (Van der Kolk et al., 2005), the *DSM-IV* lists the DESNOS symptoms not as a distinct diagnosis but under the rubric of “associated and descriptive features” of PTSD (APA, 1994, p. 425). Whereas the PTSD diagnosis is likely to fit some of the psychiatric problems of many psychiatrically impaired traumatized individuals, focusing on PTSD symptoms and, at best, relegating other posttraumatic sequelae to “associated features” or “comorbidities” may interfere with a comprehensive and effective treatment approach (Courtois & Ford, 2009). For example, the first edition of the Treatment Guidelines of the International Society for Traumatic Stress Studies (Foa, Keane, & Friedman, 2000), while recognizing that over 80% of patients PTSD suffer from comorbid conditions, including depression, phobias, anxiety, dissociative and somatoform disor-

This article was published Online First October 17, 2011.

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ders, refers readers to the "rich empirical literature of these comorbid conditions" (p. 375) for treatment guidance. However, there is no evidence that other treatment manuals are, in fact, applicable to these "comorbid" conditions in patients with PTSD. In the recently updated ISTSS treatment guidelines for PTSD only two studies are cited that involve complex trauma populations and there was no mention of techniques to deal with the severe affect and somatic dysregulation, dissociative, and altered life schema problems represented by Complex PTSD (Busuttill, 2009).

Studies have reported an elevated risk of childhood trauma exposure or Complex PTSD symptoms in persons diagnosed with borderline personality disorder (BPD; e.g., Ford, 1999; McLean & Gallop, 2003; Yen et al., 2002; Zanarini, Yonge, & Frankenburg, 2002) and somatoform disorders (SoD; e.g., Brown, Schrag, & Trimble, 2005; Saxe et al., 1994; Spitzer et al., 2009). However, only three of these studies assessed the full Complex PTSD criterion set, with small samples of entirely (McLean & Gallop, 2003) or predominantly (Spitzer et al., 2009) female or entirely male (Ford, 1999) psychiatric patients. None of these studies directly compared patients with BPD to those with SoD. In fact, no study has systematically examined the association of BPD and SoD, separately and comorbidly, with early childhood trauma exposure and complex PTSD symptom severity and syndromal prevalence. The present study therefore was designed to systematically assess Complex PTSD in a large adult psychiatric sample with four distinct subgroups: BPD, SoD, comorbid BPD + SoD, and other psychiatric disorders.

Method

Participants and Procedure

Participants were 472 consecutive admissions to two adult inpatient psychiatric treatment centers, Eikenboom Center for Psychosomatic Medicine, Altrecht Utrecht ($N = 117$) and De Waard, Delta Psychiatric Center, Rotterdam ($N = 355$) who participated in the multi-center project "Clinical Assessment of Trauma-Related Self and Affect Dysregulation" (Van Dijke, 2008). Diagnoses of BPD and SoD were made during intake according to the *DSM-IV*

criteria. Where possible, general practice and former hospital records were obtained (with patient's consent) and studied. BPD and SoD (i.e., somatization disorder, undifferentiated somatoform disorder, severe conversion, and pain disorder) diagnoses were confirmed by trained clinicians using the BPDSI and the CIDI (see below). Table 1 presents the demographic characteristics of the four study groups and the total sample. No significant effects were found for sex, and level of education on the dependent variables. This study was approved by the local ethics committee and included written consent from all participants.

Measures

The *Composite International Diagnostic Interview* (CIDI; World Health Organization [WHO], 1997; Dutch version, Ter Smitten et al., 1998) is a standardized interview for assessing mental disorders according to the definitions and diagnostic criteria of *DSM-IV* and ICD-10. CIDI diagnoses have acceptable reliability and validity (Andrews & Peters, 1998). SoD diagnoses were confirmed by independent review by a psychiatrist with somatic experience, a specialist in internal medicine, or a general practitioner with psychiatric experience.

The *Borderline Personality Disorder Severity Index* (BPDSI; Weaver & Clum, 1993; Dutch version IV, Arntz et al., 2003) is a semistructured interview that contains nine sections (abandonment, relationships, self-image, impulsivity, parasuicide, affect, emptiness, anger, and dissociation and paranoia) corresponding to the symptom clusters of BPD. The BPDSI has been shown to have good validity and reliability (Arntz et al., 2003); for inclusion in the study a cut off of 20 was held.

The Dutch self-report version of the *Structured Interview for Disorders of Extreme Stress Not Otherwise Specified* (SIDES-rev; Ford & Kidd, 1998; Van Dijke & Van der Hart, 2002) was used to assess Complex PTSD. The SIDES-rev-NL total score showed evidence of internal consistency in this sample (Cronbach's $\alpha = .91$). Current rather than lifetime Complex PTSD was assessed to reduce reliance on retrospective reports. Partial (Ford & Smith, 2008) as well as full Complex PTSD was included, requiring the presence of at least two of the primary Complex PTSD features

Table 1
Demographic Characteristics of the Study Groups and the Total Sample

	BPD	SoD	BPD + SoD	PC	Total sample
<i>N</i> =	120	159	129	64	472
Male	40	47	30	28	145
Female	80	112	99	36	327
Age <i>M</i> (<i>SD</i>)	29.9 (8.8)	38.3 (10.5)	33.6 (9.1)	36.8 (9.9)	34.7 (10.1)
Social <i>N</i>	30.8%	45.3%	40.3%	28.1%	37.9%
T	60.8	41.5	47.3	56.3	50.0
S	8.3	13.2	12.4	15.6	12.1
Educ L	24.2%	22.6%	27.1%	23.4%	24.4%
M	35.8	45.9	37.2	46.9	41.1
H	40	31.4	35.7	29.7	34.5

Note. BPD = borderline personality disorder; SoD = somatoform disorder; BPD + SoD = borderline personality disorder and somatoform disorder; PC = psychiatric comparison group; Social = primary relationship status; N = no primary partner; T = living together; S = separated by death or divorce; Educ = highest level of education attained; L = primary and low-level secondary education; M = middle level secondary education; H = high-level secondary education.

criteria (i.e., affect dysregulation, dissociation, somatization) and one of the three altered fundamental beliefs subscales (i.e., self, relationships, systems of meaning).

Self-report of potentially traumatic events was assessed with the *Traumatic Experiences Checklist* (TEC; Dutch version, Nijenhuis, Van der Hart, & Kruger, 2002), a retrospective questionnaire. Delta Psychiatric Center site participants had reports of trauma confirmed by close relatives, with 100% agreement. The TEC has been shown to have acceptable reliability and validity among psychiatric outpatients (Nijenhuis et al., 2002). Composite scores were calculated for the number of types of (a) emotional, (b) physical, and (c) sexual traumatic experiences reported, and for the number of traumatic experiences in each of three childhood developmental epochs: (a) 0–6 years, (b) 7–12 years, (c) 13–18 years.

PTSD was assessed with a subsample of patients from the Delta PC study site ($N = 133$) using Self-Rating Inventory for Posttraumatic Stress Disorder (SIRP; Hovens, Van der Ploeg, Bramsen, Klaarenbeek, Schreuder, & Rivero, 1994). This inventory has 22 items reflecting the 17 symptoms from *DSM-IV*. The sequence of the items does not follow *DSM-IV* but has been randomized. All items are scored on a 4-point rating scale with anchors of 1 = not at all and 4 = very much, indicating intensities. A total score is calculated by adding all scores. Scores for the subscales of Intrusion, Avoidance, and Hyperarousal can be calculated by adding the scores on the relevant items. Further, a *DSM-IV* diagnosis can be calculated by using an algorithm (Hovens, Bramsen, & Van der Ploeg, 2000). This subsample did not differ significantly from the total sample on age, gender, and diagnostic group representation.

Statistical Analysis

All statistical analyses were performed using SPSS, version 16 (SPSS Chicago, Chicago, IL). Group means for the composite traumatizing event and developmental epoch scores were compared using multivariate analysis of variance (MANOVAs). All patients classified as Complex PTSD (full or partial) were compared to those not meeting criteria for Complex PTSD on mean scores for each type and epoch of traumatic exposure with a MANOVA. Cross tabulations with chi-square tests were used to determine whether Complex PTSD was differentially likely across the diagnostic groups, and the four diagnostic groups were compared on continuous SIDES subscale and total scores with a multivariate analysis of variance (MANOVA). To determine if the differences attributed to Complex PTSD were distinct from those because of PTSD, a MANCOVA was conducted including PTSD severity as the covariate. Finally, logistic regression analysis was done with Complex PTSD classification as the dependent categorical variable, and diagnostic groups (using psychiatric comparison participants as the reference category) as the independent variable, controlling for the effects of trauma history (i.e., TEQ scores), to determine if the relationship of the psychiatric disorders with Complex PTSD can be fully or partially accounted for by severity or epoch of trauma history.

Results

Most patients (89%) reported experiencing at least one potential traumatizing event. The BPD and BPD + SoD groups more

frequently than the SoD or PC groups reported each type of traumatizing stressor and exposure in each childhood epoch: $F(15, 1281) = 4.36, p < .001$; Wilks' $\lambda = .87$; partial $\eta^2 = .05$. Complex PTSD-positive participants more frequently than those who did not meet criteria for Complex PTSD reported all types of traumatizing stressors and exposure in all childhood epochs except for developmental epoch 7–12 years: $F(5, 466) = 5.11, p < .001$; Wilks' $\lambda = .95$; partial $\eta^2 = .05$.

Table 2 reports the likelihood of meeting current full/partial Complex PTSD criteria for each of the diagnosis groups. Most SoD and psychiatric comparison group members (83–90%) did not meet criteria for Complex PTSD, whereas more than one quarter of the BPD and almost 40% of the BPD + SoD participants met Complex PTSD criteria. The SoD group was significantly less likely than the BPD + SoD group to meet Complex PTSD criteria ($\chi^2 = 33.46, df = 3, p < .000$, Cramer's $V = .27, p < .001$).

Using the SIDES-rev-NL total and subscale scores as dependent variables, an overall between-groups difference was found in a MANOVA ($F(21, 1290) = 13.32; p < .001$; Wilks' $\lambda = .59$; partial $\eta^2 = .16$), with large between group effect sizes for all SIDES-rev-NL subscales and the total SIDES-rev-NL score (see Table 3). The BPD and especially BPD + SoD groups reported higher Complex PTSD scores than the SoD and psychiatric control groups (see Table 4). When severity of PTSD symptoms was included in the analysis (MANCOVA) as a covariate, for the smaller sample with whom PTSD was assessed ($N = 133$), overall group differences were no longer significant and the effect size was reduced ($F(21, 350) = 1.37; p = .13$; Wilks' $\lambda = .80$; partial $\eta^2 = .07$). The multivariate effect for PTSD was statistically significant ($F(7, 122) = 13.22; p < .001$; Wilks' $\lambda = .57$; partial

Table 2
Presence of Complex PTSD in Each Diagnostic Group

	No complex PTSD	Complex PTSD	Total
BPD			
Frequency	89	31	120
% group	74.2%	25.8%	100.0%
Std. residual	-.4	.7	
SoD			
Frequency	143	16	159
% group	89.9%	10.1%	100.0%
Std. residual	1.8	-3.3	
BPD + SoD			
Frequency	80	49	129
% group	62.0%	38.0%	100.0%
Std. residual	-2.0	3.7	
PC			
Frequency	51	11	64
% group	82.8%	17.2%	100.0%
Std. residual	.5	-.9	
Total			
Total	365	107	472
% group	77.3%	22.7%	100.0%

Note. BPD = borderline personality disorder; SoD = somatoform disorder; BPD + SoD = borderline personality disorder and somatoform disorder; PC = psychiatric control group; Std. Residual = standard residual values. Cells with values less than -2 or greater than 2 are statistically significant and are identified in bold type. A negative value indicates "less frequent than expected" and a positive value indicates "more frequent than expected."

Table 3
Between Group Differences for Complex PTSD Features

	F(3, 455)	Partial η^2
Total SIDES-rev-NL score	59.12***	.28
Dysregulation of affect and impulses	51.53***	.25
Dissociation	32.18***	.18
Alterations in self-perception	44.41***	.23
Distorted relations with others	44.48***	.23
Alterations in one's system of meaning	13.68***	.08
Total somatic complaints	18.40***	.11

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

$\eta^2 = .43$). However, the univariate effects for diagnostic group remained statistically significant for the total SIDES-rev-NL score and the affect dysregulation and dissociation subscores ($F = 3.52-3.77$; $df = 3$, $p = .02$; partial $\eta^2 = .08$).

In a logistic regression analysis, Complex PTSD was associated positively with BPD + SoD and inversely with SoD, but not with BPD alone nor with or any trauma history variable (see Table 5). Inclusion of the 10 independent variables improved the fit of the model significantly ($\chi^2 = 53.37$, $df = 9$, $p < .001$). The Hosmer-Lemeshow test revealed that for all dependent variables the model fits the data well ($\chi^2 = 6.44$, $df = 8$, $p = .60$).

Discussion

Exposure to potentially traumatizing events was prevalent in a sample of psychiatric inpatients, particularly among those diagnosed with BPD alone or comorbid BPD + SoD. Complex PTSD was prevalent (i.e., present in 23% of the sample), particularly in the BPD + SoD subgroup, for whom Complex PTSD was significantly more likely than in the SoD subgroup. This is consistent with prior studies showing a relationship of BPD and Complex PTSD (Ford, 1999; McLean & Gallop, 2003), and extends those findings by showing that the relationship may be most likely for a subgroup of BPD patients who also meet criteria for SoD (Spitzer et al., 2009). In contrast to prior observational study findings, neither BPD alone (McLean & Gallop, 2003), SoD alone (Spitzer

Table 5
Logistic Regression Analyses for Variables Associated With Complex PTSD Classification

	N = 472	Odds ratio	95.0% CI	
			Lower	Upper
PC (reference group)				
BPD		1.56	.77	3.14
SoD		.39*	.18	.84
BPD + SoD		2.29*	1.14	4.59
Total emotional trauma		1.05	.96	1.17
Total physical trauma		.96	.89	1.03
Total sexual trauma		1.02	.95	1.09
Total developmental epoch 0-6 year		1.04	.63	1.73
Total developmental epoch 7-12		.82	.44	1.05
Total developmental epoch 13-18		1.24	.63	2.43

Note. BPD = borderline personality disorder; SoD = somatoform disorder; BPD + SoD = borderline personality disorder and somatoform disorder; PC = psychiatric comparison group.
* $p < .05$.

et al., 2009), nor psychiatric morbidity (Yen et al., 2002) were as strongly associated with risk of Complex PTSD as the combination of BPD + SoD.

These results are in line with prior findings that the long-term sequelae of childhood trauma do not seem to be encompassed by any single *DSM-IV-TR* disorder (Ford, 1999; Van der Kolk, 2005; Van der Kolk et al., 2005). Expectably, the somatization component of Complex PTSD appeared to be related to SoD, while the remaining Complex PTSD features were more related to BPD than SoD. General psychiatric impairment was associated with levels of severity of Complex PTSD and each of its features that were comparable to those of SoD and lower than those of the BPD subgroups. However, specific tests of distinct psychiatric disorders other than BPD and SoD are warranted before concluding that the latter diagnoses are the principal psychiatric disorders associated with Complex PTSD features.

Table 4
Comparison of Diagnostic Groups on SIDES-Rev-NL Scores

Group	Total SIDES Score	Dysregulation of affect and impulses	Dissociation	Alterations in self-perception	Distorted relations with others	Alterations in one's system of meaning	Total somatic complaints
BPD N = 118							
Mean	69.18	30.73	3.49	12.60	10.72	9.73	5.27
SD	(16.70)	(7.06)	(1.74)	(2.92)	(2.77)	(7.16)	(3.46)
SoD N = 156							
Mean	51.34	23.29	2.35	9.23	7.82	6.66	6.57
SD	(11.49)	(4.92)	(.89)	(3.04)	(2.43)	(2.20)	(3.77)
BPD + SoD N = 127							
Mean	69.76	31.26	3.89	12.83	10.84	8.88	8.13
SD	(13.41)	(6.86)	(1.77)	(2.96)	(2.67)	(2.44)	(4.00)
PC N = 58							
Mean	56.48	25.24	2.55	10.31	8.64	7.97	4.40
SD	(12.78)	(6.46)	(1.19)	(3.29)	(2.37)	(2.46)	(3.49)

Note. BPD = borderline personality disorder; SoD = somatoform disorder; BPD + SoD = borderline personality disorder and somatoform disorder; PC = psychiatric comparison group.

Complex PTSD usually (but not always; e.g., Ford, 1999) is observed to occur comorbidly with (rather than independently of PTSD). Whether Complex PTSD represents a complex variant or subtype or comorbidity marker for PTSD (Briere & Jordan, 2009; Briere et al., 2008; Resick & Miller, 2009), or distinct posttraumatic syndrome, remains uncertain (Van der Kolk et al., 2005). In the present study, PTSD symptoms were found to account for most of the multivariate association of BPD and SoD with Complex PTSD, thus supporting the view of Complex PTSD as a complex variant of PTSD. However, the associations between BPD and SoD diagnostic groups and the severity of Complex PTSD and its affect dysregulation and dissociation features persisted after controlling for PTSD severity. Thus, certain features of Complex PTSD that are conceptually related to PTSD (i.e., arousal-related somatic dysregulation; altered personal schemas) may be largely accounted for by PTSD, but Complex PTSD features that are more clinically and conceptually distinct from PTSD (i.e., affect dysregulation, dissociation) appear to be empirically distinct from PTSD in this sample of adults with severe psychopathology. The prominent role of dissociation in Complex PTSD and BPD have led to the proposal that complex PTSD may be a dissociative disorder (van der Hart, Nijenhuis, & Steele, 2005). Affect dysregulation also has been hypothesized to serve as the core feature of Complex PTSD (Ford, 2005). Further research thus is needed to clarify the relationship of PTSD, affect dysregulation, and dissociation in Complex PTSD in psychiatric and other samples in which trauma exposure is prevalent.

The full Complex PTSD syndrome is rare (i.e., <1% prevalence) in nonclinical populations, but Complex PTSD symptoms are common and are associated with childhood traumatic experiences (Ford et al., 2006; Scoboria, Ford, Lin, & Frisman, 2008). The present study's results indicate that a larger subgroup of psychiatric patients may meet criteria for the Complex PTSD syndrome (i.e., 10–38%), comparable to findings with a trauma-exposed substance abuse treatment sample (Ford & Smith, 2008). Although comorbid BPD + SoD was particularly related to risk of Complex PTSD, patients who qualified for Complex PTSD nevertheless were only a minority of the BPD + SoD subgroup. Further, meaningful subgroups of patients with BPD (26%), SoD (10%), or other psychiatric disorders (17%) meet Complex PTSD criteria. Thus, it does not appear that Complex PTSD is simply synonymous with comorbid BPD + SoD nor with BPD. It may serve as a useful marker to identify psychiatrically impaired patients with particularly severe affect dysregulation, dissociation, somatization, and alienation from self and others, as well as providing specific continuous and categorical variables to track clinical outcomes.

To establish Complex PTSD as a syndrome with sufficient clinical utility to warrant a unique diagnosis, however, numerous additional tests of its usefulness to practicing clinicians and as a guide to incrementally enhanced treatment effectiveness are needed (First et al., 2004). For example, research might test whether treatment designed specifically to address Complex PTSD features (e.g., Steele & Van der Hart, 2009) particularly enhances outcomes for BPD + SoD patients who meet criteria for Complex PTSD (vs. for all BPD + SoD patients). Another clinical utility issue warranting investigation is whether the association of Complex PTSD with BPD + SoD can be accounted for by Axis I or II comorbidity, given evidence of substantial comorbidity in both

SoD (Lieb, Meinlschmidt, & Arava, 2007) and BPD (Yen et al., 2002; Zanarini et al., 2002).

Limitations of the study include the use of a self-report version of the SIDES, rather than the interviewer version validated by Ford and Kidd (1998), reliance on clinician rather than research ratings of the diagnostic variables, use of retrospective self-report to assess trauma history, and inclusion of only two specific psychiatric diagnoses and the general class of severe affective/anxiety disorders as a focus. However, the study's strengths include a large sample with precisely documented index diagnoses, detailed (and reliable, when collateral confirmation was possible) assessment of childhood trauma history, and use of the SIDES to assess all Complex PTSD features. Future studies are needed to replicate these findings with alternative methodologies and samples with a variety of specific diagnoses that may be related to traumatic stress and that involve affective and somatic dysregulation (e.g., major depression) to determine both the specificity and generalizability of the present study's preliminary findings of a relationship between severe psychopathology (specifically BPD and BPD + SoD) and Complex PTSD.

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Received July 23, 2010

Revision received July 23, 2010

Accepted November 27, 2010 ■

Correction to Humphreys et al. (2011)

In the article "The Influence of Externalizing Comorbidity on Psychophysiological Reactivity Among Veterans With Posttraumatic Stress Disorder," by Kathryn L. Humphreys, Kristen M. Foley, Brian A. Feinstein, Brian P. Marx, Danny G. Kaloupek, and Terence M. Keane (*Psychological Trauma: Theory, Research, Practice, and Policy*, Advance online publication, March 28, 2011. doi:10.1037/a0022644), there were errors in Table 3. In the Audiovisual presentation for heart rate reactivity line, the values for PTSD should have been 2.65 [2.17, 3.12], and the values for PTSD-SUD should have been 1.85 [1.08, 2.61].

DOI: 10.1037/a0026441