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Disorders of Extreme Stress Following War-Zone Military Trauma: Associated Features of Posttraumatic Stress Disorder or Comorbid but Distinct Syndromes?

Julian D. Ford
Veterans Affairs Medical Center, White River Junction, and Dartmouth Medical School

Disorders of extreme stress not otherwise specified (DESNOS) and posttraumatic stress disorder (PTSD) were found to be comorbid but distinct among military veterans seeking inpatient PTSD treatment: 31% qualified for both conditions, 29% were diagnosed PTSD only, 26% were classified DESNOS only, and 13% met criteria for neither. PTSD diagnosis was associated with elevated levels of war-zone trauma exposure and witnessing atrocities and with impairment on the Mississippi Scale for Combat-Related PTSD and the Penn Inventory. DESNOS classification (but not PTSD) was associated with (a) early childhood trauma and participation in war-zone atrocities, (b) extreme levels of intrusive trauma reexperiencing, (c) impaired characterological functioning (object relations), and (d) use of intensive psychiatric services. PTSD and DESNOS may be comorbid but distinct posttraumatic syndromes and, as such, warrant careful clinical and scientific investigation.

The longitudinal course following traumatization ranges from transient stress reactivity and acute stress disorders to episodic or enduring posttraumatic stress disorder (PTSD) and a range of associated psychosocial impairments (Friedman & Rosenheck, 1996; Yehuda & McFarlane, 1995). Complex PTSD, or disorders of extreme stress not otherwise specified (DESNOS; Herman, 1992), was proposed as an alternative to Axis II personality disorder diagnosis when extreme trauma compromises the fundamental sense of self and relational trust at critical developmental periods (e.g., childhood sexual abuse; Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997). Although not codified as a formal diagnosis, the DESNOS syndrome offers a conceptual framework for understanding and a clinical framework for assessing several sequelae often experienced by survivors of extreme trauma: (a) extreme affect and impulse dysregulation (e.g., rage, suicidality, self-destructiveness, and unmodulated sexual activity), (b) pathological dissociation, (c) somatization (including alexithymia), and (d) fundamentally altered beliefs concerning self and relationships.

The National Institute of Mental Health (NIMH) *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM–IV;* American Psychiatric Association, 1994) PTSD Field Trial Study developed a structured interview to assess clinical and community respondents for DESNOS (Pelcovitz et al., 1997). An early report found substantial intercorrelation among structured clinical interview measures of PTSD and three components of DESNOS (i.e., dissociation, somatization, and affect dysregulation) in adult survivors of childhood abuse, violence or abuse in adulthood, or disaster (van der Kolk et al., 1996). Most (92%) participants classified as DESNOS also met criteria for PTSD diagnosis, and DESNOS was associated with a history of childhood traumatic abuse (vs. disaster; van der Kolk et al., 1996). Dissociation, affect dysregulation, and somatization each was problematic for 70%–90% of community or clinical participants diagnosed with lifetime PTSD. Van der Kolk et al. (1996) concluded that DESNOS were "associated features of PTSD [that are] not likely to constitute separate 'double diagnoses' but represent the complex somatic, cognitive, affective, and behavioral effects of psychological trauma" (pp. 89–90).

However, although NIMH Field Trial results did not show dissociation, somatization, and affect dysregulation to be isomorphic with PTSD, they did show that each shared between 26% and 28% common variance with PTSD (van der Kolk et al., 1996, Table 1). Thus, despite their strong correlation with PTSD, DESNOS features may occur independently of PTSD. The large degree of nonoverlap between PTSD diagnosis and the features of DESNOS appears largely because of the fact that a substantial proportion of trauma survivors who did not meet criteria for lifetime PTSD was classified as exhibiting pathological dissociation (61%), somatization (47%), or affect dysregulation (34%–37%). Thus, trauma survivors who do not meet PTSD diagnostic criteria often display substantial DESNOS symptoms.

Descriptions of sequelae of extreme traumatization often in-

Julian D. Ford, Executive Division, National Center for PTSD, Veterans Affairs Medical Center, White River Junction, and Dartmouth Medical School.

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Correspondence concerning this article should be addressed to Julian D. Ford, who is now at the Department of Psychiatry, University of Connecticut Health Center, MC6410, 10 Talcott Notch, Farmington, Connecticut 06032. Electronic mail may be sent to Ford@Psychiatry.UCHC.edu.

volve symptoms and impairment better characterized by DESNOS-like alterations of consciousness, affect and impulse regulation, and self-organization than by the fear, avoidance, numbing, hyperarousal, and hypervigilance cardinal to PTSD. Battered children and spouses; incest survivors; POWs; survivors of the holocaust or other incidents of genocide; survivors of kidnapping, torture, or terrorism; and military veterans exposed to war atrocities have been characterized as suffering from posttraumatic self-disorder (Parson, 1988), serial selves (Laufer, 1988), or a death imprint (Lifton, 1979). Despite their substantial comorbidity (Roth et al., 1997; van der Kolk et al., 1996), it is not clear that PTSD precedes or even necessarily accompanies the cardinal DESNOS symptoms. PTSD and DESNOS involve several comparable symptom features (e.g., PTSD's emotional numbing and anger may overlap with DESNOS's affect dysregulation, PTSD's flashbacks or psychogenic amnesia may involve DESNOS-like dissociation, and DESNOS's alterations in beliefs and relationships may overlap with PTSD's sense of foreshortened future and social detachment). However, PTSD does not specify self-destructive, impulsive, risk-taking, or suicidal behavior (DESNOS affect dysregulation); pathological dissociation; or somatization. PTSD's diagnostic criteria also do not include a fundamentally impaired view of the self (e.g., guilt, shame, ineffectiveness, damage, and hopelessness [DESNOS Criteria III and VII]). Further, trauma survivors not diagnosed with PTSD—although possibly suffering from undetected PTSD—often are best characterized by a range of Axis I and II disorders involving DESNOS-like impairments in affect, self-regulation, and consciousness (Zlotnick et al., 1996). Thus, DESNOS may be associated with traumatization yet be distinct from PTSD.

One preliminary study of PTSD and DESNOS reported high rates (≥75%) of DESNOS symptoms in veterans seeking treatment for chronic war-zone-related PTSD (Newman, Orsillo, Herman, Niles, & Litz, 1995). This pilot study was not able to distinguish between DESNOS and PTSD because of the small sample size (n = 10) and the absence of a control group of treatment-seeking veterans not diagnosed with PTSD. Moreover, the study could not disentangle the roles of war-zone and childhood traumatization because almost all participants (80%) had experienced childhood abuse. Although high rates of childhood trauma are the norm in samples of treatment-seeking veterans with PTSD (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993), many report no history of childhood traumatization and could not therefore compose a comparison sample.

In the present study, PTSD, DESNOS, and history of both early childhood and war-zone trauma were assessed in a sample of chronically impaired military veterans admitted for inpatient care for military-related PTSD (Ford, Fisher, & Larson, 1997). The primary issue our study addressed was whether DESNOS is best conceptualized as associated features of PTSD, as opposed to as a distinct but comorbid posttraumatic syndrome. Independent structured assessments of PTSD and DESNOS were obtained in an attempt to determine if the comorbidity pattern found in the NIMH Field Trial (van der Kolk et al., 1996) could be replicated. Despite receiving treatment for PTSD, not all participants met research diagnostic criteria for PTSD, and thus it was possible to identify individuals with or without both PTSD and DESNOS. If DESNOS is found primarily only when PTSD also is diagnosed, an associated feature model is supported. If DESNOS occurs often without PTSD, then DESNOS may be a distinct syndrome, even if there is evidence of some DESNOS–PTSD comorbidity.

Simply examining the rates of separate occurrence and comorbidity of PTSD and DESNOS is only a preliminary step because any apparent independence or overlap may be an artifact of the specific diagnostic cutoffs used for each diagnosis or of the comorbidity percentage considered sufficient to justify defining the syndromes as distinct or associated. Several additional hypotheses offer a basis for contrasting the views of DESNOS as an associated feature or comorbid syndrome. Given the NIMH Field Trial's findings (Roth et al., 1997; van der Kolk et al., 1996), DESNOS was presumed to be an associated feature of PTSD, and the following hypotheses were tested.

First, DESNOS and PTSD should differ etiologically only in DESNOS's association of severe early childhood trauma (Roth et al., 1997; Zlotnick et al., 1996) and PTSD's association with severe combat trauma (Kulka et al., 1990)—the latter because PTSD was assessed with a focus on military trauma. To test the associated feature versus comorbid syndrome models of DESNOS, I also assessed exposure to war atrocities because this is an extreme form of military-related trauma with profound potential impact on late adolescent–early adult development (Laufer, 1988). If DESNOS is an associated feature of PTSD, atrocity exposure should be associated with both syndromes—although possibly more strongly with DESNOS because of the link observed between war atrocity exposure and increased symptomatic severity (Yehuda, Southwick, & Giller, 1992). However, if atrocity exposure is associated differentially with DESNOS and PTSD, this would suggest that the syndromes may have distinct postchildhood etiologies or courses.

Second, DESNOS and PTSD should differ quantitatively—but not qualitatively—in their association with symptomatic or impairment severity (Newman, Riggs, & Roth, 1997). DESNOS is defined by symptoms (e.g., somatization and dissociation) and psychosocial impairments (e.g., rage, guilt and shame, and impulsiveness) that differ from the cardinal intrusive reexperiencing, avoidance, emotional numbing, and hyperarousal symptoms of PTSD. However, each of the DESNOS features has been empirically found to be correlated with PTSD (e.g., dissociation [Bremner et al., 1992], somatic dysregulation [Boscarino, 1997], rage [Chemtob, Novaco, Hamada, Gross, & Smith, 1997], guilt and shame [Henning & Frueh, 1997], and impulsivity [Joseph, Dalgleish, Thrasher, & Yule, 1997]). Thus DESNOS and PTSD should either exert separate additive main effects on the reported levels of the same posttraumatic, psychiatric, and psychosocial problems, or there should be a DESNOS × PTSD interaction effect such that the symptom or impairment is most severe when DESNOS accompanies PTSD. If DESNOS is a separate comorbid syndrome, its effect on symptoms and impairment should not be in interaction with PTSD, and its main effects should be for different aspects of symptomatic distress or functional impairment than those particularly associated with PTSD.

In addition to self-report measures, a clinician rating method for assessing object relations was used to contrast PTSD and DESNOS. In a prior study, PTSD was positively correlated with clinician-rated object relations, suggesting that veterans seeking treatment for PTSD who do not fully manifest the PTSD syndrome were characterized by poor core psychosocial functioning (i.e., low object relations levels), whereas those who met criteria for PTSD

had higher (moderate) object relations levels (Ford et al., 1997). This finding, along with the conceptual proposition advanced by Herman (1992) that DESNOS reflects trauma-specific developmental psychopathology (which should involve impaired object relations [Cicchetti & Toth, 1995]), raises the possibility that posttraumatically impaired individuals who do not clearly manifest PTSD may instead suffer from DESNOS. If DESNOS is an associated feature of PTSD, then DESNOS and PTSD should interact such that PTSD's positive effect should be present only when DESNOS is absent. If DESNOS and PTSD have separate opposite main effects, a comorbid model is supported.

Third, both DESNOS (Herman, 1992) and PTSD (Friedman & Rosenheck, 1996) should be associated with an elevated likelihood of use of the most costly and intensive psychiatric treatment services, compared with similar PTSD treatment-seeking individuals who do not meet criteria for DESNOS or PTSD. The increased severity in symptomatic distress and functional impairment attributed to DESNOS (Roth et al., 1997) may lead to a particularly high risk of costly intensive treatment for these individuals. However, if only DESNOS or only PTSD is associated with risk of intensive psychiatric treatment, this would suggest that the syndromes have differential—rather than parallel or cumulative—effects and would support the comorbid model.

To provide the clearest possible test of these hypotheses with the present data set, I controlled two variables potentially associated with DESNOS and chronic PTSD in case either should be a third variable that accounted for what otherwise could be mistakenly interpreted as an effect of DESNOS, PTSD, or both. Chronic PTSD often is comorbid with major depression (Kulka et al., 1990) and personality disorders (Southwick, Yehuda, & Giller, 1993). DESNOS has many features in common with both major depression and personality disorder (Herman, 1992). Therefore, major depression and personality disorder were used as covariates in multivariate and univariate analyses.

Method

Participants

Eighty-four of 85 patients with consecutive admissions to a Department of Veterans Affairs (VA) specialized inpatient PTSD Residential Rehabilitation Program (PRRP) consented to participate in the study. Participants met the following inclusion criteria: (a) no severe organic or psychotic impairment or imminent suicidality, (b) no criminal charges pending or in adjudication, (c) no alcohol or drug use or prescribed opiate or benzodiazepine medications for at least 1 month, (d) in ongoing outpatient psychiatric or psychological treatment, and (e) documented exposure to war-zone military trauma. All participants were male, ranging in age from 28 to 67 years (M = 46, SD = 5.7) and education from 10th grade to master's level (M = 12.1 years, SD = 1.6). Most (86%) were Caucasian, 12% were Native American, and 2% were Latino. Most (94%) served in Vietnam; 8% served in the Korean conflict or in World War II. One veteran served in the United Nations Somalia Peacekeeping Operation.

One participant in 3 was currently married, most often (i.e., 20 of 28) remarried following one to four divorces; 36% were never married; and 30% were divorced or widowed. Most were currently unemployed (69%) or retired (4%). Few were employed full time (7%) or part time (20%). Almost all had extensive problems with employment, either having held at least 10 different jobs since military service (80%) or having served extensive (M = 12.5 years) prison terms (6%). Residential instability and homelessness were typical in the sample: 60% were homeless or had severe residential instability during the year before PRRP admission. Extensive past histories of inpatient psychiatric treatment were described and corroborated by medical records or referring clinicians. The mean numbers of prior psychiatric and substance abuse inpatient admissions were 1.68 (range = 0–12) and 1.01 (range = 0–7), respectively. Most (77%) had at least 1 inpatient psychiatric or substance abuse admission, and of the rest another 8 (10%) had received residential care for homelessness. All reported suicidal ideation since military service, more than half currently.

Diagnostic and DESNOS Classification

I administered the patient version of the Structured Clinical Interview for *DSM–III–R* Axis I (SCID–P; Spitzer, Williams, Gibbon, & First, 1990b) and the Structured Interview for Disorders of Extreme Stress (SIDES; Pelcovitz et al., 1997). The order of PTSD and DESNOS interview administration was randomly varied for each participant to control for possible order effects. Independent ratings were conducted in a conjoint interview by one of two psychiatrists for 20 randomly selected participants. Interrater agreement was adequate for a current PTSD diagnosis (60% prevalence, κ= .91, p < .001). Consistent with Pelcovitz et al.'s (1997) psychometric findings, scoring the SIDES for symptoms present or absent in the past 6 months yielded acceptable subscale internal consistency levels (Cronbach's αs = .93 [Scale I], .80 [Scale II], .74 [Scale III], .88 [Scale V], and .86 [Scale VII]). Interrater reliability, which was established by independent SIDES ratings by a postdoctoral fellow for 15 randomly selected participants, yielded 13 agreements (κ = .79, p < .001), with the 2 disagreements classified by the primary assessor's data. Consistent with Pelcovitz et al. (1997, Table 1), Subscale VI ("Altered Perceptions of Perpetrator") was excluded because more than half of the participants had no trauma for which there was a specific perpetrator. Subscale IV ("Somatization") was assessed but not counted toward DESNOS because complex medical histories and diagnoses in this sample resulted in almost universally reported high levels of somatic symptoms for which organic causation could not be ruled out. Participants meeting all other DESNOS criteria also reported the requisite two (of five) somatization symptom clusters, and no participant was not classified as DESNOS because of failing to meet somatization criteria.

SCID–P (Spitzer et al., 1990b) and SCID–II (Spitzer, Williams, Gibbon, & First, 1990a) modules were coded by Julian D. Ford, with independent corroboration by one of two psychiatrist raters for a randomly selected sample of 20 cases for current major depression (39% prevalence, κ= .81, p < .001) and presence of any personality disorder (36% prevalence, κ= .67; p < .001).

Measures of Trauma History

All participants reported exposure to war-zone trauma sufficient to qualify for *DSM–III–R* (American Psychiatric Association, 1987) Criterion A. War-zone trauma varied from single or infrequent instances of rocket, mortar, or "sapper" attacks, to many consecutive months of being under threat of intense fire from the enemy, to observing or participating in grotesque or abusive violence. War trauma was corroborated in every case by military records (e.g., DD214 discharge form) that documented duty sites and military operational specialties associated with combat or combat support. A dichotomously scored version of the Combat Exposure Scale (Keane et al., 1989) was used to quantify severity of war-zone trauma exposure based on hazardous duty; being subjected to enemy fire; being surrounded by the enemy; having more than 25% of the soldiers in the unit killed, wounded, or missing; firing at the enemy; seeing others hit by incoming rounds; and being in danger of being severely injured or killed. The 0–7-point composite scale had good internal consistency (α = .88; mean item-corrected total score r = .68) and retest stability over a 1–3-month period before PRRP admission (n = 14, r = .95, p < .001). War trauma scores ranged from 1 to 7 (M = 5.5, SD = 2.1). Independent

clinician ratings of war trauma in detailed military history interviews with 24 participants showed good correspondence with war trauma self-ratings ($r = .82$, $p < .001$). Two one-item indexes also assessed participants' (a) witnessing or (b) participating in abusive war-zone violence ("atrocities").

In a detailed developmental history interview, PRRP clinicians inquired about the presence or absence between the ages of 0 and 6 years of each of 10 discrete types of trauma exposure derived from lifetime trauma assessments developed by Resnick, Kilpatrick, Dansky, Saunders, and Best (1993) and by Weaver and Clum (1993): sexual abuse, physical abuse, witnessing or participating in intentional violence or killing, receiving a violent "life threat," directly experiencing a life-threatening natural or humanmade disaster or accident, witnessing other severe or violent injury or death, experiencing the murder or DUI (driving under the influence) death of a primary caregiver. Using a structured interview format similar to that validated by Bremner et al. (1993), I defined and specifically inquired about each trauma event type in behavioral terms (Resnick et al., 1993). If any traumatic event had occurred, the participant was classified as positive for early childhood trauma. Two clinicians made independent ratings of 32 randomly selected participants, agreeing on 29 cases ($\kappa = .85$). Disagreements were coded positive on the basis of definite information of early childhood trauma recorded by one of the two independent raters. Potential trauma events from other developmental periods in later childhood, adolescence, and adulthood were assessed but are not reported here.

Early childhood trauma primarily involved three reliably rated types of events: severe physical abuse ($n = 32$, $\kappa = .89$), sexual abuse ($n = 4$, $\kappa = 1.00$), or witnessing family violence or deaths ($n = 14$, $\kappa = .77$). Family violence usually (i.e., 8 of 10 cases) co-occurred with physical abuse. Sexual abuse co-occurred with physical abuse and family violence in 2 of 4 cases. Caregiver death almost always occurred separately from physical abuse, family violence, or sexual abuse. Caregiver death was included only after it was determined that excluding the 5 cases in which only caregiver death occurred led to no change in the pattern or level of results.

Self-Report Measures of Symptomatic Severity and Impairment

Widely used and psychometrically sound questionnaires assessed PTSD symptomatic and impairment severity: the Penn Inventory for PTSD (Hammarberg, 1992), the Mississippi Scale for Combat-Related PTSD (Keane, Caddell, & Taylor, 1988), and the Impact of Event Scale (IES; Weiss & Marmar, 1997) Intrusive Reexperiencing (IES-I) and Avoidance (IES-A) subscales. Widely used self-report measures with documented psychometrics assessed psychiatric symptom severity: the Global Severity Index (GSI) of the Hopkins Symptom Checklist—90—Revised (Derogatis, 1992), the Trait subscale of the State–Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970), the Beck Depression Inventory (Beck, Steer, & Garbin, 1988), and the Dissociative Experiences Scale (Bernstein & Putnam, 1986).

Object Relations Clinician Rating (OR-C)

Independent ratings of Westen's Social Cognition Object Relations Scale (Barends, Westen, Leigh, Silbert, & Byers, 1990) were done for each participant by trios of trained clinicians using the SCID–P Overview and Life Chart format to review the participant's major relationships and life experiences from birth to present (Ford et al., 1997). Unlike other study measures, object relations was scored in a positive direction, with higher scores representing lesser impairment and greater functionality. OR-C involves four 5-point scale ratings of the individual's general ability to (a) understand each person as having a coherent unique personality, (b) experience emotions as sources of helpful information rather than as malevolent threats, (c) invest emotionally in relationships and moral standards or values, and (d) understand that psychological agency has a positive potential in determining the course of social events (rather than feeling helpless, dependent, or overcontrolling).

One rating was obtained for each participant on each of the four OR-C categories by averaging the three raters' ratings. Interrater reliability for each OR-C category was calculated by using the Spearman-Brown version of the intraclass correlation coefficient, yielding the following estimates of the dependability of the average scores for the four OR-C categories: .75, .63, .69, and .72 (all $ps < .01$). Ratings of the four object relations categories were highly intercorrelated ($rs = .78$–$.91$, $p < .001$), so I summed them and divided by 4 to produce a single 5-point object relations composite score (OR-C) for each participant. The OR-C score was internally consistent ($\alpha = .95$; mean item-corrected total score $r = .89$). Retest reliability for a sample of 20 participants rated at a 15–30-day interval was $r = .88$. Evidence of convergent validity also was obtained by correlating OR-C ratings with independent object relations ratings from a Thematic Apperception Test ($r = .84$, $p < .001$).

Measures of Psychiatric Services Use

VA Medical Center (VAMC) database records were accessed to document use of inpatient psychiatric hospitalization in VAMCs within the year before PRRP admission and lifetime. Preadmission application records completed by each veteran and by a referring clinician and an intake psychosocial history provided information confirming VA inpatient psychiatric hospitalizations, as well as confirmed that no participant used inpatient psychiatric care outside VAMCs that year.

Results

Participants diagnosed with PTSD did not differ from those not meeting criteria for PTSD on the following demographic factors (see Table 1): age and education level, $t(82) = 0.76$ and 0.39, $p = .39$ and $.69$, respectively, and current marital status and ethnic background, $\chi^2(1, N = 84) = 0.19$ and 0.07, $p = .66$ and $.77$, respectively. Participants meeting criteria for DESNOS did not differ from others in age or education level, $t(82) = 0.22$ and 1.71, $p = .88$ and $.09$, respectively, or current marital status, $\chi^2(1, N = 84) = 0.29$, $p = .58$. More non-Caucasian than Caucasian participants were classified with DESNOS (7% vs. 26%), $\chi^2(1, N = 84) = 4.55$, $\varphi = .24$, $p = .03$. The four subgroups defined by crossing PTSD with DESNOS did not differ significantly on any demographic indicator (see Table 1).

Classification and Comorbidity of PTSD and DESNOS

All participants met PTSD Criterion A, having experienced war-zone events in which they witnessed or were directly at risk for death or severe injury and which were beyond the range of ordinary human experience. All participants met Criterion C, experiencing three or more of the seven symptoms of avoidance, emotional numbing, and social detachment in the past month. More than half of the sample (60%) met criteria for current military-related PTSD, but 33 participants (40%) did not because (a) there was no distinct military-related intrusive reexperiencing ($n = 20$), (b) there were fewer than two hyperarousal and hypervigilance symptoms ($n = 7$), or (c) both conditions were present ($n = 6$). The no-PTSD participants reported a morbid ruminative preoccupation with war in general, with violence, with death, with injustice, or with feeling psychically and physically "damaged."

Forty-eight participants (58%) met criteria for DESNOS. Prevalences of the five applicable DESNOS features were altered reg-

Table 1
Demographic, Trauma History, and Inpatient Treatment Use Characteristics of Participants Classified by PTSD Diagnosis and DESNOS

Measure	PTSD+ DESNOS+ (n = 26)	PTSD+ DESNOS− (n = 25)	PTSD− DESNOS+ (n = 22)	PTSD− DESNOS− (n = 11)	Statistical test[a]
Age, in years ($M \pm SD$)	47 ± 5	49 ± 6	49 ± 6	47 ± 6	*ns*
Education, in years ($M \pm SD$)	12 ± 1	13 ± 1	12 ± 1	13 ± 2	*ns*
% currently married	35	40	30	36	*ns*
% ethnic minority	22	5	20	9	*ns*
% experienced early childhood trauma	71	36	71	27	13.8**
% experienced severe combat	84	84	41	36	17.3***
% witnessed atrocities	75	52	40	30	9.4**
% participated in atrocities	46	5	40	0	18.2**
% past-year inpatient psychiatric treatment	67	35	62	46	6.0
% lifetime inpatient psychiatric treatment	82	39	72	30	13.8**

Note. PTSD+ = diagnosed PTSD; PTSD− = not diagnosed PTSD; DESNOS+ = classified DESNOS; DESNOS− = not classified DESNOS; PTSD = posttraumatic stress disorder; DESNOS = disorders of extreme stress not otherwise specified.
[a] Age and education were compared using an analysis of variance, $F(4, 79)$; all other measures were compared using a chi-square, $\chi^2(3, N = 84)$.
** $p < .01$. *** $p < .001$.

ulation of affect and impulses (94%), altered consciousness or attention (46%), altered self-perceptions (e.g., alienation, guilt, and shame [79%]), altered relationships (e.g., profound distrust, revictimization, and victimizing [60%]), and altered systems of meaning (e.g., despair and hopelessness [66%]). The most prevalent and severe DESNOS symptoms were problems with rage, overwhelming distress, amnesia, a sense of being damaged, guilt and shame, the belief that no one understands, distrust, relational conflict or avoidance, hopelessness, and loss of meaning in life. Other DESNOS symptoms rated as at least moderately problematic for at least 67% of the sample included extreme risk taking, constricted affect due to anger, carelessness about safety, feelings of personal ineffectiveness, altered ethics or religious beliefs, and suicidality.

PTSD and DESNOS diagnoses were highly comorbid but often distinct (see Table 1). PTSD was accompanied by comorbid DESNOS in 51% of cases. DESNOS was accompanied by PTSD in 54% of cases. One participant in 3 (31%) qualified for both PTSD and DESNOS; 13% qualified for neither. Almost half the DESNOS participants (22 of 48) were not diagnosed with PTSD. Thus, DESNOS occurred almost as frequently separate from PTSD as in conjunction with PTSD.

Major depression often was comorbid with DESNOS or PTSD. DESNOS was associated with an increased likelihood of major depression (52% vs. 21%), $\chi^2(1, N = 84) = 7.85$, $p = .005$, but PTSD was not (44% vs. 30%), $\chi^2(1, N = 84) = 2.03$, $p = .15$. DESNOS also was associated with the presence of an Axis II personality disorder (58% vs. 20%), $\chi^2(1, N = 84) = 12.18$, $p = .001$, whereas PTSD diagnosis was not (34% vs. 53%), $\chi^2(1, N = 84) = 2.99$, $p = .083$. All PTSD diagnosed participants who had a comorbid personality disorder also had DESNOS, suggesting a linkage between DESNOS, but not chronic PTSD, with Axis II personality disorders.

PTSD, DESNOS, and Trauma History

The four PTSD × DESNOS groups differed in the likelihood of having a history of trauma for each of the four trauma variables (see Table 1). As predicted, DESNOS participants had particularly high likelihoods of having a history of early trauma, regardless of PTSD diagnosis. PTSD participants had especially high likelihoods of a history of severe combat trauma, regardless of DESNOS.

Comparing PTSD-only participants with DESNOS-only participants, one finds that DESNOS-only participants were more likely to report early trauma than PTSD-only participants, $\chi^2(1, N = 47) = 6.3$, $p = .01$, whereas PTSD-only participants were more likely to report severe combat trauma than DESNOS-only participants, $\chi^2(1, N = 47) = 9.4$, $p = .002$. The PTSD-only and DESNOS-only groups were equally likely to report witnessing war atrocities, but the DESNOS-only group was more likely to have participated in atrocities, $\chi^2(1, N = 47) = 8.2$, $p < .01$. DESNOS-only participants also were more likely than the no-PTSD–no-DESNOS group to have participated in, but not to have witnessed, war atrocities, $\chi^2(1, N = 33) = 3.7$, $p = .05$. PTSD-only participants did not differ from no-PTSD–no-DESNOS participants on atrocity exposure. The DESNOS-only group was as likely as the comorbid PTSD–DESNOS group to have participated in atrocities but was less likely to have witnessed atrocities, $\chi^2(1, N = 48) = 6.0$, $p = .01$. The PTSD-only group was as likely as the comorbid PTSD–DESNOS group to have witnessed atrocities but less likely to have participated in war atrocities, $\chi^2(1, N = 51) = 11.2$, $p \leq .001$.

Controlling for major depression or personality disorder, I conducted multivariate logistic regression analyses to examine the contribution of the four trauma variables to the likelihood of (a) PTSD diagnosis or (b) DESNOS. The only predictor of PTSD diagnosis was severe combat (odds ratio [OR] = 7.3, 95% confidence interval [CI] = 2.4–19.9, $p = .001$). Significant predictors of DESNOS were early childhood trauma (OR = 4.5, 95% CI = 1.9–8.9, $p < .01$), participation in atrocities (OR = 13.5, 95% CI = 1.5–29.3, $p < .05$), personality disorder (OR = 4.4, 95% CI = 1.3–13.8, $p < .05$), and major depression (OR = 3.9, 95% CI = 1.2–7.9, $p < .05$). Thus, accounting for the effect of major

depression and personality disorder diagnosis, I found that traditional combat trauma was the trauma risk factor for PTSD and that childhood trauma and participation in atrocities were the trauma risk factors for DESNOS.

PTSD, DESNOS, and Severity of Symptoms and Impairment

A two-way multivariate analysis of covariance (MANCOVA), with PTSD diagnosis and DESNOS as independent variables and two covariates (major depression diagnosis and any personality disorder diagnosis), was conducted to examine main and interaction effects on nine dependent variables measuring the severity of PTSD symptoms and impairment (the Mississippi Scale for Combat-Related PTSD, the Penn Inventory for PTSD, the IES-I, and the IES-A), the GSI, dissociation, anxiety, depression, and object relations. Consistent with a view of DESNOS as a severity marker for posttraumatic impairment, DESNOS was significantly associated with more distress on a multivariate basis, Hotelling's $F(9, 64) = 3.1$, $p < .01$, with univariate main effects for (increased) intrusive reexperiencing (IES-I) and (decreased) object relations, $Fs(1, 72) = 12.5$ and 4.5, $p < .001$ and $.05$, respectively. PTSD also was significantly associated with several variables on a multivariate basis, Hotelling's $F(9, 64) = 7.0$, $p < .001$, with univariate main effects for (increased) Mississippi Scale for Combat-Related PTSD scores, (increased) Penn Inventory for PTSD scores, and (increased) object relations levels, $Fs(1, 72) = 17.4$, 7.2, and 46.6, respectively, $p < .001$. The PTSD × DESNOS interaction was not significant, Hotelling's $F(9, 64) = 0.8$, $p > .50$. Thus, PTSD and DESNOS had distinctly different patterns of univariate effects, as displayed graphically for the Mississippi Scale for Combat-Related PTSD, the Penn Inventory for PTSD, the IES-I, and the OR-C scales in Figure 1.

Next, I compared participants who had a PTSD diagnosis but not DESNOS (PTSD only) with those with DESNOS but not a PTSD diagnosis (DESNOS only) using a one-way MANCOVA with the same two covariates and dependent variables. The multivariate effect for group was significant, Hotelling's $F(9, 28) = 6.7$, $p < .001$. The only univariate differences were that DESNOS-only participants had higher IES-I scores and lower object relations scores than PTSD-only participants, $Fs(1, 36) = 5.2$ and 40.2, $p < .05$ and $.001$, respectively.

Treatment Use Associated With PTSD and DESNOS

Dichotomous scores for admission for inpatient psychiatric hospitalization (a) in the past year and (b) ever as an adult served as dependent variables in multivariate logistic regression analyses, with major depression, any personality disorder, PTSD diagnosis, and DESNOS as predictors. DESNOS was the sole risk factor for

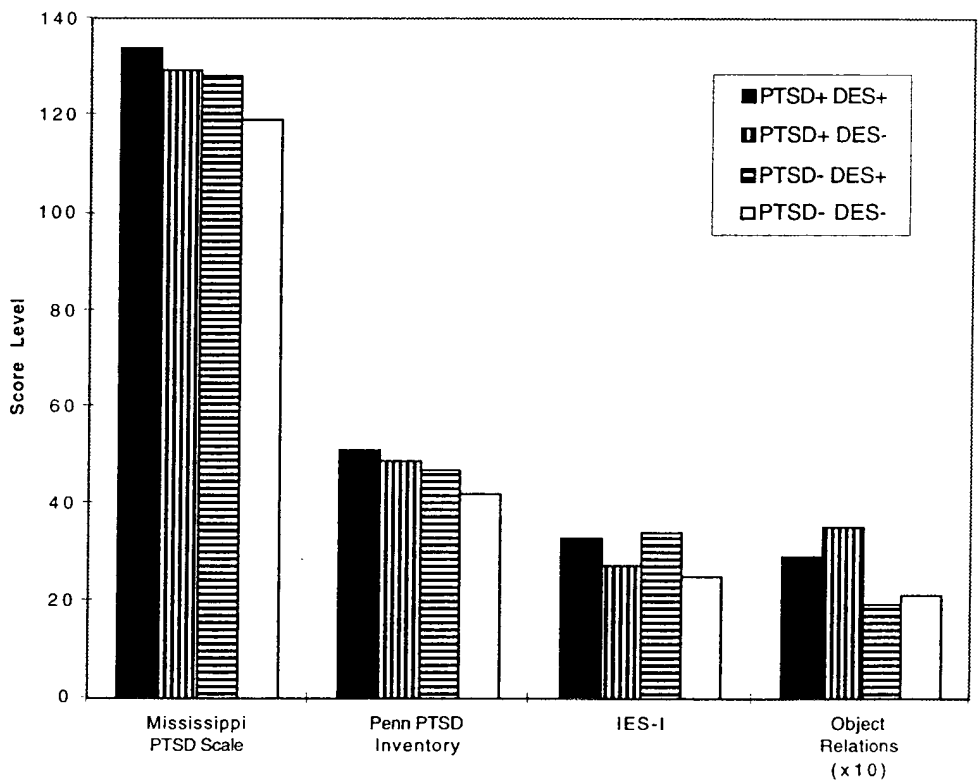

Figure 1. The Mississippi PTSD Scale, the Penn PTSD Inventory, the IES-I, and Object Relations Clinician Rating levels associated with groups classified by PTSD diagnosis, present (+) or absent (-), and disorders of extreme stress not otherwise specified, present (+) or absent (-). PTSD = posttraumatic stress disorder; IES-I = Impact of Events Scale (Intrusive Reexperiencing subscale); DES = disorders of extreme stress not otherwise specified.

past-year psychiatric hospital admission (OR = 2.72, 95% CI = 1.00–5.81, p = .05). DESNOS and major depression were independent risk factors for lifetime inpatient psychiatric admission (ORs = 3.67 and 7.21, 95% CIs = 1.85–8.66 and 2.93–12.11, $p <$ .05 and .01, respectively). On an unadjusted basis, the four groups defined by DESNOS and PTSD diagnosis differed significantly on likelihood of lifetime inpatient admission and showed a similar pattern (p = .10) for past-year inpatient admission. Regardless of PTSD diagnosis, participants with DESNOS had higher likelihoods of past-year or lifetime inpatient psychiatric hospitalization than those without DESNOS, $\chi^2(1, N = 84) = 5.46$ and 10.53, $p <$ .05 and .01, respectively (see Table 1).

Discussion

The evidence from this study seems more consistent with a formulation of DESNOS and PTSD as separate comorbid posttraumatic syndromes than with an NIMH Field Trial view of DESNOS as an associated feature of PTSD. DESNOS can be distinguished from PTSD (and from major depression and personality disorder) by (a) differential diagnosis, (b) early childhood trauma and war-atrocity participation, (c) extreme intrusive reexperiencing symptoms and impaired object relations, and (e) high risk for inpatient psychiatric care. DESNOS's effects in this study were robust because of occurring despite a possible ceiling effect due to frequent endorsement of DESNOS symptoms by all groups. However, study limitations, including a restricted sample (although representative of the military veteran PTSD-treatment-seeking population; Fontana & Rosenheck, 1997), a cross-sectional design, the assessment of PTSD and DESNOS by the same clinician rather than by independent clinicians (although with blind independent reliability ratings), and unavoidable retrospective biases in trauma history data (although collected through detailed historical interviewing with standard protocols, reliability checks, and a sampling of the full range of childhood and war traumas), mitigate against either a definitive ruling out of the associated features model or a confirmation of a comorbid syndromes formulation of DESNOS and PTSD.

PTSD diagnosis and DESNOS were highly comorbid but neither isomorphic nor inseparable. PTSD and DESNOS each occurred often (approximately 60% prevalence) and were comorbid in almost 1 in 3 participants. However, approximately half of those with DESNOS were not diagnosed with PTSD, suggesting substantial nonoverlap of the two syndromes. DESNOS also occurred as frequently separate from PTSD as in conjunction with PTSD—quite different from the NIMH Field Trial finding that only 8% of respondents classified as DESNOS were not diagnosed with PTSD (Roth et al., 1997; van der Kolk et al., 1996). Although both major depression and personality disorder were often comorbid with both DESNOS and PTSD, only DESNOS had a more-than-chance association with major depression or the presence of a personality disorder.

Several factors may have contributed to the finding of greater independence of PTSD and DESNOS in this study than in the NIMH Field Trial. The absence of women, the preponderance of physical rather than sexual child abuse trauma, and the chronicity of posttraumatic impairment in the present sample may have made PTSD and DESNOS more discriminable by increasing both the frequency and severity of risk taking, violence, injury, self-destructive actions, and chronic illness (Friedman & Rosenheck, 1996). Had study participants had histories of childhood sexual abuse more often, as was true in the NIMH Field Trial (but atypical among male military veterans; Southwick et al., 1993), greater overlap of PTSD and DESNOS might also have been found.

The finding that non-Caucasian participants were classified as DESNOS more often than their Caucasian counterparts suggests a need for replication with other non-Caucasian ethnicities beyond the primarily Native American subsample in this study, as well as for evaluation of the DESNOS criteria for both cultural sensitivity and bias. Native American Vietnam in-country veterans have very high prevalences of PTSD and severe psychosocial impairment, as well as high levels of both combat and early childhood trauma (Friedman & Matsunaga Study Investigators, 1998), which may also lead to DESNOS.

Trauma history data showed that, consistent with prior research on military-related PTSD (Bremner, Southwick, & Charney, 1995) and on DESNOS (Roth et al., 1997), traditional combat trauma was the key risk factor for PTSD and early childhood trauma was an independent risk factor for DESNOS. However, DESNOS and PTSD were differentially related to atrocity exposure (Unger, Gould, & Babick, 1998). Atrocity participation was a risk factor for DESNOS, not PTSD. Witnessing atrocities was related to (although not an independent risk factor for) PTSD. Perhaps DESNOS could be viewed as a feature of PTSD caused by developmental adversities, not only in childhood, but also in later formative periods (e.g., atrocity participation in early adulthood). However, there was no evidence that PTSD was intrinsic to the association of DESNOS with childhood or atrocity participation trauma: Regardless of PTSD status, both trauma types were independent risk factors for DESNOS. It seems more parsimonious to view DESNOS as a sequela of developmentally adverse trauma independent of PTSD. A history of childhood trauma may be related to PTSD in military veterans, but where this finding is based on PTSD symptom measures rather than diagnoses (Engel et al., 1993; Zaidi & Foy, 1994) or on comparison samples not controlling for psychiatric status (Bremner et al., 1993), what appears due to PTSD may actually be due to DESNOS or to comorbid psychiatric disorders. PTSD and DESNOS appear to have distinct trajectories, with DESNOS uniquely associated with early trauma and atrocity participation. Further clarification of the etiology and course of PTSD and DESNOS will require longitudinal studies with large and representative samples, comprehensive assessment of the full range of types of trauma (D. King, King, Gudanowski, & Vreven, 1995) and of potentially mediating or moderating vulnerability and resiliency factors, and multivariate analyses (e.g., confirmatory factor and path analyses; L. King, King, Fairbank, Keane, & Adams, 1998).

Hypothesis 2 proposed that DESNOS's effect on symptomatic or functional impairment occurs largely in interaction with PTSD or as parallel main effects. However, there was no interaction of DESNOS with PTSD in the MANCOVA (or on a univariate basis), and DESNOS and PTSD had separate main effects on different variables. Similar results were obtained in a direct test comparing PTSD-only participants with DESNOS-only participants. Specifically, DESNOS (but not PTSD) was independently related to extreme posttraumatic intrusive reexperiencing on the IES-I, whereas PTSD diagnosis was associated with especially severe global posttraumatic impairment on Mississippi Scale for Combat-

Related PTSD and Penn Inventory for PTSD. PTSD and DESNOS had opposite main effects for object relations, respectively positive and negative.

These apparently incompatible findings raise the question of why DESNOS would be a severity marker for one PTSD symptom scale (IES-I) and why PTSD diagnosis would be a severity marker for two other measures (the Penn Inventory for PTSD and the Mississippi Scale for Combat-Related PTSD) that include many similar posttraumatic symptoms. One possibility is that DESNOS is a severity marker (Roth et al., 1997) only for posttraumatic impairment specifically related to its cardinal features (i.e., extreme dysregulation of affect and consciousness). DESNOS appears to involve a variety of posttraumatic alterations in bodily and cognitive processing of emotionally charged information, which may be due to, for example, neurobiological sensitization (Friedman, 1994), fragmented information processing (van der Kolk & Fisler, 1995), or unmodulated activation of cognitive–affective associational networks (Foa, Riggs, & Gershuny, 1994). Living with what often is described by sufferers as an unpredictable and overwhelming flood or firestorm of terrifying and humiliating emotions, thoughts, and impulses may be understood as an undampened positive feedback cycle in which unmodulated distress is associated with reliving trauma as an out-of-control experience involving escalating disorientation and a sense of being entrapped and revictimized by one's own body and mind. This is a terrible but precise recipe for intrusive trauma reexperiencing that is not just disturbing but terrifying, uncontrollable, and self-damaging (Laufer, 1988). Thus, an association of DESNOS with extreme intrusive reexperiencing is plausible and of potential value to clinicians in understanding and treating trauma survivors who seem to have "more" than PTSD.

Chronic PTSD, by contrast, may be associated with the severity of more global posttraumatic psychosocial impairment (Friedman & Rosenheck, 1996). PTSD's cardinal features are of trauma-related hyperarousal that triggers intrusive reexperiencing and the attempt to cope through hypervigilant or emotionally numbed avoidance (Horowitz, 1986). In this regard, it is interesting that, unlike the IES, the Penn Inventory for PTSD includes several items that assess problems with personal and spiritual goal setting and attainment and with self-knowledge, self-control, and self-efficacy (i.e., Items 2, 10, 14, 15, 18, 20, and 23), and the Mississippi Scale for Combat-Related PTSD includes five items that have been shown, factor analytically, to compose a distinct factor representing suicidal ideation and guilt (i.e., Items 2, 8, 10, 12, and 15; D. King & King, 1994), as well as items that load on a factor for diminished self-efficacy in relational and work contexts (e.g., Items 5 and 19). Although it is not known whether a PTSD diagnosis correlated most strongly with these specific Penn Inventory for PTSD and Mississippi Scale for Combat-Related PTSD items, it is possible that prolonged PTSD is distinguished by particularly severe emotional numbing and demoralization (Foa et al., 1994)—that is, a chronic state of down regulation, in contrast to DESNOS's apparent inability to down regulate intense affects.

The directionally opposite relationship found for DESNOS versus PTSD with object relations may provide a clue to understanding why DESNOS, but not PTSD, is associated with particularly extreme intrusive reexperiencing. The extreme affective and impulsive lability, self-fragmentation, pathological dissociation, existential confusion, and interpersonal conflict characterizing DESNOS (Herman, 1992) seem likely to compromise an individual's core object relations. And without the coping capacities and social connectivity afforded by mature object relations, trauma reexperiencing may go largely unchecked and may rarely be soothed or grounded by either self-regulation or social support. Prior studies have reported that object relational capacities positively predict (Ford et al., 1997) and DESNOS negatively predicts (Ford & Kidd, 1998) PTSD treatment outcome. Poor object relations may explain why in DESNOS trauma reexperiencing might escalate unchecked because the individual lacks the characterologic capacity to successfully modulate intense affects.

Note also that PTSD may be uncorrelated or even negatively correlated with object relations in other samples that, unlike the present one, are characterized, respectively, by traumatic stressors that either do not fundamentally impair psychological development (Yehuda & McFarlane, 1995) or consistently adversely affect core object relational capacities (e.g., prolonged sexual molestation; Cicchetti & Toth, 1995). The positive correlation between PTSD and object relations most likely is attributable to an idiosyncrasy of this sample—namely, that PTSD-diagnosed participants had a restricted range of scores in the midrange on the Object Relations scale and that participants who did not meet criteria for PTSD had more variability in object relations while tending to score at a lower level.

DESNOS, but not PTSD, was an independent risk factor for recent or lifetime inpatient psychiatric treatment (controlling for the effect of major depression and personality disorder). DESNOS without PTSD was associated with as high a likelihood of recent or lifetime psychiatric hospitalization as was DESNOS with comorbid PTSD. Although all participants were admitted to an inpatient PTSD treatment program at the time of the study, this admission was distinct from other forms of psychiatric inpatient hospitalization in being a nonacute residential milieu program rather than the more costly (due to high nursing and medical staffing intensity) and crisis-oriented (due to typically unscheduled acute admissions) nature of other inpatient psychiatric episodes. As Ronis et al. (1996) showed in the larger VA health care system, the military veteran trauma survivors in this study tended to be episodic high users of psychiatric and PTSD services. Recognizing DESNOS as a particular risk for inpatient psychiatric episodes may help to reduce the stigma too often attached to chronic PTSD and increase clinician's ability to distinguish veterans with chronic PTSD who are not at high risk for crises from those who may have no or only partial PTSD but whose care should include crisis prevention and management due to DESNOS.

DESNOS is a new and complicated classification in need of construct validity research (e.g., through a multitrait–multimethod approach). Clinically, trauma-focused treatment with DESNOS may require careful grounding in ongoing community-based case management (Friedman & Rosenheck, 1996), therapeutic titration of the intensity of affect and reexperiencing (Ford & Kidd, 1998), and strategic episodes of milieu care integrating affect regulation with trauma processing (Ford et al., 1997). The sequelae of early childhood and atrocity trauma involve "traumagenic dynamics" (e.g., a sense of betrayal and stigma [Finkelhor, 1995] and accumulative impact [Follette, Polusny, Bechtle, & Naugle, 1996]) that go beyond PTSD and may best be understood in terms of DESNOS. Differential assessment of PTSD, DESNOS, and comorbid Axis I or II disorders seems advisable with veterans

seeking treatment for chronic PTSD to not falsely attribute DESNOS-like symptoms to PTSD, depression, or a personality disorder. Some patients with extensive trauma histories may be best understood and treated with a focus on DESNOS, as well as PTSD, personality disorder, or depression. This is not an either–or issue: DESNOS does not replace Axis I or II diagnoses but offers a complementary perspective for diagnosis and treatment.

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