Personality Dysfunction and Complex Posttraumatic Stress Disorder Among Chronically Traumatized Bosnian Refugees

Sabina Palić, PhD and Ask Elklit, MSc

Abstract: A proposal for the inclusion of complex posttraumatic stress disorder (CPTSD) in the upcoming ICD-11 has been put forward. Using self-report, we investigated the resemblance between disorders of extreme stress not otherwise specified (DESNOS) and both axis I and II syndromes among 116 treatment-seeking Bosnian refugees. In this sample, the prevalence of DESNOS overlapped to a large degree with the prevalence of schizotypal and paranoid personality disorders (PDs). There was, however, also a large prevalence of axis I syndromes in the group. Thus, DESNOS in the refugees can be categorized as an axis I or II disorder depending on the chronicity and the severity of functional impairment. DESNOS and PD-like states were even observed among the refugees with no history of childhood maltreatment. No large differences were observed between DESNOS and PD regarding sex. The symptom constellation of CPTSD in the ICD-11 is partially supported. However, CPTSD might resemble PD to a considerable degree.

Key Words: Personality disorder, refugees, Bosnia and Herzegovina, DESNOS, complex PTSD, CPTSD, ICD-11

(*J Nerv Ment Dis* 2014;202: 111–118)

Traumatized refugees in Western countries often present with diverse symptoms of mental disorder that are not all featured in the diagnosis of posttraumatic stress disorder (PTSD; Nickerson et al., 2011). The level of traumatization among refugees is often extreme, encompassing experiences of persecution, genocide, political imprisonment, torture, beatings, rape and sexual exploitation, frequent bombings, losing loved ones, losing all possessions, hunger, and disease. For many refugees, exposure to trauma is yearlong and consists of multiple traumas. Historically, there have been two attempts to create diagnoses that cover the pervasive effects of such extreme life stressors. The ICD-10 features the diagnostic criteria for enduring personality change after catastrophic experience (EPCACE), which encompasses chronically hostile or suspicious attitudes, social isolation, estrangement, hopelessness, and chronic alertness (World Health Organization, 1994). As part of the PTSD field trials for *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*), complex PTSD (CPTSD; Herman, 1992) was studied under the name *disorders of extreme stress not otherwise specified* (DESNOS; Pelcovitz et al., 1997). DESNOS consists of a large number of diverse symptoms covering the following six domains of dysfunction: affect and impulses, attention and consciousness (*i.e.*, dissociation), self-perception, relations with others, somatization, and systems of meaning. In terms of demarcation from other syndromes, there exists some overlap between symptoms of DESNOS and depression (Resick et al., 2012). Furthermore, many symptoms of DESNOS overlap with those of axis II disorders. There is an especially large overlap between DESNOS and borderline personality disorder (BPD; McLean and Gallop, 2003; Resick et al., 2012). Moreover, persistent symptoms of distorted self-perception, social isolation, and suspiciousness overlap with symptoms of schizoid, schizotypal, paranoid, and avoidant PDs from the *DSM-IV* (American Psychiatric Association [APA], 1994).

There are problems regarding the demarcation and assessment of DESNOS, which create obstacles when it comes to the use of DESNOS as a diagnostic category (Resick et al., 2012). In addition, although the diagnosis of EPCACE seems to be used for traumatized refugees (Beltran et al., 2008), it has remained almost completely unresearched since its conception. Despite problems with diagnostic demarcation, clinicians and researchers have insisted on the meaningfulness of the CPTSD as a trauma-related disorder, one which is qualitatively different from PTSD (Cloitre et al., 2011). Furthermore, a proposal for the inclusion of CPTSD in the ICD-11 has again been put forward (Maercker et al., 2013). On the basis of existent DESNOS literature and an expert survey on CPTSD, it has been suggested that CPTSD in ICD-11 should be composed of current PTSD with disturbances in affect regulation, negative self-concept, and interpersonal problems (Cloitre et al., 2013). Former DESNOS domains, somatization, and alterations in systems of meaning have been excluded from the proposed diagnosis of CPTSD, whereas estrangement and avoidance of interpersonal relationships have been given more prominence to differentiate CPTSD from BPD. Prolonged dissociation is proposed to be included under affective dysregulation (Cloitre et al., 2013). Being deducted from DESNOS, the CPTSD proposal for ICD-11 still resembles DESNOS, but it has also been brought closer to the EPCACE, which has suspiciousness, social isolation, and estrangement at its core. The first evidence supporting the proposed distinction between CPTSD and PTSD has been published (Cloitre et al., 2013). However, it is also proposed that CPTSD is to have a "sibling" relationship to PTSD in ICD-11 and that CPTSD is more malleable to psychotherapeutic interventions than are PDs (Maercker et al., 2013). Studies have yet to back up this claim. Meanwhile, on the conceptual level, the emphasis on functional impairment within the diagnostic criteria of CPTSD coupled with affective dysregulation and interpersonal problems resembles axis II type pathology. Indeed, newer insights indicate that the strongest indicators of PD are persistent interpersonal problems and functional impairment and not the stability of specific PD symptoms (Skodol et al., 2005).

Besides the symptom overlap, there is also overlap in etiology between different CPTSD syndromes and PD. This is indicated by high incidences of adverse childhood experiences (ACEs) in both PD (Battle et al., 2004; Johnson et al., 2000; Zhang et al., 2012) and DESNOS (van der Kolk et al., 2005) as well as the proposed CPTSD (Cloitre et al., 2013). Of all PDs, BPD has consistently been found to show the strongest unique associations with different forms of ACE (Battle et al., 2004; Zhang et al., 2012). Schizotypal PD (SPD), although also considered to be a schizophrenia spectrum disorder, is also associated with traumatic exposure in both childhood and adulthood (Berenbaum et al., 2008; Powers et al., 2011; Yen et al., 2002). Importantly, on a conceptual level, BPD and SPD have the largest symptom overlap with DESNOS and the proposed CPTSD.

CPTSD/DESNOS has seldom been systematically studied in refugees. Only three smaller studies exist (Teegen and Vogt, 2002; Teodorescu et al., 2012; Weine et al., 1998). Until now, proposals and revisions of

National Centre for Psychotraumatology, Institute of Psychology, University of Southern Denmark, Odense, Denmark.
Send reprint requests to Sabina Palić, MSc Psychology, National Centre for Psychotraumatology, University of Southern Denmark, Campusvej 55, 5230 Odense, Denmark. E-mail: spalic@health.sdu.dk.
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ISSN: 0022-3018/14/20202–0111
DOI: 10.1097/NMD.0000000000000079

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CPTSD syndromes have been made without empirical evidence for this group. Considering the repeated prolonged life-threatening experiences, torture, and political imprisonment, the refugees comprise individuals with some of the most extreme adult trauma exposure. Because of symptom and etiological resemblance with BPD, the concept of CPTSD is, however, currently closely related to the trauma of childhood maltreatment and axis II pathology. Little is known about whether CPTSD and axis II pathology apply to extreme trauma experienced only in adulthood.

Although we know from previous studies that DESNOS can be present among traumatized refugees, it has not yet been established whether PD-like symptoms can be present among traumatized refugees when the presence of ACE has been excluded. Furthermore, the comorbidity of CPTSD and axis II pathology in refugees has never been studied. A large overlap between DESNOS and axis II syndromes in traumatized refugees will imply that complex traumatization is indeed axis II–like in the group. The possible overlap of complex traumatization with axis II syndromes in refugees is important to examine with regard to the proposed sibling relationship of CPTSD and PTSD in the upcoming ICD-11. This study examined the following questions:

> To what degree do BPD and SPD resemble DESNOS and DESNOS domains proposed to compose CPTSD when these are assessed in traumatized refugees?
> Is the presence of ACE necessary for the development of complex traumatization and PD? That is, could DESNOS, CPTSD, or even PD apply to traumatized refugees even when there is no presence of ACE?
> Furthermore, are DESNOS and axis II pathology equally prevalent in men and women with refugee trauma?

Complex traumatization will be examined using the concept of DESNOS because it is the broadest of the "CPTSD" syndromes; it comprises all of the problem areas that feature within the proposed ICD-11 diagnosis of CPTSD (direct measures of CPTSD have not yet been developed). This study will assess the correlation and the convergence between the Structured Inventory for Disorders of Extreme Stress (SIDES-SR), which measures DESNOS, and the Millon Multiaxial Clinical Inventory–III (MCMI-III), a measure of PD that also comprises scales for a number of axis I disorders. Given that DESNOS reflects PD in refugees, it is hypothesized that the SIDES-SR and its subscales will demonstrate the highest positive correlations with the MCMI-III axis II scales, particularly the borderline and schizotypal scales. This hypothesis concerns all of the SIDES-SR subscales apart from somatization, which is measured on axis I. In addition, if DESNOS captures axis II pathology in refugees, there should be a high overlap in the estimated prevalence of CPTSD, BPD, and SPD. This study will furthermore explore whether DESNOS and PD are especially related to ACE and sex in traumatized refugees. Finally, given that there are no validated measures for PD and DESNOS for refugees, if predictable convergence is found between the above-mentioned measures, then it is also likely that the measures will have performed as intended in relation to the present refugee population.

METHODS

Participants and Procedures

Participants were 116 Bosnian refugees who had fled to Denmark from the 1992–1995 war in Bosnia-Herzegovina. The participants came from a European, secularized society, which had prewar living and educational standards comparable with many of its European neighbors (because PD is, per definition, a culturally relative concept [APA, 2000], the European origin of the participants makes exploration of personality dysfunction with western measures straightforward in this group). The United Nations (UN) has documented the extent of the atrocities committed during the war; the Bosnian, mainly Muslim, population was exposed to genocide and ethnic cleansing, imprisonment in detention camps, mass murder, torture, systematic rape, and forced deportation (UN Commission of Experts on the Former Yugoslavia, 1994).

The participants were recruited from 6 of 10 possible rehabilitation centers for traumatized refugees in Denmark. Danish rehabilitation centers for traumatized refugees are specialized clinics within the Danish mental health system. Each covers a specific catchment area, the patients do not pay for treatment, and all refugees (with an established refugee status) suspected to have war trauma–related impairments have equal access to treatment. The six included clinics covered the catchment areas with the highest concentration of Bosnian refugees. All Bosnian-speaking patients from the six clinics were considered to be potential participants. Exclusion criteria included the presence of severe alcohol or drug addiction, a primary diagnosis of psychotic disorder, and acute suicidal threat. All participants provided written consent to participate in this study. This study was conducted in accordance with the Ethical Principles for Nordic Psychologists (Nordic Psychological Associations, 2007) and the ethical guidelines of the rehabilitation centers.

Recruitment of the participants ran from May 2010 to May 2011. Rates of participation varied between centers, ranging from 13% to 39%. At the time of assessment, 57% of the participants had completed treatment, 28% were currently in treatment, and 15% were on a wait list. The participants were between 30 and 67 years of age (mean, 46.5; SD, 8.1). The mean length of stay in Denmark was 16.1 years (SD, 3.0; range, 4–20 years). All participants had permanent residence in Denmark and are more correctly considered former refugees. Fifty-three percent of the participants were women. Seventy-two percent had at least 12 years of formal education. The participants' experiences of severe war trauma are categorized as follows: loss of a close family member (90%), torture (72%), beating (53%), imprisonment in detention camps (51%), and rape and other sexual assault (33%). Thirty percent of the participants had been awarded a disability pension, 40% were in the process of

TABLE 1. Cronbach's Alpha Coefficients for the SIDES-SR Scales Plus Percentage of Prevalence of DESNOS, DESNOS Symptom Clusters, and Total Number of Endorsed DESNOS Clusters in the ACE Positive, the War Trauma Only, and the Total Group

		Prevalence		
Characteristic	α	ACE Positive (n = 34)	War Trauma (n = 82)	Total (n = 116)
Cluster/Scale				
Regulation of affect and impulses	0.86	53%	48%	49%
Attention and consciousness	0.78	77%	77%	77%
Self-perception	0.77	77%	59%	64%
Relations with others	0.72	91%	79%	83%
Somatization	0.78	88%	66%	72%
Systems of meaning	0.80	79%	71%	73%
DESNOS	0.94	38%	32%	34%
No. endorsed DESNOS clusters				
0		0%	11%	8%
1		6%	6%	7%
2		6%	7%	6%
3		12%	9%	9%
4		9%	15%	12%
5		29%	21%	23%
6		38%	32%	34%

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evaluation of working ability (usually results in awarding of disability pensions), and 16% had sheltered work. Only 11% had a full-time job, and 2% were in school. Seventy-five percent of the participants were married, 10% were single, 7% were divorced, and the rest were either widowed or in a relationship. The present study was conducted using participants recruited for a larger research project regarding the assessment of CPTSD among traumatized refugees. The participants who filled out all of the self-report measures were included in the present study (80% of the original sample).

Measures

The SIDES-SR was used to determine presence of DESNOS and morbidity on its symptom domains (Luxenberg et al., 2001; van der Kolk, 2003). The SIDES-SR is a 45-item self-report questionnaire developed on the basis of the SIDES interview from the PTSD trials for *DSM-IV* (Pelcovitz et al., 1997). The participants were asked to indicate, on a scale from 0 to 3 (0, no symptoms; 3, severe symptoms), the presence and the severity of symptoms during the last month. The measure showed good internal consistency. Cronbach's alpha coefficients for the SIDES-SR and its subscales are presented in Table 1.

The MCMI-III is a 179-item self-report measure of axis I and II pathology. Most of the scales reflect *DSM-IV* disorders (Millon, 1997). The measure comprises 14 axis II personality pattern scales and 10 axis I clinical syndrome scales (see Table 2). Cronbach's alpha coefficients for the MCMI-III scales were in the range of those reported for the original American version and other validated translations (Elklit and Simonsen, 2005; Rossi et al., 2003). These are presented in Table 2. Prevalence of pathology on the MCMI-III was estimated using Danish clinical norms (Elklit and Simonsen, 2005). Base rate (BR) scores on the MCMI-III range from 0 to 115. Higher scores indicate higher symptom levels. BR of 75 or greater indicates the presence of subclinical PD. BR of 85 or greater indicates a probable PD diagnosis. BR of 75 or greater on axis I scales indicates a probable axis I diagnosis. Profiles that did not fulfill the MCMI-III validity criteria were excluded.

ACEs were assessed using five dichotomous (yes/no) questions derived from a previous ACE study (Dong et al., 2004). The questions covered emotional, physical, and sexual maltreatment as well as physical neglect and the witnessing of violence between parents before the age of 18 years. Each ACE question was supplemented by two questions that addressed the age at which the specific trauma started and the age at which it ended. In accordance with the DESNOS paradigm (van der Kolk et al., 2005), the ACE trauma types that occurred at 14 years or younger were considered to be indicative of ACE. The ACE trauma types that occurred at a later age were considered to be ACE negative. Those having experienced at least one ACE according to the above-mentioned definition were considered overall ACE positive. All of the questionnaires were translated and back translated into Bosnian. Inconsistencies between translation and back translation were determined by consensus between the translators.

Data Analyses

Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) for Windows 19.0 (SPSS Inc). Overall,

TABLE 2. Cronbach's Alpha Coefficients and Descriptive Statistics for the MCMI-III BR Scores Acquired by the ACE Positive, the War Trauma Only, and the Total Groups

Personality Patterns and Clinical Syndromes	α	ACE Positive (n = 31)				War Trauma (n = 71)				Total (n = 102)			
		Mean	SD	≥75, %	≥85, %	Mean	SD	≥75, %	≥85, %	Mean	SD	≥75, %	≥85, %
Axis II: clinical personality patterns													
Schizoid	0.72	76.9	16.6	61	36	79.1	17.0	68	41	78.5	16.9	66	39
Avoidant	0.83	79.3	12.9	68	36	73.0	22.3	66	31	74.9	20.0	67	32
Depressive	0.80	80.6	10.5	77	39	70.1	21.5	45	23	73.3	19.4	55	28
Dependent	0.77	76.4	20.9	71	32	77.2	19.1	70	30	76.9	19.6	71	30
Histrionic	0.77	22.6	16.5	0	0	26.4	20.8	1	0	25.2	19.6	1	0
Narcissistic	0.63	37.9	20.9	3	3	43.8	22.2	6	4	41.9	21.9	5	4
Antisocial	0.74	43.8	19.9	3	3	38.8	21.4	0	0	40.3	20.9	1	1
Aggressive	0.77	56.7	13.8	7	0	54.0	17.8	4	0	54.8	16.7	5	0
Compulsive	0.57	42.8	17.1	0	0	44.9	16.9	1	0	44.3	16.9	1	0
Passive-aggressive	0.76	74.1	14.2	52	19	70.4	20.5	54	20	71.5	18.8	53	20
Self-defeating	0.84	73.1	16.1	65	23	68.2	21.0	45	20	69.7	19.7	51	21
Severe personality patterns													
Schizotypal	0.86	72.1	11.9	39	16	67.2	21.1	37	21	68.7	18.9	37	20
Borderline	0.78	66.5	11.8	29	3	58.5	19.5	18	6	60.9	17.8	22	5
Paranoid	0.80	79.4	15.1	58	26	73.4	18.5	39	21	75.3	17.6	45	23
Axis I: clinical syndromes													
Anxiety	0.80	98.4	9.5	100	90	93.9	18.7	93	79	95.3	16.5	95	82
Somatoform	0.80	86.1	15.4	68	48	80.1	19.5	54	39	81.9	18.5	58	42
Bipolar-manic	0.66	61.8	15.1	16	7	54.2	18.5	1	1	56.5	17.8	6	3
Dysthymia	0.85	84.0	17.1	81	45	77.9	24.4	72	42	79.8	22.5	75	43
Alcohol dependence	0.68	59.6	13.6	13	0	56.4	17.8	9	3	57.4	16.6	10	2
Drug dependence	0.67	37.4	21.4	3	0	32.5	22.6	0	0	34.0	22.3	1	0
Posttraumatic stress	0.86	84.7	11.5	81	45	79.8	17.1	69	39	81.3	15.7	73	41
Severe syndromes													
Thought disorder	0.82	68.9	12.6	19	7	65.8	16.8	21	7	66.8	15.6	21	7
Major depression	0.86	85.8	13.7	77	61	80.4	19.6	65	47	82.1	18.1	67	51
Delusional disorders	0.75	61.9	21.9	13	7	57.8	23.9	16	9	59.1	23.3	15	8

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16.9% of the data were missing, which is an acceptable level for imputing missing values (Newman, 2003). Little's missing completely at random test indicated that data were missing completely at random. Data on all standardized measures were imputed using the expectation maximation algorithm in the SPSS. Because of the restricted sample size and the relatively large number of repeated comparisons, both unadjusted *p*-values and post hoc Benjamini-Hochberg's adjustments for multiple testing (Benjamini and Hochberg, 1995) are reported. Score differences between groups are analyzed with *t*-tests. Differences in prevalence of specific disorders are analyzed with the chi-square test.

RESULTS

Correlation Between the SIDES-SR and the MCMI-III

Fourteen participants had invalid MCMI-III profiles. There was missing information for nine individuals on the ACE variable. Even without adjustments for multiple testing ($p < 0.05$ maintained in all tests), there were no differences between the participants who had and had not completed treatment regarding scores on the SIDES-SR, SIDES-SR subscales, or any of the 24 MCMI-III scales. Therefore, all participants were treated as one group. Table 3 shows the correlations between the SIDES-SR, SIDES-SR subscales, and MCMI-III scales. Many of the scales correlated strongly, positively, and significantly ($p < 0.0001$) with each other (the significance level was adjusted for multiple testing; 168 repeated tests). The SIDES-SR correlated strongly and positively with a large number of the axis I and II scales on the MCMI-III. The strongest positive correlation was found between the SIDES-SR and the schizotypal scale on axis II ($r = 0.74$). The SIDES-SR also correlated strongly with the borderline scale ($r = 0.72$) and the following axis I scales: thought disorder ($r = 73$), somatoform ($r = 0.72$), dysthymia ($r = 0.71$), and major depression ($r = 0.71$). Notably, the correlation between the SIDES-SR and PTSD was also strong and positive but somewhat lower ($r = 0.64$). In terms of divergent validity, negative correlations were found between all of the SIDES-SR subscales and the histrionic, narcissistic, and compulsive MCMI-III scales.

Prevalence of DESNOS and Axis I and II Pathology

Table 1 depicts the prevalence of DESNOS and DESNOS symptom domains (including those that are featured in the proposed CPTSD diagnosis for ICD-11). In the total sample, the prevalence of full-scale DESNOS was 34% (mean, 51.1; SD, 22.1). Furthermore, 23% of the total sample fulfilled the criteria for five of the DESNOS symptom clusters. Table 2 presents percentages of clinical and subclinical syndromes on the MCMI-III scales. According to the cutoff for PD (BR ≥ 85), there is a prevalence of 20% to 40% of internalizing (avoidant, depressive, and self-defeating) personality patterns in the total sample. In contrast, the prevalence of externalizing personality patterns such as histrionic, narcissistic, and antisocial is 0% to 4%. On the severe personality pathology scales, the paranoid personality patterns had the highest prevalence (23%) in the total sample. This is followed by

TABLE 3. Correlations Between the MCMI-III Scales and Both the SIDES-SR and Its Subscales ($n = 102$)

	SIDES-SR	Regulation of Affect and Impulses	Attention and Consciousness	Self-perception	Interpersonal Relations	Somatization	Systems of Meaning
Axis II clinical personality patterns							
Schizoid	0.60**	0.52**	0.50**	0.50**	0.57**	0.32**	0.62**
Avoidant	0.69**	0.60**	0.52**	0.61**	0.61**	0.40**	0.70**
Depressive	0.63**	0.49**	0.57**	0.58**	0.54**	0.40**	0.66**
Dependent	0.54**	0.41**	0.48**	0.47**	0.48**	0.36**	0.60**
Histrionic	−0.54**	−0.53**	−0.38**	−0.49**	−0.39**	−0.28**	−0.52**
Narcissistic	−0.20	−0.14	−0.09	−0.24*	−0.11	−0.16	−0.29**
Antisocial	0.47**	0.42**	0.34**	0.40**	0.55**	0.17	0.46**
Sadistic	0.40**	0.41**	0.26**	0.33**	0.47**	0.16	0.33**
Compulsive	−0.36**	−0.35**	−0.25*	−0.35**	−0.38**	−0.10	−0.33**
Negativistic	0.61**	0.57**	0.48**	0.53**	0.60**	0.27**	0.59**
Masochistic	0.69**	0.62**	0.54**	0.62**	0.62**	0.35**	0.68**
Severe personality pathology							
Schizotypal	**0.74****	0.63**	0.65**	0.64**	**0.68****	0.45**	0.70**
Borderline	0.72**	**0.65****	0.61**	0.62**	0.64**	0.39**	0.69**
Paranoid	0.46**	0.42**	0.36**	0.37**	0.48**	0.26**	0.40**
Axis I clinical syndromes							
Anxiety	0.69**	0.61**	0.63**	0.56**	0.58**	0.42**	0.66**
Somatoform	0.72**	0.57**	0.65**	0.60**	0.60**	**0.54****	0.67**
Bipolar-manic	0.43**	0.37**	0.44**	0.29**	0.46**	0.27**	0.33**
Dysthymia	0.71**	0.59**	0.56**	**0.66****	0.63**	0.40**	**0.74****
Alcohol dependence	0.56**	0.54**	0.43**	0.48**	0.53**	0.28**	0.52**
Drug dependence	0.24*	0.21*	0.18	0.20*	0.34**	0.05	0.24*
PTSD	0.64**	0.56**	0.58**	0.51**	0.52**	0.39**	0.63**
Severe syndromes							
Thought disorder	0.73**	0.58**	**0.71****	0.60**	0.66**	0.46**	0.72**
Major depression	0.71**	0.58**	0.62**	0.62**	0.62**	0.40**	0.72**
Delusional disorder	0.49**	0.44**	0.40**	0.38**	0.46**	0.29**	0.44**

Highest correlations between the SIDES-SR and MCMI-III scales are in bold.
*$p < 0.05$.
**$p < 0.0001$.

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schizotypal personality patterns (20%). Pathological (BR ≥ 85) borderline personality patterns (5%) were much more rare in the group. When mutual comorbidity on the three scales for severe PD was excluded, 32% of the total sample scored higher than the cutoff (BR ≥ 85) on the schizotypal, the borderline, or the paranoid scale (because of mutual comorbidity, the prevalence of severe PD sums up to 48% in Table 2). However, all participants who were positive on the borderline scale were also positive for SPD. Table 2 indicates that axis I syndromes were more prevalent than axis II syndromes in the refugee group. The most prevalent axis I disorders included PTSD, anxiety, dysthymia, major depression, and somatoform disorder. All were much more prevalent than DESNOS.

The Relationship of ACE and Sex to PD and DESNOS

Twenty-nine percent of the refugees in the present sample had experienced at least one ACE at 14 years or younger. As expected, the refugees with ACE (mean, 56.7; SD, 16.7) scored significantly higher on the SIDES-SR ($t[114] = 2.03$, $p < 0.04$) compared with the refugees without ACE (mean, 48.8; SD, 23.7). However, no significant differences were found between the refugees with and without ACE regarding the fulfillment of DESNOS criteria. As regards the MCMI-III, the refugees with ACE scored significantly higher on the depressive personality pattern (axis II) scale than the refugees without ACE ($t[100] = 3.31$, $p < 0.001$). The refugees with ACE also scored significantly higher than the refugees without ACE on the borderline ($t[100] = 2.55$, $p < 0.02$) and bipolar/manic (axis I) scales ($t[100] = 2.03$, $p < 0.04$). No other significant differences were observed between the refugees with and without ACE on the MCMI-III. Table 2 presents descriptive statistics (means and standard deviations) for the MCMI-III BR scores acquired by the refugees with and without ACE. No differences were observed between the refugees with and without ACE regarding the prevalence of those who met a probable PD diagnosis (BR > 85) on the MCMI-III. Finally, after correcting for repeated testing, the only difference that remained statistically significant was the difference found between the refugees with and without ACE regarding scores on the depressive personality scale. None of the prevalence comparisons remained significant.

The descriptive statistics presented in Table 4 indicate no large sex differences in relation to acquired levels of PD and DESNOS in the present sample. The only significant sex differences were found in relation to the compulsive personality pattern, in which the women scored significantly higher than the men ($t[100] = 3.0$, $p = 0.003$), and for passive-aggressive personality patterns, in which the men scored significantly higher than the women ($t[100] = 2.2$, $p = 0.03$). Finally, the men demonstrated a higher prevalence of passive-aggressive personality pathology compared with the women ($\chi^2_1 = 4.38$, $p = 0.04$). After correcting for repeated testing, only the scores with $p \leq 0.003$ remained statistically significant (*i.e.*, the women had higher scores on the compulsive personality pattern compared with the men).

TABLE 4. Descriptive Statistics for Men and Women for Scores on Axis II Scales on the MCMI-III and the SIDES-SR

	Women ($n = 52$)		Men ($n = 50$)	
Personality Patterns and Clinical Syndromes	**Mean**	**SD**	**Mean**	**SD**
Axis II: clinical personality patterns				
Schizoid	77.9	15.6	79.1	18.3
Avoidant	75.1	18.0	74.7	22.2
Depressive	70.8	19.2	75.8	19.4
Dependent	75.8	18.7	78.1	20.5
Histrionic	25.9	20.2	24.5	19.1
Narcissistic	43.5	21.1	40.4	22.8
Antisocial	36.8	20.9	44.0	20.7
Aggressive	52.5	19.2	57.3	13.4
Compulsive	49.1	18.5	39.4	13.6
Passive-aggressive	67.6	19.9	75.6	16.9
Self-defeating	70.3	19.9	69.0	19.7
Severe personality patterns				
Schizotypal	65.7	22.2	71.7	14.2
Borderline	60.7	19.1	61.2	16.5
Paranoid	75.5	20.7	75.1	14.1
SIDES-SR total	52.2	20.5	49.0	23.6

DISCUSSION

As predicted, the strongest positive correlations were found between the SIDES-SR and the schizotypal and borderline scales on the MCMI-III. Contrary to expectations, a clear pattern of stronger correlations was, however, not found between the SIDES-SR and the axis II scales on the MCMI-III when compared with the axis I scales. However, the strong, positive correlations of the SIDES-SR with dysthymia, major depression, anxiety, and PTSD are not unexpected because these probably reflect known comorbidities of DESNOS (Resick et al., 2012). The positive associations found between the SIDES-SR, the SIDES-SR subscales, and the somatoform scale were in agreement with the predictions of this study. The strong positive correlation found between the alterations in attention and consciousness scale (*i.e.*, dissociation) and the thought disorder scale on the MCMI-III is probably found because the thought disorder scale describes strange perceptual and attentional experiences, which seem to define psychotic symptoms just as well as these do dissociative symptoms. Indeed, the behavioral expression of dissociative symptoms is often confused with psychotic symptoms (Spiegel et al., 2011). It is nonetheless important to use measures that are able to discriminate between these symptoms accurately. Given that individuals with a primary diagnosis of psychotic disorder are excluded from the rehabilitation centers for refugees in Denmark, the MCMI-III and the SIDES-SR were most likely tapping into dissociation symptoms regarding the present sample. The overall pattern of the correlation of the SIDES-SR with axis II and axis I disorders in general supports the notion that aspects of trauma-related symptoms were captured predictably in the refugee population and that the SIDES-SR and MCMI-III measures performed as these were supposed to. The notion that CPTSD was successfully measured in the present population is further supported by the presence of divergent validity between the SIDES-SR and the histrionic, narcissistic, and compulsive scales. These disorders differ from DESNOS in terms of symptom content. Moreover, a prior study used a narcissistic scale to establish divergent validity from the SIDES (Zlotnick and Pearlstein, 1997).

Convergence of Morbidity Rates

The prevalence estimates on the MCMI-III indicate extremely high rates of comorbidity of axis I and II disorders among the refugees in the present sample. In general, DESNOS in the present refugees can be said to resemble axis II pathology. Namely, the finding that 32% of the treatment-seeking, traumatized refugees scored higher than the cutoff for one of the three severe PDs on the MCMI-III (mutual comorbidity between severe PD excluded) is comparable with the 34% prevalence of DESNOS. Thus, 82.4% of the refugees who fulfilled the criteria for DESNOS also qualified for either paranoid or SPD on the MCMI-III. However, the prevalence estimate of approximately 30% for PD-like states in the present refugee population is quite conservative. The 57% of the refugees who fulfilled the criteria for at least five of the DESNOS symptom domains and the 50% to 70% who reported subclinical symptoms on the schizoid, dependent, avoidant, depressive, and self-defeating PD scales on the MCMI-III (BR ≥ 75) could probably qualify for a *DSM-IV* diagnosis of PD not otherwise specified (PD NOS). Indeed,

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it has been found that psychiatric patients with ACE who are also suspected of having CPTSD often fulfill the criteria for PD NOS rather than discrete PD diagnoses (Allen et al., 2010). Thus, DESNOS in the present refugees can probably best be characterized as PD NOS with many comorbidities on axis I. Indeed, PDs often co-occur with disorders such as dysthymia, major depression, anxiety, and PTSD (Pietrzak et al., 2011). However, the longevity of PD symptoms and the related functional impairment also needs to be studied in traumatized refugees to determine whether complex traumatization in the group should primarily be considered axis I–like or axis II–like. As already mentioned, the strongest indicators of PD over time are functional impairment and persistent interpersonal problems (Skodol et al., 2005).

Implications of the Present Findings for the Proposed CPTSD

Contrary to the proposals for the upcoming ICD-11, in which CPTSD is conceptualized as being discernible from PD (Cloitre et al., 2013), the present findings indicate that complex traumatization is just as strongly associated with axis II syndromes among traumatized, treatment-seeking refugees as it is with axis I syndromes. As proposed in the CPTSD, there is a large prevalence of pathological paranoid and schizotypal personality patterns. Thus, the present findings support the proposed CPTSD diagnosis for ICD-11 with regard to its emphasis on avoidance and estrangement in interpersonal relationships. That is, the prevalence of both schizotypal and paranoid personality patterns was found to be almost four times higher than that of borderline personality patterns in the present sample (also, borderline patterns never occurred without schizotypal patterns). However, the higher prevalence of schizotypal and paranoid symptoms observed in the present sample may not apply to all populations with complex traumatization. A study by Allen et al. (1998) indicates the opposite pattern; a twofold prevalence of borderline over schizotypal personality patterns and a fivefold prevalence of borderline over paranoid personality patterns were found among women with a history of severe childhood traumatization. This prevalence pattern matches the well-established relationship between development of BPD and ACE (Battle et al., 2004; Zhang et al., 2012). The higher prevalence of estrangement and suspiciousness in the traumatized refugees is, in the meantime, also in line with previous research, which indicates a possible unique association between schizotypal symptoms and exposure to trauma in adulthood (Berenbaum et al., 2008), as well as high rates of comorbidity between PTSD and SPD (Pietrzak et al., 2011). Early childhood maltreatment is known to have a profound impact on the consolidation of personality (Herman, 1992). The effects of severe interpersonal trauma in adulthood—although devastating—cannot be expected to have the same effects on survivors who have undergone a normative personality development. The underlying process of extreme traumatization in adulthood is thus probably different from that in childhood. Hence, the related symptom expressions are not unlikely to be different as well. Possible differences in pathological personality patterns found between refugees without ACE and individuals with childhood traumatization need further examination to determine whether these indicate the presence of different syndromes or subtypes of CPTSD.

Turning to the proposed narrowing of symptoms in the CPTSD, the exclusion of the DESNOS cluster known as *alterations in systems of meaning* makes sense in light of the present findings because alterations in systems of meaning correlated most strongly with dysthymia and major depression on the MCMI-III. Such symptoms are common among psychiatric patients and are, therefore, unlikely to represent the core dysfunctions in CPTSD. However, the same was true regarding the DESNOS cluster known as *alterations in self-perception*, which is defined as "negative self-concept" in the proposed CPTSD diagnosis for ICD-11. Thus, future operationalization of the negative self-concept in CPTSD needs to be given careful consideration to differentiate it from depression and dysthymia. Importantly, problems with negative self-image of a more severe nature than that associated with depression were found among 30% of the refugees in this sample. These came in the form of pathological schizoid, depressive, and dependent axis II personality patterns on the MCMI-III. Also in line with the CPTSD, problems with affective regulation were observed among the refugees in this sample; 50% endorsed this domain on the SIDES-SR and 22% had subclinical borderline patterns on the MCMI-III (the paranoid and schizoid patterns were, however, more severe and prevalent). It also seems that somatization symptoms express themselves rather frequently among traumatized, treatment-seeking refugees. These also correlate highly with other clusters of proposed CPTSD impairment. Thus, in light of these findings, the role of somatization in CPTSD has to be further examined. Finally, in agreement with the newest proposals for CPTSD, PTSD is likely to co-occur with complex traumatization and DESNOS in traumatized refugees.

The Impact of ACE and Sex on DESNOS and PD

It is difficult to determine the precise impact that ACE has had on DESNOS and PD in the present sample because of the small sample size (only 34 refugees reported a history of ACE) and the use of repeated testing. Overall, the higher scores found among the refugees with ACE on the SIDES-SR as well as the depressive and borderline scales on the MCMI-III make a lot of sense in light of previous findings regarding the close relationship between DESNOS, BPD, and ACE (Battle et al., 2004; van der Kolk et al., 2005; Yen et al., 2002). The most interesting findings associated with the present study are that full-scale DESNOS and dysfunctional personality patterns were present in severely traumatized refugees without ACE and that severe war traumatization in adulthood seems to have had largely the same impact on PD symptoms in both the men and the women. These findings support the proposed CPTSD diagnosis for ICD-11, which acknowledges the complex relationship between genetic and environmental vulnerability factors in shaping the symptoms of CPTSD (Cloitre et al., 2013). This allows for the designation of CPTSD in relation to less severe trauma in particularly vulnerable individuals and to severely traumatized individuals with a presumably healthy pretrauma personality.

Understanding CPTSD as PD-like?

The current study indicates that symptoms of complex traumatization in the refugees on their face value have the same expression as PD symptoms (particularly paranoid and schizotypal). At the same time, it is also indicted that the etiology of PD symptoms in traumatized refugees probably differs from the currently accepted etiology for PD, in which an interplay of biological vulnerability and ACE is often indicated. In this case, the proposal that the new diagnosis of CPTSD should be more malleable to treatment compared with PDs could be appropriate. However, future studies are needed to determine whether the functional and interpersonal impairments as well as the chronicity and the malleability of PD-like symptoms found among traumatized refugees without ACE correspond to those found in PD patients with more established etiology. Disputes regarding the conditions that warranted the development of PD-like impairment among the refugees in the present sample may be raised because of a) the 16-year time lapse since exposure to war trauma, b) the diversity and type of self-reported symptoms, and c) the presence of functional impairment in terms of exclusion from the labor market despite very high levels of education. Finally, a CPTSD diagnosis in the upcoming ICD-11 makes little sense unless it is proven that the functional impairment and constellation of symptoms associated with CPTSD are different enough from PTSD to warrant a different prognosis and treatment. In light of the present findings, we believe that these indications may well come in the form of CPTSD demonstrating a greater resemblance to axis II than axis I pathology.

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Limitations

The present study examined a clinical convenience sample of Bosnian refugees only. The participation rate was low. Considering the high education level reported among the participants and the extensive assessments in the larger study, it is likely that only the highest-functioning Bosnian patients from the Danish rehabilitation clinics participated in the present study. Despite this, the recruitment from governmental clinics with equal treatment access for everyone makes it probable that the bias is in fact primarily related to the level of functioning and that the present Bosnian group in all other respects is a subset of the treatment-seeking traumatized refugees in Denmark. Given the presence of similar treatment-seeking patterns in other European countries (as indicated by the long time since resettlement), the tendencies observed in this group might also generalize to the higher-functioning part of the treatment-seeking Bosnians in other European countries. However, it should be kept in mind that a study that had examined a more representative sample of clinical refugee populations in the West probably would have found an even higher prevalence of axis I and II morbidity among traumatized refugees. Because there are no previous studies that have described the full extent of axis I and II morbidity among refugees with complex traumatization, the present study is the first of its kind to indicate the extent of such problems in treatment-seeking refugees in a Western country. The MCMI-III is not a diagnostic tool, and it has not been validated in relation to Bosnian norms. Instead, Danish clinical norms were used to estimate the prevalence of PD in the present study. However, because the refugees in this sample had been living in Denmark for a long time and were European, the use of Danish norms may not have been entirely inappropriate. Given that only self-report measures were used in this study, future studies should aim to corroborate the present findings through the use of diagnostic interviews. In the meantime, the use of two self-report measures that largely tap into the same constructs serves to strengthen the conclusions that can be drawn from the present findings. Traumatized populations tend to be assessed only after traumatization has occurred; hence, the premorbid personalities of traumatized individuals cannot be evaluated. It is therefore difficult to directly investigate whether traumatization in adulthood functions as a risk factor of the development of personality dysfunction. Similarly, this study did not assess adverse life events since the refugees' immigration. The process by which refugee war trauma over time develops into PD-like states can therefore not be deduced from the present material. Future studies should attempt to clarify this by monitoring the effects of new traumatic events in the already traumatized refugees. Finally, the strong positive correlations found between the SIDES-SR and the MCMI-III subscales can partly be attributed to the structural similarity of these two measures. Furthermore, a number of the MCMI-III scales are known to demonstrate high intercorrelations because the same items are included in multiple scales but are weighted differently when included in disparate scales. Therefore, the correlations between the SIDES-SR and different MCMI-III scales are probably more similar in strength than these would have been if other measures of PD had been used.

CONCLUSIONS

Very high and complex patterns of comorbidity are indicated in the present sample of "resource strong" traumatized refugees. Furthermore, because studies indicate that most individuals tend to remit from their PTSD within 5 years (see, *e.g.*, Chapman et al., 2012), the present sample having a high number of symptoms 16 years after their war trauma represents the "atypical" 30% who seem to have a very chronic course. This atypical group is precisely the strongest argument in support of a CPTSD diagnosis. Thus, the comorbidity and the longevity of trauma-related symptoms found among the refugees in the present study render the *DSM-5* (APA, 2013), which does not acknowledge CPTSD, limited in terms of usefulness with traumatized refugees. In light of the lessons learned regarding very broad conceptualizations such as DESNOS, the simplification of the proposed CPTSD diagnosis in the upcoming ICD-11 is desirable and partly supported by the present study. However, a more precise relationship of the proposed diagnosis of CPTSD to PTSD has to be formulated. In future studies, the chronicity and the level of the functional impairment related to CPTSD will be good indicators to test its possible similarity with PD. PD-like symptoms seem to be common among refugees with complex traumatization. The development of sound diagnoses and measures of complex trauma-related symptoms in refugees is greatly needed in both research and clinical practice. Longitudinal studies of CPTSD and PD-like symptoms in clinical refugee populations are also needed.

ACKNOWLEDGMENTS

The authors thank Lotte Skøtt for editing the language.

DISCLOSURES

This study was funded partly by the Psychiatric Research Fund in Southern Denmark.

The authors declare no conflict of interest.

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