

Health and Disability

Mental health problems and post-migration stress among multi-traumatized refugees attending outpatient clinics upon resettlement to Norway

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Refugees have often been exposed to multiple traumas making them prone to mental health problems later. The aim of this study is to describe the prevalence and symptom load of psychiatric disorders in refugees admitted to psychiatric outpatient clinics and to investigate the relationship between multiple exposure to traumatic events, the severity of traumatic symptoms and post-migration stressors. A clinical sample of 61 refugee outpatients from psychiatric clinics in Southern Norway was cross-sectionally examined using three structured clinical interviews (SCID-PTSD, SIDES and MINI) and self-report psychometric instruments (HSCL-25, IES-R). Post-traumatic Stress Disorder (PTSD) was diagnosed in 82% of the patients, while Disorders of Extreme Stress Not Otherwise Specified (DESNOS) was present in 16% of them. Comorbidity was considerable; 64% of the patients had both PTSD and major depression disorder (MDD) and 80% of those who had PTSD had three or more additional diagnoses. Multi-traumatized refugees in outpatient clinics have high prevalence of PTSD, DESNOS, comorbid depression and anxiety disorders. A more severe symptomatology was found in patients diagnosed with both PTSD and DESNOS, than in those diagnosed with only PTSD. Higher rates of unemployment, weak social network and weak social integration were also prevalent in these outpatients, and related to increased psychiatric comorbidity and severity of symptoms. Further research may clarify the existence of a cumulative relationship between pre-resettlement traumas and post-resettlement stressors in the mental health of refugees, which in turn may help to improve therapeutic interventions.

Key words: Post-traumatic stress disorder, disorders of extreme stress not otherwise specified, comorbidities, refugee outpatients, multi-traumatic exposures, post-migration stressors.

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INTRODUCTION

Immigrants come to Norway from all over the world, representing 10.6% of the total population (Statistics Norway, 2010). In 2007, immigrants from non-Western countries (e.g. Eastern Europe, Asia, Africa and Latin-America) accounted for 7% of psychiatric clinical outpatients, of which half were refugees and asylum seekers (Lilleeng, Ose, Hjort, Bremnes, Pettersen & Kalseth, 2009). The occurrence of post-traumatic stress disorder (PTSD) in the immigrant group was 28%, compared with 16% in the Norwegian born population.

Several Norwegian cross-sectional studies have found more psychopathology and higher distress scores in refugees than in the general population (Eitinger, 1959; Lavik, Hauff, Skrondal & Solberg, 1996; Syed, Dalgard, Tambs *et al.*, 2006; Thapa, Dalgard, Claussen, Sandvik & Hauff, 2007). A follow-up study of Vietnamese refugees 23 years after resettlement in Norway showed higher distress scores compared with the Norwegian population (Vaage, Thomsen, Silove, Wentzel-Larsen, Van & Hauff, 2010), while another follow-up study of refugees found that, after three years of living in Norway, the distress score was unchanged, while two traumatic scale scores were significantly increased (Lie, 2002).

Many refugees have been exposed to both pre-migration trauma and post-migration stressors, often to multiple traumas, with negative consequences to their mental health (Silove, Sinnerbrink, Field, Manicavasagar & Steel, 1997; Westermeyer, Vang & Neider, 1983). For example, a study of young Bosnian refugees in Denmark found an average of seven direct traumatic experiences, and also an average of six exposures to traumatic events witnessed directly or by a family member (Elklit, Nørregaard & Tibor, 1998), and several studies showed that multiple exposures to traumatic events increase the risk of distress and severity of symptoms (Breslau, Chilcoat, Kessler & Davis, 1999; Green, Goodman, Krupnick *et al.*, 2000; Kroll, Habenicht, Mackenzie *et al.*, 1989; Nishith, Mechanic & Resick, 2000; Resnick, Kilpatrick, Best & Kramer, 1992; Trautman, Tucker, Pfefferbaum *et al.*, 2002; Williams, Williams, Stein, Seedat, Jackson & Moomal, 2007). PTSD is often comorbid with other psychiatric disorders. The National Comorbidity Study found that 80% of the PTSD cases had at least one other psychiatric diagnosis (Kessler, Sonnega, Bromet, Hughes & Nelson, 1995). Depression is often comorbid with PTSD, and two studies with refugees resettled in Sweden and Australia found that 46% of these community samples have both PTSD and Major Depressive Disorder (MDD) (Ferrada-Noli,

Åsberg, Ormstad, Lundin & Sundbom, 1998; Momartin, Silove, Manicavasagar & Steel, 2003).

Multiple traumatic events over a long period of time are not accommodated under the PTSD diagnosis. The limitations of the PTSD diagnosis have been voiced: "The symptoms found among these patients are usually too complex, heterogeneous and sustained to fit this single label" (Herman, 1992, p. 278). Furthermore, PTSD diagnosis does not take into consideration the effects of complex traumas on development, effect regulation, attachment, difficulties in regulation of the body and relational/interpersonal deficiencies (Herman, 1997; Terr, 1991; van der Kolk, Roth, Pelcovitz, Sunday & Spinazzola, 2005).

Criterion A of the PTSD diagnosis has been criticized for having insufficient specificity, or showing too broad stressor criteria, or for having excessive specificity, or narrowing too much the accepted emotional response to a traumatic event (Brewin, Lanius, Novac, Schnyder & Galea, 2009; Friedman, Resick, Bryant & Brewin, 2011; Kilpatrick, Resnick & Acierno, 2009). Criterion A is composed of criterion A1 (exposure to a traumatic event) and criterion A2 (the emotional response to the traumatic event), as both must be accounted for in order to meet the full criterion A. (American Psychiatric Association, 2000). Traumatic events that often do not pass the threshold for both A1 and A2, such as prolonged victimization of intimate partner violence, school bullying, religious and political persecution, may not be accommodated under the PTSD diagnosis (Herman, 1992). Disorders of Extreme Stress Otherwise Not Specified (DESNOS) has been proposed as a separate diagnosis in order to accommodate changes in several self domains due to exposures to multiple traumas over longer periods of time (Herman, 1992). There is no A2 criterion formulated for the DESNOS syndrome, and this enables the capture of a large range of emotional reactions to common but potentially traumatic events, that may prove sufficiently stressful to qualify the individual for a DESNOS syndrome. A DESNOS diagnosis, or complex PTSD, has not been accepted as an independent diagnosis, but was included under the PTSD diagnosis' "associated features" in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (American Psychiatric Association, 2000).

The DESNOS syndrome shares several symptoms with the formal PTSD diagnosis, but also expands it to include several important symptoms such as alterations in self-perception, interpersonal impairment, self-destructive behaviours and somatization (American Psychiatric Association, 2000; van der Kolk *et al.*, 2005).

In a study of Vietnam veterans, it was proposed that PTSD and DESNOS may be two different diagnoses, where it was found that PTSD and DESNOS were not occurring together and the overlap between the two diagnoses was small (Ford, 1999). In the International Classification of Diseases (ICD-10), the World Health Organization has introduced the diagnosis F 62.0 "Enduring personality changes after catastrophic events", a diagnosis that has many similarities with DESNOS. They share several diagnostic features, namely: criteria B1 (a permanent hostile or distrustful attitude toward the world), B2 (social withdrawal), B3 (a constant feeling of emptiness or hopelessness) and B5 (a permanent feeling of being changed or of being different from others) (World Health Organization, 1992).

Several theories for PTSD have been developed, such as: the stress response theory (Horowitz, 1986), the emotional processing theory (Foa & Kozak, 1986), the cognitive action theory of PTSD (Chemtob, Roitblat, Hamada, Carlson & Twentyman, 1988), the shattered assumptions theory (Janoff-Bulman, 1992), the dual representation theory (Brewin, Dalgleish & Joseph, 1996), the five cognitive schemas psychological adaptation model (McCann, Sakheim & Abrahamson, 1988), the personal construct model of PTSD (Sermpezis & Winter, 2009; Sewell, Cromwell, Farrell-Higgins, Palmer, Ohlde & Patterson, 1996), the cognitive model of PTSD (Ehlers & Clark, 2000), the learning theory model (Keane, Zimering & Caddell, 1985), and several biological models (Kolb, 1987; Van der Kolk, Boyd, Krystal & Greenburg, 1984). With the advancement of PTSD research, new and more complex models add on to the old models, but there is no overall PTSD model that can accommodate all research findings.

A model for psychological adaptation after exposure to torture, mass human rights violence and refugee trauma has been developed by Silove and Derrick (1999), proposing that extreme exposure to traumatic events may challenge five core adaptive subsystems: safety, attachment, justice, identity-role and existential-meaning. This model has several similarities with a previous model (McCann *et al.*, 1988), which identified changes due to traumatic exposures in five schemas: safety, trust, power, esteem and intimacy.

A cumulative model of trauma has been developed from refugees and asylum seekers studies, which found a dose-response relationship between trauma and PTSD symptoms severity (Mollica, Donelan, Tor *et al.*, 1993; Mollica, McInnes, Poole & Tor, 1998; Neuner, Schauer, Karunakara, Klaschik, Robert & Elbert, 2004; Silove *et al.*, 1997). Thus, small, repetitive and/or prolonged traumatic events are not enough to qualify for the A2 criterion of the DSM, but may have the same or even greater impact than a big traumatic event meeting criterion A2.

The rationale and the purpose of the study

Several studies conducted in refugee outpatient populations from Scandinavia have used patients registered records (Al-Saffar, Borgå, Wicks & Hällström, 2004; Moisander & Edston, 2003), while other studies have used non-validated self-reported questionnaires for diagnostic purposes (Al-Saffar, Borgå, Edman & Hällström, 2003; Al-Saffar, Borgå, Lawoko, Edman & Hallström, 2004; Kivling-Bodén & Sundbom 2002). These methodological procedures bring with them an uncertainty about the validity of the diagnoses. Furthermore, these studies assessed a limited number of diagnoses and comorbidities, and none of these studies assessed DESNOS. The DESNOS concept and diagnosis has not been investigated previously in Scandinavia. The few published studies of war victims and minority populations have found substantial differences in the prevalence of DESNOS (Morina & Ford, 2008; Ford, 2008), as well as little support for the cross-cultural DESNOS construct (de Jong, Komproe, Spinazzola, van der Kolk & Van Ommeren, 2005). Even if the DESNOS diagnosis is not included as a formal and separate diagnosis in the DSM-IV, its practical value in treating multiple trauma patients is still important. In order to address these issues, the current study was designed

to make use of validated, structured diagnostic interviews for a large range of psychiatric diagnoses, including DESNOS.

Previous research in outpatients with substance abuse disorder found more severe PTSD and depression symptoms in patients with comorbid PTSD/DESNOS than in patients with only PTSD (Ford & Smith, 2008). Several studies done with Vietnam veterans (Ford, 1999) and with sexually and physically abused women (Roth, Newman, Pelcovitz, van der Kolk & Mandel 1997) found evidence for more severe symptoms in DESNOS than in PTSD, and Newman, Riggs and Roth (1997) proposed that DESNOS should be considered "a marker of the severity of PTSD symptoms rather than a qualitatively distinct subtype of PTSD" (p. 210).

Research with refugee populations shows a dose-response relationship between exposure to trauma and symptoms of depression and PTSD (Mollica *et al.*, 1998; Neuner *et al.*, 2004). Several other studies found significant associations between multiple exposures to traumatic events and PTSD (Al-Saffar *et al.*, 2003; Cardozo, Vergara, Agani & Gotway, 2000; Cheung, 1994; de Jong, Komproe, Van Ommeren *et al.*, 2001; Finklestein & Solomon, 2009; Hauff & Vaglum, 1994; Michultka, Blanchard & Kalous, 1998), increased probability for comorbidity PTSD/Depression (Kaltman, Green, Miranda, Mete & Shara, 2010), and higher levels of psychological distress symptoms (Kroll *et al.*, 1989; Trautman *et al.*, 2002).

After resettling in Western countries, refugees struggle not only with mental health problems caused by pre-migration exposures to traumatic events, but also with post-migration stressors that they confront daily and that can also be a source of distress to further aggravate their present mental health condition (Bhugra, 2004; Silove *et al.*, 1997; Westermeyer *et al.*, 1983). Many studies have found significant associations between PTSD, psychiatric morbidity and psychological distress and post-migration stressors or protective factors like employment (Beiser & Hou, 2006; Carlsson, Olsen, Mortensen & Kastrup, 2006; Dalgard, Thapa, Hauff, McCubbin & Syed, 2006; Lavik *et al.*, 1996; Lie, 2002; Silove *et al.*, 1997; Thapa *et al.*, 2007), social network (or lack of) (Hauff & Vaglum, 1995; Lie, 2002; Miller, Weine, Ramić *et al.*, 2002; Syed *et al.*, 2006), social integration or acculturation (or lack of) into the host population of the country of resettlement (Dalgard & Thapa, 2007; Nelson, Fernandez, Galea *et al.*, 2004; Wiking, Johansson & Sundquist, 2004), and integration (or lack of) into the ethnic community in the country of resettlement (Birman & Tran, 2008; Knipscheer & Kleber, 2006; Schweitzer, Melville, Steel & Lacherez, 2006).

Based on the above studies, the following aims were proposed:

- (1) The main aim of the study was to describe the prevalence of PTSD, DESNOS, and comorbidities and to investigate the symptom load in various psychiatric diagnoses in a clinical sample of multi-traumatized outpatients with a refugee background.
- (2) A secondary aim was to investigate the relationship between multiple exposures to traumatic events, severity of psychiatric symptoms and post-migration stressors.

The following hypotheses were proposed:

- (1) Patients with both current PTSD and current DESNOS diagnoses will have more comorbidity and more severe symptomatology than those with only current PTSD diagnosis.

- (2) A high number of traumatic events will be positively associated with PTSD diagnosis, number of psychiatric diagnoses and more severe psychiatric symptoms.
- (3) Post-migration stressors like weak social network, weak social integration into the Norwegian community, weak social integration into the ethnic community in Norway and unemployment, will be positively associated with PTSD + DESNOS and MDD diagnoses, higher psychiatric morbidity and more severe symptoms.

METHOD

Participants

The study population consisted of psychiatric outpatients with a refugee background who were referred by their General Practitioners to four hospitals in Southern and Eastern Norway: Oslo University Hospital, Innlandet Hospital Trust, Lovisenberg Hospital Trust and Sørlandet Hospital Trust. A refugee was defined as "a person entering Norway either as a refugee on a 'UNHCR quota', or as an 'asylum seeker'."

From 1 November 2008 to 1 November 2009, all old and new patients with a refugee background, who entered any of the outpatient departments in the four hospitals were asked if they had experienced any traumatic event according to the DSM-IV-TR criteria, and those who met this requirement were asked to participate in the study. In addition, the participants had to be between 18 and 60 years old, had to be able to understand and communicate in Norwegian and had to show permanent residency in Norway.

A total of 63 patients were asked to participate in the study. All except two agreed to take part in it. Finally, 61 patients were included in the study, 36 (59%) men and 25 (41%) women, with an average age of 44 years old for men, and 38 years old for women. Five patients failed to return the self-reported Questionnaire, even when contacted. One person was excluded from the calculations about employment due to his special social situation of being detained and serving a sentence in prison.

The inability to understand and communicate in Norwegian was the main reason for not referring patients. Some individual therapists were expressing a concern about the possible re-traumatization of patients participating in this study. However, we do not know the total number of eligible patients at the clinics or how many were assessed by the therapists.

Written informed consent was obtained from all patients. None of the participants have withdrawn from the study. Moreover, they gave positive verbal feedback on their satisfaction with the study. All participants received a fixed amount of NOK200 (€25) as well as a variable amount to cover travel expenses. The Committee for Medical Ethics of Health Region East of Norway (REK-East) approved the study.

Measures

Measurements included clinically structured interviews and self-report questionnaires which were given to the patient to be completed at home within a week. The clinically structured interviews were conducted by one researcher (the first author) who had undergone extensive training in using them.

Structured Clinical Interview for DSM-IV-TR PTSD Module (SCID PTSD) was used to assess PTSD. The assessment was based on the "worst trauma experience" ever. Each symptom was assessed currently (last month) and for lifetime (worst month presence) (First, Spitzer, Gibbon & Williams, 2007; Kulka, Schlenger, Fairbank *et al.*, 1990). A current PTSD diagnosis was given if the patient fulfilled all the six criteria from the SCID-PTSD interview: criterion A (traumatic stressor), criterion B (re-experiencing symptoms), criterion C (avoidance and numbing symptoms), criterion D (hyperarousal symptoms), criterion E (minimum symptom duration of 1 month), and criterion F (symptoms causing distress or functional impairment), which correspond with the requirements

of the DSM-IV-TR diagnostic manual (American Psychiatric Association, 2000).

The *MINI International Neuropsychiatric Interview 5.0.0 (MINI)* was used for other axis 1 DSM-IV disorders (Sheehan, Lecrubier, Sheehan *et al.*, 1998). We used the Norwegian standard translation which has been shown to have good test-retest reliability in an acute psychiatric ward (Mordal, Gundersen & Bramness 2010). We excluded the module for anti-social personality disorder.

Structured Interview for Disorders of Extreme Stress (SIDES) is a 48-item interview assessing seven symptom domains of complex PTSD/DESNOS: (I) alterations in affect and impulse regulation; (II) alterations in consciousness or attention; (III) alterations in self-perception; (IV) alterations in perception of the perpetrator; (V) alteration in relations with others; (VI) somatisation; and (VII) alterations in systems of meaning (Pelcovitz, van der Kolk, Roth, Mandel, Kaplan & Resick, 1997). The patient is asked before each question one of the two standard formulations: "Was this true for you after the experience?" or "Has this been true for you for as long as you can remember?" Criterion A2 used in the assessment of PTSD diagnosis is not used in DESNOS. A current DESNOS diagnosis was given if the patient had a mean score of 2.0 or more in all the six dimensions of SIDES (dimension IV is not required for the DESNOS diagnosis). The patients were diagnosed with a lifetime DESNOS if and only if he or she had at some point during his or her life symptoms on all the six dimensions of SIDES. The SIDES symptom severity score was calculated using the authors' recommendations included in the "Trauma Assessment Packet & Software" (van der Kolk & Smyth, 2003). The SIDES instrument has good psychometric properties. Pelcovitz and his colleagues (1997) reported kappa values of 0.81 for inter-rater reliability, an internal consistency of 0.96 for the total scale of SIDES, and reliabilities between 0.76 and 0.90 for the six major subscales. In the present study we found the SIDES current total scale's Cronbach's $\alpha = 0.89$. The Psychological Trauma Research Group from the University of Oslo has translated and back translated the SIDES interview (SIDES version 1997(2) revised 7/2003) following the requirements for a sound cross-cultural translation (Brislin, 1970; Bullinger, Alonso, Apolone *et al.*, 1998; Weeks, Swerissen & Belfrage, 2007).

Self-administered questionnaires

A self-administered questionnaire was developed for this study, which the participants were given at the end of the interview and asked to return within two weeks' time. Some of the items were taken from the "Oslo Immigrant Health Study" in Norway (Norwegian Institute of Public Health, 2002). The employment item was a categorical variable with three categories: (1) Employed Full Time; (2) Employed Part Time; (3) Not Employed. The "Employed Full Time" and "Employed Part Time" items were collapsed into a new category of "Employed", making thus employment a dichotomized categorical variable.

The *Hopkins Symptom Checklist (HSCL-25)* is a self-report scale with 25 items, which assess psychological distress (Derogatis, Lipman, Rickels, Uhlenhuth & Covi, 1974). The scale has been successfully tested in refugee populations showing good stability and good psychometric properties (Mollica, Wyshak, de Marneffe, Khuon & Lavelle, 1987; Renner & Salem, 2009). The scale is used as a screening instrument (with a cut-off point score >1.75 for each of its two component subscales) to indicate clinical anxiety and depression. HSCL-25 has been translated and validated for the Norwegian language in both Norwegian and immigrant populations in Norway (Lavik, Hauff, Solberg & Laake, 1999; Sandanger, Moum, Ingebrigtsen, Dalgard, Sørensen & Bruusgaard, 1998; Strand, Dalgard, Tambs & Rognerud, 2003). In our study we found a Cronbach's α value of 0.91.

The *Impact of Event Scale Revised (IES-R)* (Weiss & Marmar, 1997) was included to examine the presence and intensity of post-traumatic stress symptoms during the last week. We used a Norwegian validated translation of IES-R (Eid, Larsson, Johnsen, Laberg, Bartone & Carlstedt, 2009; Heir, Piatigorsky & Weisaeth, 2010). In our study we found a Cronbach's α value of 0.94. We used a cut-off point score ≥ 33 (Creamer, Bell & Failla, 2003). We found 100% agreement between the

current PTSD diagnosis assessed with the SCID-PTSD semi-structured interview and the IES-R scores ≥ 33 .

The *Life Events Checklist (LEC)* was developed at the National Center for PTSD to be administered before the Clinician Administered PTSD Scale (CAPS) for assessing the presence of PTSD symptoms. It is a brief screening instrument for potentially traumatic events composed of 17 items. The first 16 items of the LEC assess exposure to 16 different types of traumatic events known to result in PTSD or distress. The 17th item is assessing other very stressful events or personal experience not included in the first 16 items. The LEC proved to have acceptable temporal stability and reliability (Bae, Kim, Koh, Kim & Park, 2008; Gray, Litz, Hsu & Lombardo, 2004). A Norwegian validated translation of LEC used in many studies by the Norwegian National Research Centre for Violence and Traumatic Stress was applied. Only one answer alternative "It happened to me" was chosen, in order to assess the impact of the traumatic events.

Symptom severity was measured with the following: HSCL-25, IES-R and SIDES total severity score. The SIDES total severity score was obtained by summing up severity scores from all current symptoms (45 items).

Nicotine dependence was assessed by one question: "Have you smoked/are you smoking?" with three answering alternatives: (1) "Yes, now"; (2) "Yes, before"; (3) "Never". The response alternatives 2 and 3 were collapsed together into a new category "No", thus creating a dichotomous variable for nicotine dependence.

Social network was measured by one question: "How many good friends do you have?" ("Count those whom you can talk to in confidence and who can help you when you need help") (Syed *et al.*, 2006). At the end the variable was reversed in order to measure weak social network.

Social integration (N) was used in order to assess integration into the Norwegian society, and was measured by an index based on four items: (1) Knowledge of the Norwegian language; (2) Reading Norwegian newspapers last year; (3) Visits by Norwegians last year; (4) Help/support from Norwegians last year. Items 2 to 4 had 4 response alternatives, higher scores meaning higher acculturation: (1) "Never"; (2) "Not very often"; (3) "Weekly"; (4) "Daily". Item 1 had 5 response alternatives: (1) "Very bad"; (2) "Bad"; (3) "Medium"; (4) "Good"; (5) "Very good". The first item's response alternatives (1) and (2) were collapsed into one category. An index score was calculated (possible range 4 to 16), by adding the scores for the four items, with higher scores meaning higher integration. In the end, the resulting variable was reversed in order to measure weak social integration into the Norwegian society. In our study, the Social Integration Index had a mean of 9.80, and a Cronbach's α value of 0.72. This index was previously used in another Norwegian study on social integration and mental health of immigrants in Norway (Dalgard & Thapa, 2007).

Social integration (I) into the immigrant ethnic culture in Norway was measured by one item: (1) Participating in meetings arranged by your countrymen. This item had 4 response alternatives: (1) "Never"; (2) "Very seldom"; (3) "Weekly"; (4) "Daily". The second item's response alternatives (3) and (4) were collapsed into one category, due to no responses in category (4). Higher scores indicate higher integration. The resulting variable was reversed in order to measure weak social integration into the immigrant ethnic culture from Norway.

Unemployment was measured by one question: "Are you employed and paid for it?" with three response alternatives: (1) "Full-time paid employment"; (2) "Part-time paid employment"; (3) "No paid employment". A dichotomized variable was obtained by collapsing the item's response alternatives (1) and (2) into one category: "Other", while response alternative (3) was classified as "Unemployed".

Proficiency of the Norwegian language was assessed by one question: "How good is your knowledge of the Norwegian language?" with five answer alternatives: (1) "Bad"; (2) "A little bit bad"; (3) "Medium"; (4) "Good"; (5) "Very good". Higher scores indicated good proficiency in the Norwegian language.

Total number of psychiatric diagnoses was created by adding all MINI 5.0.0's current and lifetime diagnoses, together with current and lifetime SCID-PTSD and DESNOS diagnoses.

Statistical analyses

For the first aim of the study, we wanted to estimate the prevalence of PTSD with sufficient precision. Specifically, the range of a 95% confidence interval should not exceed 0.22. With a prevalence of 79% as reported by Ferrada-Noli *et al.* (1998) a sample size about 47 participants was sufficient. We expected a drop-out rate of between 10% and 20% and recruited 61 participants.

Cronbach's alpha reliability coefficients were calculated to assess the internal consistency of all the scales used in the study. Descriptive statistics were computed for demographic variables. For the first aim of the study, independent-sample *t*-tests were conducted to compare significant differences between genders on age, education, length of time in Norway, nationality of origin, LEC trauma type scores, total number of psychiatric diagnoses, DESNOS symptom clusters and DESNOS severity score. For assessing the mean differences in symptom severity measured by three symptom inventories, *t*-tests were also performed. Exact chi-square tests were used in order to compare the distribution of the demographic variables among the genders, as well as the distribution of the psychiatric diagnoses among males and females, to compare the distribution of DESNOS symptom clusters between absence and presence on current DESNOS incidence and for assessing the association between various MINI, SCID-PTSD and DESNOS diagnoses. Eta-squared values were calculated for the strength of the significant mean differences in *t*-tests, while phi values were calculated for the strength of the significant associations in exact chi-square tests.

For assessing the normality of the distribution, linearity and homoscedasticity for continuous variables, histograms and scatter diagrams were employed.

For the second aim of the study, Pearson product moment correlations were used to assess the relationships between the variables, using Spearman's rho correlations for skewed variables and Kendall's tau-bs for categorical variables.

Finally, for adjusting to multiple comparisons between MINI diagnoses, the Benjamini-Hochberg procedure was used (Benjamini & Hochberg, 1995). All tests were two-tailed and *p*-values <0.05 were considered significant. All statistical analyses were performed using the SPSS 16.0 software package (SPSS Inc. Chicago, IL) and R 2.11.1 (The R Foundation for Statistical Computing, Vienna, Austria).

RESULTS

Demographic characteristics

The demographic characteristics of the outpatients are presented in Table 1. There were no significant differences between the genders in marital status and employment, nor in education, nor in the length of time in Norway, with a mean length of stay in Norway of 15.8 years (*SD* = 6.4 years) (see Table 1). Patients' proficiency in the Norwegian language was described as follows: medium to high 83.5% (*n* = 51), less than medium in 8.9% (*n* = 5), and missing data was 7.6% (*n* = 5).

The participants originated from 21 countries, the majority of which were from Eastern Europe, and there were no significant differences between the genders in the nationality of origin.

Trauma exposure, psychopathology, symptom severity load and post-migration stressors

All patients were exposed to multiple types of traumatic events, and the mean number was 9 for women (min 2, max 15, *SD* 3.12), and 10 for men (min 5, max 15, *SD* 2.37). There were no significant differences between men and women in the exposure to multiple trauma types. The magnitude of the differences in means

(mean difference = 1.14, 95% CI: -0.27 to 2.55) was small (eta squared = 0.043). Chronicity of the PTSD symptoms was indicated by the time elapsed since the exposure to the worst traumatic event reported in the SCID-PTSD interview, with a mean of 17.8 years for men (*SD* = 10.2), and 16.5 years (*SD* = 8.8), for women with no significant differences between genders [*t*(59) = 0.490, *p* = 0.626]. A positive association was found between time passed since exposure to the worst traumatic event and the number of traumatic events (ρ = 0.315, *n* = 61, *p* = 0.014).

Forty-five (73.8%) patients were exposed to war, and among these, 22 (36.1%) had been exposed to war for more than 3 years. Other frequent potentially traumatic events which the patients have been exposed to were: serious human suffering, being on the run or extreme poverty or starvation (*n* = 54, 88.5%), serious physical assault (*n* = 52, 85.2%), having a close relative being killed (*n* = 51, 83.6%), and being exposed to a very traumatic event (item 17 from the LEC inventory) (*n* = 54, 88.5%).

The total number of types of traumatic events was significantly associated with current PTSD diagnosis, psychiatric morbidity, with severity of DESNOS symptoms, but not with post-traumatic symptom severity (the association was positive but not significant). (See Table 2.)

Most of post-migration stressors such as weak social network, weak social integration into the Norwegian community, weak social integration into the ethnic community in Norway and unemployment, were significantly and positively associated with more psychiatric morbidity and higher levels of symptom severity. From all the post-migration stressors, unemployment had the highest number of significant associations with both psychiatric morbidity and symptoms severity, while weak social integration in the immigrant ethnic community had fewer significant associations (see Table 2).

Prevalence of psychiatric diagnoses and comorbidities

The mean number of current diagnoses was 5.4 (*SD* = 2.7), and PTSD was the most prevalent diagnosis (see Table 3). There were no significant differences in any diagnoses or in the total number of psychiatric diagnoses between men and women.

The majority of the population had a combination of affective and anxiety disorders (see Table 4). For example, 80% of the patients with PTSD (*n* = 50) had comorbid diagnoses, most of them depression or agoraphobia. Moreover, all patients with DESNOS had comorbid diagnoses, most of them dysthymia, panic disorder, social phobia, generalized anxiety disorder (GAD), or PTSD. All but one patient with a current DESNOS diagnosis also had a current PTSD diagnosis.

There were no significant correlations between PTSD and substance abuse disorders, or nicotine dependence, but a significant association between social phobia and nicotine dependence (χ^2 (1, *n* = 56) = 5.91, *p* = 0.025, ϕ = 0.33).

We found four significant negative associations between length of stay in Norway (total years since arriving in Norway through 2010), and current PTSD diagnosis (ρ = -0.264, *n* = 56, *p* = 0.049), depression symptoms (HSCL-25 depression subscale) (ρ = -0.278, *n* = 56, *p* = 0.038), anxiety symptoms (HSCL-25 anxiety subscale) (ρ = -0.393, *n* = 56, *p* = 0.003), general psychological distress (HSCL-25) (ρ = -0.354, *n* = 56, *p* = 0.007).

Table 1. Demographic and trauma characteristics in multi-traumatized outpatients with an immigrant background

Demographics	Men (<i>n</i> = 36)		Women (<i>n</i> = 25)		Total population (<i>n</i> = 61)	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Age groups ^a						
<30	5	14.0	4	16.0	9	15.0
31–45	14	39.0	17	68.0	31	51.0
>45	17	47.0*	4	16.0	21	34.0
Marital status						
Single	7	19.0	5	20.0	12	20.0
Married	23	64.0	13	52.0	36	59.0
Divorced	6	17.0	7	28.0	13	21.0
Education ^b						
<12 years	14	42.0	7	32.0	21	38.0
12 years	5	15.0	5	23.0	10	18.0
>12 years	14	42.0	10	46.0	24	44.0
Employment ^c						
Employed	12	38.7	9	42.9	21	40.4
Not employed	19	61.3	12	57.1	31	59.6
Years in Norway ^d						
≤5 years	0	0	1	4.0	1	2.0
6–10 years	5	15.0	3	13.0	8	14.0
>10 years	28	85.0	19	83.0	47	84.0
Nationality of origin ^a						
Eastern Europe	15	42.0	8	32.0	23	38.0
Africa	3	8.0	6	24.0	9	15.0
Middle East	11	31.0	5	20.0	16	26.0
Far East	5	14.0	5	20.0	10	16.0
Latin America	2	6.0	1	4.0	3	5.0
Traumatic events (LEC) ^{e,a}						
Natural disaster	15	41.7	9	36	24	39.3
Fire or explosion	32	88.9*	14	56	46	75.4
Transportation accident	22	61.6	18	72	40	65.6
Serious accident at work or at home	20	55.6	9	36	29	47.5
Exposure to toxic substance	5	13.9	5	20	10	16.4
Physical assault	31	86.1	21	84	52	85.2
Assault with weapon	29	80.6	17	68	46	75.4
Sexual assault	5	13.9	13	52*	18	29.5
Other unwanted sexual experience	3	8.3	11	44*	14	23
Combat or exposure to a war-zone	32	88.9*	13	52	45	73.8
Captivity	23	63.9*	9	36	32	52.5
Life-threatening illness or injury	18	50	11	44	29	47.5
Severe human suffering	34	94.4	20	88	54	88.5
Sudden, violent death	28	77.8*	13	52	41	67.2
Sudden, unexpected death of someone close to you	31	86.1	20	80	51	83.6
Serious injury, harm, or death you caused to someone else	10	27.8*	-	-	10	16.4
Any other stressful event or experience	30	83.3	24	96	54	88.5

Notes:

* Significant difference between the genders.

^a *N* = 61, men (*n* = 36) and women (*n* = 25).^b *N* = 54, men (*n* = 32) and women (*n* = 22).^c *N* = 52, men (*n* = 31) and women (*n* = 21).^d *N* = 56, men (*n* = 33) and women (*n* = 23).^e LEC = Life Events Checklist was used as an interview, *N* = 61.

The patients with a current DESNOS diagnosis had a larger number of comorbidities [dysthymia (χ^2 (1, *n* = 61) = 4.55, *p* = 0.033, phi = 0.27), current panic disorder (χ^2 (1, *n* = 61) = 7.53, *p* = 0.011, phi = 0.35), social phobia and GAD], than the patients currently diagnosed with PTSD (depression and agoraphobia). Also, the current DESNOS diagnosis had higher symptom severity measured by HSCL-25, IES-R and SIDES severity score, than the current PTSD diagnosis. (see Table 4 and Table 6).

Prevalence of DESNOS clinical symptoms

The majority of the patients had experienced all DESNOS symptoms in the past, but in the last month none of the patients reported affirmatively on the symptom clusters of minimizing risk and victimizing others (see Table 5). There were no significant differences between men (*M* = 5.84, *SD* = 2.45) and women (*M* = 6.41, *SD* = 2.58) on the DESNOS symptom clusters or on the total severity score (I. Alterations in affect regulation *t*(59) =

Table 2. Correlations between types of traumatic events, diagnoses, severity of symptoms and post-migration variables

Variables	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
Traumatic events ^a												
I. Total number of types of traumatic events	0.310*	0.151	0.224	0.427**	0.403**	0.083	0.206	0.326*	0.108	0.073	-0.082	0.092
Diagnoses ^a												
II. PTSD		0.195	0.351**	0.533***	0.522***	0.421**	0.335*	0.488***	0.410**	0.219	0.293*	0.316**
III. PTSD + DESNOS			0.269*	0.489***	0.485***	0.344**	0.409**	0.542***	0.256	0.255	0.072	0.276*
IV. MDD				0.606***	0.655***	0.537***	0.434**	0.415**	0.298*	0.239	-0.036	0.090
V. Total diagnoses					0.984***	0.540***	0.548***	0.748***	0.268*	0.280*	0.150	0.290*
VI. Total current diagnoses						0.577***	0.568***	0.748***	0.309*	0.295*	0.162	0.301*
Symptom severity												
VII. HSCL-25-depression ^b							0.657***	0.566***	0.505***	0.529***	0.230	0.289*
VIII. IES-R ^c								0.494***	0.295*	0.375**	0.055	0.163
IX. SIDES severity score ^a									0.259	0.469***	0.275*	0.205
Post-migration variables												
X. Weak social network ^b										0.458***	0.306*	0.254
XI. Weak social integration(N) ^b											0.297*	0.316*
XII. Weak social integration(I) ^c												0.301*
XIII. Unemployment ^d												

Notes: Kendall's tau-bs were calculated for PTSD, PTSD + DESNOS, and MDD, diagnoses, Lower social integration(I) and Unemployment. All other correlation coefficients represent Spearman's rho.

PTSD = post-traumatic stress disorder; DESNOS = disorders of extreme stress not otherwise specified; MDD = major depression disorder; HSCL-25 depression = Hopkins Symptom Checklist depression scale;

IES-R = Impact of Event Scale Revised; SIDES = Structured Interview for Disorders of Extreme Stress.

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

*** Correlation is significant at the 0.001 level (2-tailed).

^a N = 61; ^b N = 57; ^c N = 56; ^d N = 52.

−0.55, $p = 0.58$; II. Alterations in consciousness $t(59) = -0.41$, $p = 0.68$; III. Alterations in self-perception $t(59) = 0.41$, $p = 0.41$; V. Alterations in relationships $t(59) = -0.43$, $p = 0.67$; VI. Somatization $t(59) = -0.75$, $p = 0.45$; VII. Alterations in meaning $t(59) = -0.86$, $p = 0.39$ and SIDES severity score $t(59) = -0.87$, $p = 0.39$. The most frequent and most severe symptoms were found in the “somatization” domain. For example, the majority of patients suffered from chronic pain. The high frequency and severity of symptoms were also observed in the “alterations in consciousness” domain.

Symptom severity load and psychiatric diagnoses

We found significant mean differences in symptom severity between patients with the diagnosis and patients without the diagnosis, in the following areas: MDD, agoraphobia, social phobia, OCD, PTSD, DESNOS and GAD (see Table 6). Mean symptom severity scores (HSCL-25, IES-R and SIDES) were significantly higher among patients diagnosed with DESNOS compared to those diagnosed with PTSD.

DISCUSSION

Psychiatric diagnoses and comorbidities

In this clinical study of multi-traumatized outpatients with a refugee background, it was found an extensive number of psychiatric diagnoses and comorbidity. Most of the outpatients were exposed to more than nine types of traumatic events, had MDD, PTSD, DESNOS, PTSD comorbid with depression, as well as other psychiatric disorders and comorbidities. We found a mean of 5.4 current diagnoses, which is comparable with the findings from the validation study of MINI in a Norwegian acute psychiatric ward which found a mean of five diagnoses per patient (Mordal *et al.*, 2010). The presence of an extensive number of diagnoses and comorbidities may point in the direction of a more complex syndrome, as found in the DESNOS construct, a condition which is “under review” by the Anxiety Disorders work group for the DSM-V (American Psychiatric Association, 2010).

No association between PTSD and substance abuse disorders was found. This is consistent with an outpatient study of Iraqi refugees resettled in USA (Jamil, Hakim-Larson, Farrag, Kafaji, Dugum & Jamil, 2002), but a significant association between social phobia and nicotine dependence was found. The percentage of smokers in our sample was 36%, which can be compared with two previous outpatients’ studies in resettled refugees which found ranges between 18% and 59% (Jamil *et al.*, 2002; Weaver, Cajdrić & Jackson, 2008).

The psychological adaptation model for refugees exposed to extreme traumas (Silove & Derrick, 1999), states that exposure to multiple traumas, as well as experiencing higher levels of loss, both in the personal, material and social domains seen in a majority of our patients, negatively affect several core adaptive systems such as regulation of affect and impulses, self-perception and attention or consciousness, manifested as the presence of an extended psychiatric morbidity and a severe traumatic symptom-

Table 3. Prevalence of current and lifetime psychiatric diagnoses in 61 multi-traumatized outpatients with an immigrant background

Diagnoses	Current ^a		Lifetime ^a	
	N	%	N	%
Affective disorders				
MDD	43	71	0	0
Dysthymia	30	49	0	0
Hypomania	0	0	4	7
Anxiety disorders				
Panic disorder	25	41	43	71
Agoraphobia	30	49	0	0
Social phobia	30	49	0	0
OCD	27	44	0	0
GAD	19	31	0	0
PTSD	50	82	58	95
DESNOS	10	16	50	82
Substance use disorders				
Alcohol abuse disorder	6	10	0	0
Nicotine dependence ^b	20	36	0	0
Eating disorders				
Bulimia	3	5	0	0
General				
One diagnosis	6	10	17	28
Two diagnoses	3	5	36	59
Three or more diagnoses	52	85	6	10

Notes: MDD = major depression disorder; OCD = obsessive compulsive disorder; GAD = generalized anxiety disorder; PTSD = post-traumatic stress disorder; DESNOS = disorders of extreme stress not otherwise specified.

^a N = 61.

^b N = 56.

atology, including somatization. Thus, it is important to assess and include in the treatment plan of this group of outpatients, several different diagnoses and comorbidities, being also aware of the DESNOS syndrome that may accommodate much of the existing symptomatology.

PTSD and comorbidities

Current PTSD diagnoses were found in the majority of the patients, as well as even higher levels for lifetime PTSD diagnosis.

Several studies from Sweden show a high prevalence of PTSD in refugees (Ferrada-Noli *et al.*, 1998; Roth, Ekblad & Agren, 2006) and in immigrant outpatients (53–92% PTSD) (Al-Saffar *et al.*, 2003; Kivling-Boden & Sundbom, 2001; Moisaner & Edston, 2003). In Norway, an earlier study also showed a high prevalence of PTSD in a sample of patients from a university psychiatric outpatient clinic for refugees (Lavik *et al.*, 1996), and a more recent three-year follow-up community study of resettled refugees found an increase in scores of post-traumatic stress symptoms during this period (Lie, 2002). Several other studies from former Yugoslavia have also found a high prevalence of PTSD, for example in refugees 10 years after resettlement to a Western country (Priebe, Matanov, Janković *et al.*, 2009), in former war refugees returned to Kosovo (Roth *et al.*, 2006), and in a clinical sample of Bosnian refugees in

Table 4. Comorbidities between MDD, agoraphobia, social phobia, GAD, PTSD and DESNOS and other current psychiatric disorders in multi traumatized outpatients with an immigrant background

Psychiatric disorders current	MDD current N (%)	p-value*	Agora-phobia current N (%)	p-value*	Social phobia current N (%)	p-value*	GAD current N (%)	p-value*	PTSD current N (%)	p-value*	DESNOS current N (%)	p-value*
Affective disorders												
MDD (n = 43)	-	-	25 (83)	0.084	23 (54)	0.402	15 (35)	0.381	39 (91)	0.0112	10 (23)	0.051
Dysthymia (n = 30)	23 (77)	0.402	15 (50)	1.000	20 (67)	0.0154	15 (50)	0.0001	25 (83)	1.000	8 (27)	0.0485
Anxiety disorders												
Panic (n = 25)	20 (80)	0.255	20 (67)	0.0002	16 (64)	0.071	10 (40)	0.266	22 (88)	0.340	8 (32)	0.0112
Agoraphobia (n = 30)	25 (83)	0.0485	-	-	22 (73)	0.0000	11 (37)	0.416	28 (93)	0.0426	7 (23)	0.182
Social phobia (n = 30)	23 (77)	0.402	22 (73)	0.0007	-	-	14 (47)	0.0234	27 (90)	0.182	9 (30)	0.0090
OCD current (n = 27)	21 (78)	0.397	16 (53)	0.192	21 (78)	0.397	12 (44)	0.056	24 (89)	0.317	7 (26)	0.092
GAD (n = 19)	15 (79)	0.381	11 (37)	0.580	14 (74)	0.0164	-	-	16 (84)	1.000	7 (37)	0.0098
PTSD (n = 50)	39 (78)	0.0185	28 (93)	0.0426	27 (54)	0.182	16 (32)	1.000	-	-	9 (18)	0.673
DESNOS (n = 10)	10 (100)	0.051	7 (23)	0.299	9 (90)	0.0095	7 (70)	0.0095	9 (90)	0.673	-	-
Substance use disorders												
Alcohol abuse	5 (83)	0.660	5 (17)	0.195	3 (50)	1.000	1 (17)	0.655	6 (100)	0.352	1 (17)	1.000
disorder (n = 6)												
Nicotine dependence (n = 20)	13 (65)	0.772	11 (41)	0.582	14 (70)	0.0290	9 (45)	0.128	17 (85)	0.735	5 (25)	0.118

Notes: * In bold are shown only significant p-values adjusted for multiple testing. MDD = major depression disorder; OCD = obsessive compulsive disorder; GAD = generalized anxiety disorder; PTSD = post-traumatic stress disorder; DESNOS = disorders of extreme stress not otherwise specified.

Bosnia (Miller *et al.*, 2002), and in community samples (Ai, Peterson & Uebelhor, 2002; Weine, Vojvoda, Becker *et al.*, 1998). Also, studies of Southeast Asian refugees resettled in USA reported high prevalence of PTSD (Carlson & Rosser-Hogan, 1991; Kinzie, Boehnlein, Leung, Moore, Riley & Smith, 1990; Marshall, Schell, Elliott, Berthold & Chun, 2005). In addition, a high level of lifetime PTSD was found, with many patients reporting the worst traumatic event exposure to have occurred more than two decades ago, a finding supported by previous studies in Southeast Asian refugees (Kinzie *et al.*, 1990; Marshall *et al.*, 2005). We compared our findings with studies done in both community and clinical samples, and we found comparable levels of PTSD with all of them, although it may be added that, as a general rule, the clinical samples are skewed, and thus difficult to compare with community samples. Even so, the high prevalence of PTSD found in our outpatients with a refugee background from non-Western countries is a daily reality for clinicians in many of the host countries.

In addition to the high rates of PTSD, high levels of comorbidity between PTSD and MDD were also found. These findings are comparable with a Swedish clinical study of traumatized refugees which found a comorbidity of 46% between PTSD and symptoms of depressive disorders (Ferrada-Noli *et al.*, 1998). Several other studies also found high levels of comorbidity. For example, a community sample study of Cambodian refugees resettled in USA for 20 years found high levels of comorbidity between PTSD and MDD (Marshall *et al.*, 2005) and several studies among refugees from former Yugoslavia resettled in other countries (Mollica, Sarajlić, Chernoff, Lavelle, Vuković & Massagli, 2001; Turner, Bowie, Dunn, Shapo & Yule, 2003). Further, we found current PTSD diagnosis to be comorbid with three or more other current diagnoses in 80% of the patients, which can be compared with the findings from the National Comorbidity Study (Kessler *et al.*, 1995), the Australian National Comorbidity study and an epidemiological study from Chile (Creamer, Burgess & McFarlane, 2001; Zlotnick, Johnson, Kohn, Vicente, Rioseco & Saldivia, 2006).

One significant difference between the present study and the previous studies is the total number of exposures to types of traumatic events, which was higher in our refugee outpatient population, in comparison with the afore-mentioned studies. Further, our study had a clinical sample of outpatients in comparison with many of the previous studies which made use of community samples. We are aware of the difficulties of comparing the severity of the impact of different types of traumas on different populations, especially when we have not quantified the duration, intensity and meaning of the different type of traumas. This challenge of comparing different types of traumas in different populations asks for caution in drawing conclusions.

A systematic review of several studies of resettled refugees in Western countries found a lower occurrence (only 9%) of PTSD and 5% MDD for large sample studies, while pointing to the possible methodological flaws of lesser studies which find higher prevalence of PTSD and MDD (Fazel, Wheeler & Danesh, 2005). In spite of this possible critique, we are confident in our findings of higher prevalence of PTSD, as well as PTSD comorbidities in this clinical population. Consequently, clinicians working with this type of population should be aware of this.

Table 5. Current DESNOS's clinical level symptom clusters frequencies and current severity scores, in 61 multi-traumatized outpatients with an immigrant background

DESNOS symptom clusters ^a	Current Yes		Severity ^b	
	N	%	Mean	SD
I: Alternations in affect regulation	14	23.0	0.72	0.42
I-A Affect regulation	29	47.5	1.72	0.83
I-B Anger modulation	15	24.6	0.95	0.71
I-C Self destructiveness	7	11.5	0.32	0.49
I-D Suicidal preoccupation	6	9.8	0.49	0.77
I-E Sexual preoccupation	19	31.1	0.46	0.42
I-F Excessive risk taking	6	9.8	0.36	0.84
II: Alternations in consciousness	20	32.0	1.13	0.69
II-A Amnesia	25	41.0	1.11	1.11
II-B Dissociative episodes	14	23.0	1.15	0.68
III: Alternations in self perception	24	39.9	1.05	0.53
III-A Ineffectiveness	37	60.7	1.43	1.04
III-B Permanently damaged	44	72.1	1.89	0.95
III-C Guilt	20	32.8	0.89	0.91
III-D Shame	19	31.1	0.80	1.09
III-E Nobody understands	20	32.8	0.98	0.94
III-F Minimizing risk	6	9.8	0.33	0.70
V: Alternations in relationships	16	26.8	0.88	0.61
V-A Inability to trust	28	45.9	1.36	0.85
V-B Revictimization	20	32.8	1.20	1.12
V-C Victimized others	1	1.6	0.10	0.35
VI: Somatization	25	40.3	1.25	0.50
VI-A Digestive system	23	37.7	1.26	0.85
VI-B Chronic pain	40	65.6	1.62	0.84
VI-C Cardiopulmonary	31	50.8	1.48	0.77
VI-D Conversion symptoms	22	36.1	1.31	0.72
VI-E Sexual symptoms	7	11.5	0.56	0.70
VII: Alternations in meaning	21	33.6	1.05	0.67
VII-A Despair	19	31.1	0.92	0.64
VII-B Loss of beliefs	22	36.0	1.17	0.84

Notes: DESNOS = disorders of extreme stress not otherwise specified.

^a Clinical level of symptoms presented as percentages for current DESNOS presence.

^b DESNOS current symptom severity for all levels of symptoms.

DESNOS and comorbidities

We found current DESNOS clinical level symptoms in the majority of the patients while only a minority qualified for a current DESNOS diagnosis. A lifetime DESNOS diagnosis was found in the majority of the patients. This finding is consistent with the findings from a study from Northern Ireland in an outpatient sample of people who were exposed to the "Troubles" between the Protestant and the Catholic communities, which found that all patients experienced all DESNOS symptoms during their life (Dorahy, Corry, Shannon *et al.*, 2009).

To our knowledge, this is the first study on outpatients with a refugee background which assesses the DESNOS diagnosis. It is comparable with a prior study in USA of women with severe mental illness (Ford, 2008), which found current DESNOS in 44% of inpatient women with severe mental problems, and with different ethnic backgrounds.

A large study of survivors of war or mass violence in community samples from three different countries, found DESNOS's presence levels to be comparable with our study (de Jong *et al.*, 2005). Other studies found current DESNOS prevalence ranging from 35% to 75% (Ford, 1999; Ford & Smith, 2008; Jongedijk,

Carlier, Schreuder & Gersons, 1996; McLean & Gallop, 2003; Newman, Orsillo, Herman, Niles & Litz, 1995; Spitzer *et al.*, 2009).

A study among civilian war victims from Kosovo found only 2% of its participants fulfilling all the current DESNOS criteria for clinical symptom levels (Morina & Ford, 2008). This community study presents a large discrepancy between the prevalence of a current DESNOS criteria (2%) and the total clinical level of symptoms on several subscales (from 10% to 42%). This study shows a four-fold discrepancy.

The majority of these studies report a low proportion of fulfillment of all the six criteria for current DESNOS diagnosis, thus few participants receive the diagnosis, even if the occurrence of clinical levels of symptoms is found in the majority of the participants. Current DESNOS diagnosis was found to be comorbid with five other diagnoses, which is higher than in other studies of clinical populations (Ford, 1999, 2008; Ford & Smith, 2008; Spitzer *et al.*, 2009).

Consistent with the first hypothesis, current PTSD + DESNOS diagnoses were found to have more comorbidity with current disorders and more severe symptomatology, than only PTSD current diagnosis, suggesting that the presence of DESNOS together with PTSD is a more serious form of PTSD, as observed by other studies (Ford, 1999; Ford & Smith, 2008; Newman *et al.*, 1997; Roth *et al.*, 1997; Zlotnick & Pearlstein, 1997).

The construct validity of the SIDES is indirectly supported by our findings, but due to a small and multicultural sample, an exploratory factor analysis was not statistically justified, and thus not performed. In future studies on refugees resettled in Western countries, a replication of these findings may be warranted.

Several studies have questioned the validity of the DESNOS clinical construct (Allen, Huntoon & Evans, 1999; de Jong *et al.*, 2005; Knowles, 2010; Taylor, Asmundson & Carleton, 2006), while others have confirmed the factor structure of the DESNOS construct (Luxenberg, Spinazzola & van der Kolk, 2001; Pelcovitz *et al.*, 1997; Scoboria, Ford, Lin & Frisman, 2008; van der Kolk *et al.*, 2005; Zlotnick & Pearlstein, 1997). The debate is still going on concerning the merits of introducing the DESNOS diagnosis in the new edition of the DSM-V (Friedman *et al.*, 2011; Sar, 2011). Based on our clinical experience with multi-traumatized refugee outpatients manifesting a complex symptomatology that cannot be easily accommodated by the present PTSD diagnosis, we acknowledge its clinical value in assessment, treatment planning and multimodal therapy (Courtois, 2008; Courtois & Ford, 2009; Ford, Courtois, Steele, Hart & Nijenhuis, 2005; Luxenberg, Spinazzola, Hidalgo, Hunt & van der Kolk, 2001; Sele, 2008; Sochting, Corrado, Cohen, Ley & Brasfield, 2007; van der Kolk, 2002). A single diagnosis that may cover all the complex symptomatology seen in this outpatient sample exposed to multiple traumas over a long period of time may be more appropriate and less stigmatizing (Cloitre, Stolbach, Herman *et al.*, 2009).

Traumatic events, psychiatric morbidity and severity of symptoms

Consistent with the second hypothesis, a significant positive association was found between the total number of exposures to

Table 6. Symptom severity measured by HSCL-25, IES-R and SIDES severity in current psychiatric diagnoses for multi-traumatized outpatients with an immigrant background

Psychiatric diagnoses current ^d	Number of patients with and without diagnosis		HSCL-25 ^b		IES-R ^b		SIDES severity ^a	
	No	Yes	No	Yes	No	Yes	No	Yes
Affective disorders								
MDD	18	43	2.29	2.87***	1.92	2.63**	30.89	47.65**
Dysthymia	31	30	2.56	2.83	2.24	2.63	38.61	46.93
Anxiety disorders								
Panic	36	25	2.61	2.80	2.30	2.58	37.92	49.60*
Agoraphobia	31	30	2.52	2.85*	2.19	2.64*	36.65	50.00**
Social phobia	31	30	2.48	2.90**	2.21	2.63*	35.23	50.43**
OCD current	34	27	2.53	2.90*	2.17	2.75**	35.47	51.91***
PTSD	11	50	2.18	2.79**	1.89	2.53*	22.81	47.08***
PTSD + DESNOS	52	9	2.60	3.22**	2.30	3.10**	38.46	67.22***
GAD	42	19	2.58	2.92*	2.23	2.90***	39.19	50.47*
Substance use disorders								
Alcohol abuse disorder	55	6	2.67	2.87	2.37	2.98	41.82	55.25
Substance abuse disorder	59	2	2.69	2.28	2.43	1.36	42.39	52.00
Nicotine dependence	41	20	2.68	2.72	2.37	2.56	39.31	45.55
Psychosis								
Psychosis	60	1	2.68	2.92	2.41	2.82	42.30	67.00

Notes: Means scores for HSCL-25 and IES-R and sum score for SIDES severity are presented in the table, *p*-values are based on two-sample *t*-tests, and in bold are shown only significant *p*-values adjusted for multiple testing.

MDD = major depression disorder; OCD = obsessive compulsive disorder; GAD = generalized anxiety disorder; PTSD = post-traumatic stress disorder; DESNOS = disorders of extreme stress not otherwise specified HSCL-25 = Hopkins symptom checklist scale; IES-R = impact of event scale revised; SIDES = structured interview for disorders of extreme stress.

^a *N* = 61, men (*n* = 36) and women (*n* = 25).

^b *N* = 55, men (*n* = 33) and women (*n* = 22).

* *p* < 0.05; ** *p* < 0.01; *** *p* < 0.001

traumatic events and current PTSD diagnosis. More psychiatric morbidity was represented by the total number, as well as by current psychiatric diagnoses.

A strong evidence for a dose-response relationship was found between exposure to traumatic events and PTSD diagnosis, psychiatric morbidity, as well as with severity of DESNOS symptoms, and a weaker relationship with PTSD symptom severity. Surprisingly, only one significant association was found of previous trauma with SIDES severity symptoms, but not with depression (HSCL-25 depression) or post-traumatic stress symptoms (IES-R). An explanation for these findings may be that depressive symptoms are usually related to post-migration factors, consistent with previous studies (Hauff & Vaglum, 1994; Lie, 2002).

A dose-response relationship between exposure to traumatic events and PTSD symptoms has also been acknowledged by several other studies done in Cambodian refugees (Cheung, 1994; Mollica *et al.*, 1993, 1998), in asylum seekers in Australia (Silove *et al.*, 1997), in West Nile and Ethiopian refugees (Finklestein & Solomon, 2009; Neuner *et al.*, 2004), in Latina immigrants (Kaltman *et al.*, 2010), Central American refugees (Michultka *et al.*, 1998), Asian and Middle Eastern immigrants (Al-Safar, 2003; de Jong *et al.*, 2001; Trautman *et al.*, 2002), Southeast Asian refugees (Hauff & Vaglum, 1994; Kroll *et al.*, 1989), and victims of human rights violations from the war in former Yugoslavia and Afghanistan (Cardozo *et al.*, 2000; Priebe *et al.*, 2009; Scholte, Olf, Ventevogel *et al.*, 2004). The impact of several traumatic events may affect more core adaptive systems, resulting in an

increase in vulnerability to future traumatic events, which may increase the number of comorbidities. This theoretical insight has been supported by our findings of several significant comorbidities between MDD, PTSD, DESNOS with several other diagnoses. Furthermore, the presence of psychiatric diagnoses is also reflected in the severity of symptoms seen between patients with or without these diagnoses. All three symptom inventories (HSCL-25, IES-R and SIDES severity) showed significant differences between these two groups.

The identification of significant differences in symptom severity for seven different diagnoses by all three symptom inventories, which were supposed to measure different symptoms, points towards a complex common symptomatology or towards a large overlap between the symptoms in this patient group. Some authors have suggested that instead of describing this complex symptomatology in this patient group using several diagnoses, it may be more profitable to have a superordinate diagnosis to describe this cluster of symptoms (Dorahy *et al.*, 2009). DESNOS diagnosis may be such a superordinate diagnosis that may have the quality to describe in a coherent manner various individual symptoms that are only partially accommodated by the existing diagnoses (Sochting *et al.*, 2007). But irrespective of the fate of the DESNOS diagnosis (Friedman *et al.*, 2011; Sar, 2011), this study points to the value of including the symptoms covered by this diagnosis in the clinical assessment of immigrants and other patients exposed to similar complex traumas. The most frequent and severe symptoms were found in the "somatization" domain

of the SIDES, which is in line with previous studies reporting high levels of somatic symptoms in refugee patients (Dahl, Dahl, Sandvik & Hauff, 2006; Schweitzer, Brough, Vromans & Asic-Kobe, 2011). This finding has clinical implications, indicating that traumatized refugee patients should be offered clinical services that also include a comprehensive assessment of their physical health.

Post-migration stressors, psychiatric morbidity and severity of symptoms

Post-migration stressors assessed by our study were unemployment, weak social network, weak social integration in the Norwegian society and weak social integration in the immigrant ethnic group from Norway.

Consistent with Hypothesis 3, strong positive associations were found between weak social network and current PTSD, MDD, psychiatric morbidity and higher levels of psychiatric symptomatology. Weaker social integration in the Norwegian society was associated only with psychiatric morbidity and higher levels of psychiatric symptomatology. A weaker social integration in the ethnic community was associated only with a current PTSD diagnosis and SIDES severity score. Finally, unemployment was associated with current PTSD diagnosis, psychiatric morbidity and higher levels of depressive symptomatology. The most significant associations were seen in two post-migration variables: weak social network and weak social integration in the Norwegian society.

Several other studies found evidence that support our findings, for example a study with participants from the Kosovo war found a linear relationship between social support and post-traumatic stress (Milenković, Simonović, Samardžić, Nikolić, Grbesa & Stanković, 2010), a study with immigrants in Norway found an association between social integration and good mental health (Dalgard & Thapa, 2007), a study with Serbian participants exposed to war, found unemployment and lower social support among other factors, to be predictors of PTSD (Nelson *et al.*, 2004), and a study with asylum seekers in Australia found several post-migration stressors, such as unemployment and loneliness to be associated with PTSD (Silove *et al.*, 1997). This evidence shows that post-migration stressors like unemployment, weak social support and weak social integration contribute to an increase in PTSD symptomatology, psychiatric morbidity and in the severity of the symptoms. Moreover, the number of traumas, a pre-migration variable, was not related to any post-migration stressors, but it was associated with both current PTSD diagnosis, DESNOS symptoms severity and with the total psychiatric diagnoses. The compounding effect of the pre-migration trauma and post-migration stressors on the mental health has also been acknowledged by others (Schweitzer *et al.*, 2006, 2011; Sinnerbrink, Silove, Field, Steel & Manicavasagar, 1997). It seems that the number of traumas and the chronicity of the PTSD and/or DESNOS have the strongest associations with a negative outcome on the mental health of the patients. Depression and/or depressive symptoms have been shown in previous studies to be associated mostly with post-migration factors, such as social isolation or weak social network (Hauff & Vaglum, 1995; Lie, 2002; Miller *et al.*, 2002; Syed *et al.*, 2006), unemployment (Dalgard *et al.*,

2006; Lavik *et al.*, 1996; Nelson *et al.*, 2004), and acculturation stress /social integration (Beiser & Hou, 2006; Birman & Tran, 2008; Dalgard & Thapa, 2007).

Finally, length of stay in Norway was negatively related to the development of current PTSD diagnosis, depression and anxiety symptoms, which points toward the healing effect of time on psychiatric symptomatology.

In the light of these findings it is important to address in assessment, planning and treatment of this population, both psychosocial issues, including employment, as well as psychopathology (Schwarzer, Jerusalem & Hahn, 1994; Sele, 2008; van der Kolk, 2002).

Strengths and limitations

This study has some strengths. First of all diagnostic instruments were used for a large spectrum of psychiatric diagnoses, in both interviews and self-completed questionnaires. This ensured a more thorough investigation of comorbidities beyond the common known comorbidities from previous research. Secondly, the patient population was very diverse, as seen also in many of the outpatient clinics in Norway (Fosse & Dersyd, 2007; Lilleeng *et al.*, 2009). Thirdly, several diagnoses were assessed both by semi-structured clinical interviews and self-completed symptom questionnaires.

Several limitations of the present study have been identified. To start with, the study had a cross-sectional design, without a control group, thus limiting the generalizations of the findings. A case-control design could have been better for the generalization of the findings, but was difficult to implement due to the diversity of the sample. Second, the assessment of clinical diagnoses was done by the same clinician, while the use of independent clinicians could have ensured the validity of the diagnoses. However, the study's inclusion of several self-completed questionnaires for a cross comparison of symptomatology and severity have confirmed the diagnoses by means of strong, positive correlations. Third, the sample size was small as compared with other studies of refugees resettled in Western countries, and any generalization to other populations may be limited. Fourth, the Norwegian language proficiency was assessed by only one self-evaluation question, and this measurement may not give a real level of the proficiency in the Norwegian language. Fifth, the levels of psychiatric morbidity presented in this study may not represent the real level found in this outpatient population, due to the exclusion criteria for Norwegian language proficiency which may have excluded patients presenting poor levels, but who might have even more psychiatric morbidity than the patients included in the study.

Several methodological challenges of doing research in immigrant populations may be mentioned, in order to help future researchers be aware of possible shortcomings in this type of research. First, one challenge is the cultural diversity of the sample, which in our case came from 21 different countries, and even if all of them were fluent in the Norwegian language, the meaning of questions from our questionnaires may have been filtered by the respondent's beliefs and values, which means that all the patients did not necessarily have the same understanding of every question from either the questionnaire or from the structured clinical interview (Hunt & Bhopal, 2003, 2004). Several of the

questionnaires and clinical interviews used in this study were tested and validated in different refugee populations, but most certainly, some of them were not tested or validated in cultures which our patients belonged to.

Further, since many immigrant cultures value politeness as a high social asset, during the clinical interview, it was necessary to ask the question twice in order to make sure that the answer was due to real symptoms, and not just to a polite answer. The problem of social desirability was encountered when sensitive questions were asked, such as the question from the LEC interview ‘‘Have you harmed or injured another person?’’, where many answered ‘‘No’’, meaning that intentionally they haven’t done that, but nevertheless they could not know if the bullets they were shooting at the enemy’s positions were killing or hurting someone.

Future research

In the end, future research may be needed to address more adequately the research questions we proposed in our study and first of all there is a need for a longitudinal study with a control group (preferably from the same ethnic group also exposed to traumatic events) that may map better the refugees’ exodus from their own countries to Norway, including a larger spectrum of stressors, trauma types, total number of traumatic events, severity and duration, losses, mental and somatic health, personality characteristics, socioeconomic and cultural factors, from the pre-migration, during migration, as well as post-migration periods. The clinical, socioeconomic and cultural assessment must include culturally validated instruments translated into the mother language of the participants, using both structured interviews as well as self-reported questionnaires, and using trained interpreters.

CONCLUSION

This study found high levels of psychiatric morbidity, high severity of symptoms, as well as weak social network, weak social integration in the Norwegian society, weak social integration in the ethnic community and high unemployment rates in multi-traumatized outpatients with a refugee background. A majority of patients had several comorbidities including PTSD, DESNOS and other diagnoses. More comorbidities and severe symptomatology was found in the PTSD + DESNOS than solely in the PTSD diagnosis, giving support to previous studies that acknowledges the DESNOS construct as a more severe form of PTSD. The complexity of symptoms found in this population, partially identified by several diagnoses, is raising the question of a need for a more complex diagnosis like DESNOS that can accommodate all these symptoms in a more integrated way.

These findings point to the necessity of an integrated treatment for this outpatient population that should include psychiatric, psychological and somatic therapy approaches, as well as psychosocial interventions for strengthening the social network, speeding up the integration process, and finding adequate employment.

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