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Rates and Impact of Trauma and Current Stressors Among Darfuri Refugees in Eastern Chad

Andrew Rasmussen

New York University School of Medicine

Leanh Nguyen

New York, New York

John Wilkinson

New York University School of Medicine

Sikhumbuzo Vundla

Nairobi, Kenya

Sumithra Raghavan

Fordham University

Kenneth E. Miller

Harvard University

Allen S. Keller

New York University School of Medicine

Abstract

Darfur refugees face hardships associated with chronic displacement, including lack of basic needs and safety concerns. Psychiatric research on refugees has focused on trauma, but daily stressors may contribute more to variance in distress. In this article we report rates of past trauma and current stressors among Darfur refugees and gauge the contribution of each to psychological distress and functional impairment. A representative sample of 848 Darfuris in two refugee camps were interviewed about traumatic events, stressors faced in the camps, psychological distress and functional impairment. Basic needs and safety concerns were more strongly correlated with measures of distress (r 's = .19–.31) than were war-related traumatic events (r 's = .09–.20). Hierarchical regression supported models in which effects of trauma on distress were mediated by current stressors. Although war-related traumatic events are the initial causes of refugees' hardship, findings suggest that the day-to-day challenges and concerns in camps mediate psychological distress associated with these events.

The crisis in Darfur, Sudan and neighboring countries presents a convergence of festering ethnic tension, multiple armed groups, a largely undefined border region, and an unforgiving natural environment. Such conditions make humanitarian intervention extremely difficult. An estimated 300,000 people have been killed, and 2.5 million have been displaced from their homes (WHO, 2008). Approximately 250,000 of the displaced have fled to twelve

Correspondence concerning this article should be addressed to Andrew Rasmussen, Bellevue/NYU Program for Survivors of Torture, New York University School of Medicine, New York, NY 10016. andrew.rasmussen@nyumc.org.
Author Note Andrew Rasmussen, Bellevue/NYU Program for Survivors of Torture, New York University School of Medicine; Leanh Nguyen, New York, New York; John Wilkinson, Bellevue/NYU Program for Survivors of Torture, New York University School of Medicine; Sikhumbuzo Vundla, Nairobi, Kenya; Sumithra Raghavan, Department of Psychology, Fordham University; Kenneth E. Miller, Harvard School of Public Health, Harvard University; Allen S. Keller, Bellevue/NYU Program for Survivors of Torture, New York University School of Medicine.

camps run by United Nations High Commissioner for Refugees (UNHCR) in Chad and one in the Central African Republic (CAR). Tension in Chad has resulted in a Chadian internally-displaced persons (IDP) population of 150,000, and an additional 25,000 Chadians who have fled *into* Darfur as refugees (Sahine, 2007). The widening regional conflict has become a major contributor to displacement in Africa.

Displaced populations are subject to two categories of stressors, those that cause them to flee—*displacing* stressors—and those encountered because of their flight—*displacement* stressors. Displacing stressors are comprised of potentially traumatic events (PTEs) and material losses, the direct consequences of war. Displacement stressors are the common problems experienced in the resettlement context that come about because of the conflict but are not direct consequences of it (lack of access to sufficient resources, safety concerns, etc.). The rich literature suggesting that daily hassles in non-conflict settings account for considerable variance in psychological distress would suggest that these stressors can be more stressful than displacing stressors (akin to major life events in the daily hassles literature; Kanner et al., 1981). Research on distress among displaced populations has, more often than not, focused on war-related PTEs. This is not to say that current phenomena have not been considered (indeed, Mollica's groundbreaking Harvard Trauma Questionnaire includes several stressors which we would posit are displacement stressors; Mollica et al., 1992). However, where current stressors have been considered they have been either categorized as ongoing trauma and combined with discrete PTEs, or have been treated as a confounding variable that should be controlled for statistically. In contrast, humanitarian aid practice has traditionally focused on alleviating displacement stressors (e.g., providing water and food). Recently there has been recognition in research and humanitarian aid spheres that both displacing and displacement stressors should be considered. The 2007 UN Inter-Agency Standing Committee's (IASC) guidelines for psychosocial interventions codifies practitioners' observations that barriers to providing material aid include mental health factors, and researchers' observations that levels of distress are multidetermined (IASC, 2007).

Research has yet to examine whether variance in psychological distress among refugees is better accounted for by displacing or displacement stressors. Findings may have important implications for how psychosocial interventions are designed. If displacing stressors constitute the major source of distress, trauma-focused interventions would be appropriate; if not, such interventions might frustrate refugees more concerned with problems rooted in camp stressors, and perhaps even have iatrogenic effects. Twenty-five years of research in refugee camps and host countries alike clearly supports the positive association between PTEs and psychological distress (Fox & Tang, 2000; Holtz, 1998; Jaranson et al., 2000; Keller et al., 2006; Mollica et al. 1992; Shresta et al., 1998). However, also clear is that considerable psychological distress is associated with pre- and post-displacement factors that are directly related to the state of being displaced rather than the reasons for displacement (Porter & Haslam, 2005). It is unclear how these factors may interact. It may be that the psychological effects of displacing stressors are moderated or mediated by displacement or that their effects are independent; few researchers have examined these hypotheses.

There is some research among war-affected populations providing empirical support for the distinction between displacing and displacement stressors. Silove and colleagues' (2002) principal components analysis of events among Tamil refugees in Australia resulted in separate factors for PTEs and displacement stressors, suggesting that the causes and consequences of fleeing persecution are fundamentally different psychological phenomena. Comparing effects of war-related and everyday stressors in Afghanistan Miller and colleagues' (2009) found that substantial common stressors in the post-conflict environment

may suppress effects of PTEs on psychological distress. These findings contradict the cumulative distress hypotheses that more severe current stressors exacerbate the effects of PTEs (Kubiak, 2005). Miller et al.'s findings may or may not be replicable in refugee samples, where loss is comparable but displacement is not, but they nevertheless suggest that non-conflict stressors are distressful for those with a history of exposure to conflict-related PTEs.

We conducted the current study in two Darfuri refugee camps in eastern Chad in order to (1) report displacing and displacement stressors among camp residents and (2) gauge the relative effects of each on psychological distress and functional impairment, and examining mediating and moderating effects of displacement stressors using a regression framework. Although the focus of only limited scholarly research to date, displaced Darfuris present a particularly appropriate population in which to examine these issues. Violence and mortality rates have been estimated at 3.2 to 9.5 per 10,000 per day, with the majority of these caused by attacks which caused people to flee their home (Depoortere et al., 2004; Grandesso et al., 2004). Current stressors such as limited water, food, and substandard shelter have been documented among majorities in IDP camps in Darfur itself, and in one study a third of women in those camps suffered from major depression (Kim, Torbay, & Lawry, 2007). To our knowledge, the current study is the first to integrate reports of violence and reports of displacement-related problems with an examination of their impact on distress and functioning in an African refugee population.

Method

This study was undertaken as part of an evaluation of a psychosocial program, and thus the sample frame was limited to refugees living in the camps in which the particular program was established. The study proposal reviewed and approved by the Institutional Review Board of New York University School of Medicine, the United Nations High Commissioner for Refugees (UNHCR), and the camps' Councils of Chiefs. Because of the extremely sensitive nature of the content of the study, measures taken to ensure confidentiality included a waiver of documentation of informed consent, training in the importance of confidentiality for all persons associated with the project, and the immediate destruction of paper records (through burning) once data entry was complete.

Recruitment

Participants were drawn from UNHCR Registration records in two refugee camps in the Farchana administrative district. These camps were typical of the camps in the immediate region in terms of ethnic makeup—overwhelmingly from the Masalit ethnic group—but differed from camps to the north that have a high percentage of Zaghawa residents and from those to the south with more ethnic diversity in general. Registration records are periodically updated by non-governmental agencies (NGOs) working with the UNHCR, and for the two camps from which we sampled were described by UNCHR Registration staff as accurate. Our sampling frame included all adult residents (aged 18 or older), or 12,413 individuals (which was 42.5% of the population in these camps according to UNHCR records). Individual records were first separated records by camp, then assigned unique identifiers. We then sampled cases using random sampling (within each camp) to obtain a sample of approximately 7.5% of the adult population ($n = 956$ in one camp, 7.7%; and $n = 485$ in the second, smaller camp, 7.7%) using the SPSS 14.0 Data Selection module. This proportion was chosen in order to obtain a sample that balanced statistical power needs and the time allotted for the project.

Participants

We obtained valid data for 727 of the 1441 targeted individuals (50.5%), and for 121 of the 1441 (8.4%) we interviewed family members, for a total sample of 848 of 1441 (58.8%). Statistically significant differences for camp residence, origin, gender, ethnicity, and marital status between interviewed and non-interviewed participants are noted where found. Three quarters of the interviewed sample ($n = 630$, 74.3%) resided in the larger camp, which was substantially different from the non-interviewed sample ($n = 326$, 55.0%; $\chi^2(df=1)=58.32$, $p < .01$). The vast majority of residents were from West Darfur ($n = 822$, 97.0%), with most from the region of Al Geneina. Females outnumbered males by two to one (or 552, 65.1% to 296, 34.9%), and Masalit ($n = 822$, 97.0%) vastly outnumbered those from other ethnic groups. The average age of the sample was 33.88 ($SD = 14.49$), and the average number of years of education was 1.91 ($SD = 3.36$). Three-quarters of the sample was married ($n = 639$, 75.4%), which was different from the non-interviewed sample ($n = 405$, 68.3%; $\chi^2(df=3)=17.36$, $p < .01$). Over half of the population reporting being in polygamous marriages ($n = 433$; 67.8.6%). Mean number of children for the entire sample was 3.99 ($SD = 3.34$, range 0 to 20). The average history of education was 1.91 years ($SD = 3.36$). The vast majority of respondents reported that their primary work in Darfur was farming ($n = 795$, 90.2%), and that in the camps they had no occupation ($n = 662$, 78.1%). The average time living in the camps was 36.04 months ($SD = 5.89$).

Measures

Our structured interview protocol consisted of five distinct sections: demographics, displacing stressors, displacement stressors, psychological symptoms, and functional impairment. Demographics included age, gender, years of education, marital status, and region of origin within Darfur. Although development, validation, and inter-rater reliability information concerning this measure, are described in detail elsewhere (Rasmussen et al., under review), a brief discussion is appropriate here. For measure development, we used a rapid ethnographic assessment ("quick ethnography;" Handwerker, 2001; Bolton & Tang, 2004) which involved generating an initial problem list and discussing these problems with key informants. Our problem list was generated in meetings with nine different groups of refugees ($n = 158$) living in the region during pre-testing. In these discussions we asked open-ended questions about experiences in Darfur, current conditions in the camps, and problems people had in their individual and family lives (from which we selected symptoms of distress), and asked clarification questions when needed. Key informant interviews were done as focus groups with four groups of traditional healers ($n = 23$, about 10 of whom were also involved in generating initial problem lists). These focused primarily on symptoms of distress, and included a card sort exercise (completed as a group) in which symptoms printed on cards (in Arabic) were sorted according to their clustering within categories of distress. Card sorts allow participants to communicate an implicit nosology given a specific set of items. For example, a psychologist asked to categorize PTSD symptoms might sort items into three categories and call these categories intrusion, avoidance and numbing, and hyperarousal.

During administration of surveys, a limited number of interviews ($n = 30$) were conducted by both Sudanese and Chadian interviewers. We examined inter-rater reliability between Chadian and Sudanese interviewers using kappa (k) for all categorical variables and intra-class correlation coefficients (ICCs) for continuous measures. We chose not to use variables with values of k less than .60 or ICCs less than .80 in statistical analyses.

Displacing stressors were measured with (1) a war-related PTE checklist of 13 commonly reported events which refugees had experienced personally or witnessed during attacks by *janjaweed* or Sudanese military in Darfur, and (2) a list of four types of material loss

experienced during attacks. Items endorsed on these inventories were summed, creating four scores representing the variety of events personally experienced and witnessed in each category.

Displacement stressors included 21 stressors experienced in the camps. Interviewers asked first if these had been problems for participants, and then, if they had been, were they “a little stressful” or “very stressful.” Those stressors rated “a little stressful” or “very stressful” were considered endorsed. In the groups used in development, it was obvious that there were several classes of stressors among those reported. Stressors were categorized conceptually into four types of displacement stressors: basic needs, perceived safety, domestic conflict, and illness and death in family. Because not all refugees had family with them, in the current study we focused on basic needs and perceived safety only. Basic needs were primarily daily hassles pursuing material goods and common psychological needs. Safety concerns were less conceptually frequent (therefore not strictly daily hassles), and represented general concerns around specific dangerous occurrences. Implicit within several of these concerns were PTEs (e.g., sexual assault) that may have occurred in or near the camps. The numbers of endorsed basic needs and safety concerns were computed in order to have parallel scales to the displacing measures.

Psychological distress was measured using items from two standard Western questionnaires and supplemented with locally-identified symptoms. The PTSD Checklist—Civilian version (PCL-C; Weathers et al., 1994) measures the severity of the 17 symptoms of posttraumatic stress disorder (PTSD) in the past month on a 0 to 4 scale indicating the degree to which each problem aroused distress for the participant (from “none” to “extreme” distress). The PCL-C was chosen as our measure of PTSD because of its use in prior studies of refugees from the region (Jaranson et al., 2003). The Depression subscale of the Brief Symptom Inventory (6 items, BSI-D; Derogatis & Melisaratos, 1983) is scaled similarly to the PCL-C, but was modified from the “previous two weeks” assessment period to be consistent with the PCL-C (i.e., for the past month). In addition, one item on the BSI-D was modified before translation in order to avoid an American culturally-bound expression of distress (“feeling blue” was modified to “feeling melancholy”). These BSI-D scales were chosen because of their brevity and the psychometric evidence in favor of the BSI in general. Both the PCL-C and the BSI attained good internal reliability in the current sample: for the PCL-C, $\alpha = .88$; for the BSI-D, $\alpha = .83$.

Our measure also included local Darfuri idioms of psychological distress identified in focus groups and card sorts with traditional healers, *hozun* (literally “sadness”; 18 items) and *majnun* (literally “madness,” 15 items). These distinct constructs share some symptoms with PTSD (e.g., physical reactivity at trauma cues), major depression (e.g., lack of appetite), and (for *majnun*) brief psychosis (e.g., disorganized speech), but also include unique symptoms as well (e.g., torment by demons; a complete discussion of the constructs and their measurement is presented elsewhere; Rasmussen et al, under review). In general *hozun* was comprised of intrusion and vegetative depression symptoms, and *majnun* of symptoms of hyperarousal, emotional numbing, and psychosis. *Hozun* and *majnun* attained good reliability in the current sample ($\alpha = .88$ and $.82$, respectively).

To assess functional impairment we used the World Health Organization's Disability Assessment Schedule-Version II (WHODAS-II). The WHODAS-II is comprised of 12 items concerning basic activities of daily living. The WHODAS-II was developed internationally, and has been piloted and used to measure functional impairment in many countries worldwide (Deconnick, 2003; Mogga et al., 2006). Internal reliability of the WHODAS-II was good in the current sample: $\alpha = .87$.

Following standard translation procedure (Bontempo, 1993), all survey content was translated and back-translated from English into Arabic, with back-translators blind to content of original English versions. Although most refugees' first language in the camps is Masalit, there exists no standard written Masalit, and thus we had to rely on interpreting from Arabic into Masalit during survey administration. In order that our severity scale be understood, we presented participants with a visual scale of a man or woman (depending on participant gender) carrying different amounts of wood. No distress (0) was represented by a figure carrying a few sticks of wood with ease, and extreme distress (4) by a figure showing great difficulty managing the weight of many sticks of wood. Visual techniques such as these have been used in other contexts in order to anchor reports of symptom severity (Bolton & Tang, 2002).

Procedures

Interview staff consisted of nine Sudanese (i.e., Darfuri refugees; six men and four women) and four Chadians (two men and two women) with secondary education, previous work experience in refugee camps, and Arabic fluency. Sudanese staff members were all Masalit and thus spoke Masalit as well as Arabic. All staff underwent 20 hours of training in recognizing trauma and stress, basic research design, and administering structured interviews that include scaled responses. This training included in-class role play and closely supervised interviewing in the field. The first author supervised and led training, aided by interpreters with experience interpreting psychological content. Sudanese staff members were assigned to work in camps in which they did not live in order to minimize reporting bias that might result from being assessed by neighbors. Because there is no standard written Masalit, Sudanese staff and Masalit interpreters (used when Chadians were assigned non-Arabic speakers) had no translated-back translated instrument to rely upon and thus translated from Arabic to Masalit during the interview. Interviewers and interpreters met regularly to review Masalit vocabulary used for particular items to enhance criterion maintenance. Techniques such as these have been used effectively in other mental health research involving refugee populations using primarily nonwritten languages (Sabin et al., 2003). Although attempts were made to match gender of interviewers with gender or participants, because of the number of female participants, many women were interviewed by men.

Each day research staff selected 20–25 individuals listed in records and visited them at their homes. These individuals were then asked to come to a central location the next morning for an interview about the well-being of residents. If the targeted individual was unavailable, staff returned the following day, and if still unavailable, an available adult family member from the household was asked to participate in the individual's place. Utilizing secondary participants ensured a random sample of households, if not participants. Those who arrived the next morning were informed of the study and their right to refuse to participate, consented verbally, and interviewed individually. Interviews took between one and two hours, and were all completed in one session. Those who waited were offered tea and peanuts. Participants received no other compensation for their time. Following the interview, those with pressing needs were referred to appropriate NGOs.

Most interviews were conducted in Masalit ($n = 589$, 69.5%), just over a quarter of the interviews in Arabic ($n = 225$, 26.5%), three in another language (using a local interpreters; 0.4%) and 31 were missing language of interview data (3.7%). Substituting family members for targeted individuals was not distributed evenly across camps, with 110 (17.5% of the camp sample) in camp 1, and 11 (5% of the camp sample) in camp 2 ($\chi^2 (N=848, df=1) = 20.40, p < .001$). Reasons given for the absence of targeted individuals were not recorded systematically, but most interviewers reported anecdotally that many were absent because of

participation in agricultural work. No demographic differences existed between primary and secondary interviewees.¹

Results

Displacing and displacement stressors

The prevalence of particular war-related PTEs is reported in Table 1. Three quarters ($n = 653$, 77.0%) of the sample endorsed at least one personally experienced PTE, whereas all but 23 individuals ($n = 825$, 97.3%) endorsed having witnessed PTEs. The most commonly reported personal PTEs were being chased, being beaten, and bombing; the most commonly reported witnessed events were being shot, being chased, and bombing. The average number of types of personal PTEs was 2.48 ($SD = 2.32$, range 0–9); and witnessed PTEs 8.65 ($SD = 3.43$, range 0–13). For all variables we examined potential differences across age and gender (nonsignificant findings are not reported). Men reported more personal PTEs ($M = 2.85$, $SD = 2.40$) than women ($M = 2.28$, $SD = 2.25$; $t(df=846) = 3.44$, $p = .001$), but witnessed PTEs were similar across gender. Two personal PTEs, sexual assault and drowning, had low inter-rater reliability, and thus were not used in analyses.

Material loss experienced during the Darfur conflict is also presented in Table 1. Virtually all individuals endorsed at least one material loss item ($n = 834$, 98.3%, and $n = 838$, 98.8%, respectively). One of these items, destruction of participants' own crops, did not achieve adequate inter-rater reliability, and thus was eliminated from analyses. Average scores for types of loss events were as follows: personal loss, 2.59 ($SD = 0.62$, range 0 to 3); and witnessed loss, 3.69 ($SD = 0.65$, range 0 to 4). Reports of loss were similar across gender. Mean number of months since most recent displacing stressor and interview was 42.08 ($SD = 10.02$).

Displacement stressors reported in camps are presented in Table 2. All individuals reported concern over at least one item on the basic needs subscale, and all but 18 individuals ($n = 830$, 97.9%) endorsed concerns about safety. The most frequently reported stressors concerned obtaining money, firewood, and food. Average number of basic needs endorsed was 6.05 ($SD = 1.13$, range 1–7) and the average number of perceived safety concerns was 3.90 ($SD = 1.78$, range 0–7). Men reported more safety concerns ($M = 4.11$, $SD = 1.75$) than women ($M = 3.78$, $SD = 1.78$; $t(df=844) = 2.57$, $p = .01$); there was no difference across gender for basic needs.

Psychological distress and functional impairment

For the PCL-C, the mean score was 2.58 ($SD = .74$), and for BSI-D, 2.46 ($SD = .98$), both indicating that on average participants had been distressed by these symptoms between “moderately” and “a lot” in the previous 30 days. For *hozun*, the sample mean was 2.72 ($SD = .74$), indicating “a lot” of distress; the mean for *majnun* of 1.80 ($SD = .75$) indicated moderate distress. The average WHODAS-II score of 2.46 ($SD = .86$) indicated that on

¹Sample characteristics reported above do not include participants interviewed by one particular interviewer ($n = 114$). For psychological symptoms, this interviewer's respondents scored substantially lower than others', and for witnessed PTEs, scores were slightly higher. The variability between scores obtained by this “outlier interviewer” and other interviewers was larger than the variability within all of the other interviewers' scores and across all psychological measures. When we identified this interviewer, the reason for these low scores became obvious. This person was in a leadership position in his camp. He was well-known in the camp in which he worked, and widely respected as an authority. Given the Darfuri penchant to downplay suffering, it seems likely that respondents deliberately underreported symptom severity to this man so as not to burden him with their troubles. Our approach to this large class of unreliable data was conservative: we chose to delete it from data analyses. Sample statistics and analyses presented here do not include this interviewer's data. Excluding these participants did not change demographics (no categorical changes greater than 1% or mean changes greater than a unit) within the final sample, with the exceptions of camp residence (30.8% in Camp 2 compared to 25.7%) and language of interview (72.8% in Masalit and 23.6% in Arabic, as opposed to rates reported above).

average, participants reported moderate-to-severe functional impairment. Men reported more severe BSI-D symptoms ($M = 2.56$, $SD = 0.94$) than women ($M = 2.41$, $SD = 0.99$; $t(df = 843) = 2.05$, $p = .04$); there were no other differences across gender. All distress measures were highly positively associated with one another (r values ranging from .61–.87). PCL-C, *hozun*, and *majnun* were also positively associated with age ($r = .08$, $p = .02$; $r = .07$, $p = .03$; $r = .07$, $p = .04$; respectively), and *majnun* was negatively associated with years of education ($r = -.08$, $p = .02$). WHODAS-II scores were positively associated with age ($r = .14$, $p < .01$). Psychological symptom measures and functional impairment were highly associated with one another. Pearson correlations between the five measures ranged from .55 (between BSI-D and WHODAS-II) to .87 (between PCL-C and *hozun*). The full correlation matrix is presented elsewhere Rasmussen et al, under review.

Predicting distress and functional impairment

We approached examining the determinants of distress with both univariate and multivariate association. Table 3 presents correlations between displacing and displacement stressors and psychological distress and functional impairment. Associations between measures of material loss and distress were weak, ranging from .02 to .13. No material loss measures were associated with PTSD symptoms, but both were associated with BSI-D, *majnun*, and functional impairment scores. Associations between PTEs and distress were somewhat stronger (range .09–.20), and statistically significant. Correlations for camp stressors were strongest (range .19–.31). The largest effect sizes were found consistently for perceived safety concerns. Time since most recent displacing stressor was negatively associated with PTSD severity ($r = -.09$, $p = .02$), *hozun* ($r = -.09$, $p = .02$) and functional impairment ($r = -.12$, $p = .001$).

We used hierarchical multiple regression to examine effects of camp stressors on distress accounting for demographics and PTEs. Because association between material loss measures and distress was minimal, we did not use material loss in regression models. We entered predictors in order of their occurrence: demographics, personal and witnessed PTEs, months since most recent PTEs (where associated in univariate analyses), and then basic needs and safety concerns. In line with Baron and Kenny's (1986) suggestions, we examined interactions between PTEs and camp stressors for each model in order to test moderating effects, and change in effect sizes from the first to second steps to examine mediating effects. The four final regression models are presented in Table 4. With the exception of basic needs' contribution to *majnun* and to functional impairment, camp stressors were significant contributors to psychological distress above and beyond both personal and witnessed PTEs. For PTSD, camp stressors fully mediated the effects of personal and witnessed PTEs and months since most recent PTEs (indicated by the reduction of effect sizes to zero upon the addition of camp stressors into the model); for *hozun*, camp stressors fully mediated the effect of witnessed PTEs (although associated in univariate analyses, months since most recent PTEs was not significant in regression analyses predicting *hozun*); and for *majnun*, perceived safety fully mediated the effect of personal PTEs. For functional impairment, perceived safety mediated the effect of witnessed PTEs and months since most recent PTEs. Only for depression did the effects of both PTE variables remain statistically significant once camp stressors were introduced. Also unique to the equation predicting depression was that effect sizes for camp stressors were not uniformly larger than those for PTEs. Regression models accounted for only a small amount of the variance in distress scores (less than 15%). Adjusted R^2 values for PTSD and depression models were half those for models predicting *hozun*, *majnun* and functional impairment. The addition of displacement stressors in the second step of each model contributed significantly to the variance accounted for by the model, with the largest R^2 change seen for the contribution of camp stressors for models predicting PTSD, *hozun*, and functional impairment.

Discussion

This study represents the first attempt to examine displacing and displacement stressors and gauge their influences in a sample of Darfuri refugees. This not only provides a snapshot of the experiences and hardships in a sizeable proportion of those affected by the Darfur conflict, but also contributes to research concerned with psychosocial distress in displaced populations. The findings that current stressors account for substantial variance in DSM-IV and locally-identified psychological distress and functional impairment—in some cases more than that accounted for by past trauma—belies the important role that displacement stressors play in the phenomenology of psychological distress in post-conflict settings. However, to state simply that one set of stressors accounts for more variance on their own is somewhat misleading, because for many refugees, both sets of stressors exist. Mediation findings suggest that these historically distinct sets of stressors interact to influence refugees' well-being.

Connecting this study's surveillance and predictive aims is the finding that the rates of PTEs were lower than rates of basic needs and safety concerns. Almost a quarter of our sample reported no personal experience of attacks by *janjaweed* militia or Sudanese soldiers, whereas virtually everyone reported at least some concern about getting basic necessities and safety. Moreover, the most common personal PTE was directly associated with flight—being chased—rather than direct assault. Although some may find these findings somewhat obvious in retrospect, acknowledging these findings is critical, particularly given that most attention by psychiatric research within refugee populations is focused on direct attacks. This is not to say that a trauma focus might not be appropriate for those suffering debilitating distress. Indeed, trauma-focused work has been empirically supported in refugee camps for those suffering from PTSD (Neuner et al, 2004; Neuner et al., 2008). However, our findings suggest that interventions that focus on past events and also address distress due to problems in the camp environment are more likely to alleviate the suffering of the majority of camp residents.

We found particularly low levels of association between war-related PTEs and subsequent symptom measures. Although studies involving refugees and PTE “variety score” measures generally do not attain Pearson correlations above .30 for PTSD (Rasmussen & Rosenfeld, 2006), we did expect that associations would be much stronger. Two explanations are plausible here: (1) It may be that because many participants reported some PTE, there was restriction of range; if our sample had included a sufficiently large comparison group who had not been exposed to trauma, associations across the combined group might have been considerably stronger; (2) The measure of trauma we used was a variety score, in which an individual beaten many times would have the same score as an individual beaten once; this ignores considerable variance within the trauma experience. A measure capturing the number of events in question might have been more predictive, and we call on researchers to integrate such measures into their work.

That both perceived safety and basic needs were more highly associated with psychological distress than material loss or war-related PTEs and accounted for greater variance in multivariate models suggests that displacement stressors are more impactful determinants of psychological distress at the population level. The notable exception seems to be for depression. Material losses and daily hassles have been shown to predict the severity of depressive symptoms in other trauma-affected populations (e.g., battered women; Campbell, Kub, & Rose, 1996), but that war experiences should predict these equally while being less predictive of other, theoretically-related constructs is peculiar, and deserves further study. One possible explanation may concern the validity of using measures of Western constructs among Darfur refugees, a concern which has received attention in practice guidelines for

refugees (e.g., IASC, 2007) as well as in the academic literature (e.g., Miller et al., 2006). Regression models predicting depression and PTSD accounted for substantially less variance than those predicting *hozun* and *majnun*, and this may suggest that depression and PTSD lack cultural validity.

Regression models predicting distress from PTEs and current stressors supported mediation models, suggesting that potential effects of displacing stressors are expressed through the effects of displacement stressors. These findings echo those of Steel and colleagues, who suggest that either “exposure to war impairs the capacity of traumatized individuals to manage later life difficulties effectively” or that “individuals with high levels of prior exposure... are also at greater risk of encountering postmigration living difficulties” (Steel et al., 1999, 431–432). Either hypothesis is plausible in the current study, and we cannot build upon Steel and colleagues' conclusion using the current data. In either case, the argument for addressing current stressors in treatment is supported.

Our findings concerning the relative weight of displacement stressors in no way diminishes the severity of the human rights abuses experienced by Darfuri refugees. The horrific events and loss that participants reported forced them to flee their homes included severe beatings, shootings, bombings, and sexual violence as well as the complete destruction of material goods and the means of livelihood. Although problems relevant to basic needs and safety accounted for the majority of the distress in this population, it should not be forgotten that violence and loss were the precipitating factors forcing these individuals into the conditions under which they experienced displacement stressors. Displacement stressors are collateral to displacing stressors, part of a single phenomenology of war. We acknowledge that for individuals exposed to displacing and displacement stressors, differences may seem phenomenologically trivial. Stressors related to direct attacks, harassment and abuse during flight, and loss of social networks may be part and parcel of a single, undelineated narrative of war.

Findings concerning demographic predictors of distress were of secondary interest to our aims, but are nevertheless notable. Age and education findings are consistent with findings that older refugees and those with less education are more distressed (Porter & Haslam, 2005). The findings that depression symptoms were more severe among men than women runs contrary to a host of findings from studies of displaced populations reporting slightly higher rates of psychopathology among women. However, gender differences in the current study may be explained in part by familial roles available to men and women in camps. Among Darfuris, men's social roles proscribed by Koranic teaching involve livelihood activity outside of the home, whereas women's roles involve domestic activities. In refugee camps, the domestic sphere is maintained, whereas spheres outside of the home are limited. Work has been found to be a correlate of well-being in refugee camps (Mollica, 1999), and when the strict gender roles of conservative Islam meet host country conditions of that prohibit refugees from working it becomes plausible that men would report more distress than women.

Eastern Chad was a difficult setting in which to collect reliable data. Challenges included the use of multiple languages, harsh environmental conditions, and political instability. Although we believe that the data we used for analyses are reliable, there are clearly limitations to our study. The fact that personally experienced sexual assault achieved low reliability is the largest impediment to our aim of documenting PTEs, particularly given that much of the attention surrounding the Darfur conflict has focused on sexual violence. Several participants who reported personally experiencing sexual assault explained that they were referring to sexual assault perpetrated on women in their families, and not necessarily on themselves directly. Interviewers differed on how they recorded these reports—resulting

in low inter-rater reliability. Despite specific training on discussing sexual assault and the effects of the stigma associated with it, we also cannot rule out that there may have been interviewers who underreported its occurrence. The unfortunate elimination of this variable means that we underestimated the number of PTEs, although by how much we are unable to say. That sexual violence is often more strongly associated with higher rates of distress than other PTEs among refugees (Hooberman et al., 2007) suggests that the influence of personal PTEs in the current study may be underestimated. However, differences between the associations of personal PTEs and distress and camp stressors and distress were large enough to give us confidence that a reliable measure of personal sexual assault history would not have changed the direction of these associations, only (potentially) their magnitude. Potentially related is the limited time available for training. Twenty hours may not have been enough time to train interviewers in the complexities of administering a structured interview with such sensitive information.

Other major limitations concern the specific characteristics of our sample. Although many of the war experiences and current stressors will sound familiar to those who have worked with refugees in eastern Chad (e.g., finding firewood), our conclusions are limited to refugees living within the camps we worked. The less-than-desired response rate (58.8%) was due in part to the work schedules of refugees (which we did not anticipate would be a substantial barrier), and in part to the fact that symptom severity data from over 100 cases were deemed unreliable because of the social position of one particular interviewer (see footnote above). The latter reflects the difficult choices researchers must make in balancing education and social position in selecting survey staff in environments with few eligible candidates. In low-resource communities, educated persons may be simultaneously the most qualified for research work because of their abilities and individuals who by the very nature of their authority may not be the best people to expect candid answers from research participants. As far as work is concerned, it seems reasonable to suggest that those who have the opportunity and wherewithal to have work schedules are better off than those who do not. If this were the case, we might speculate that symptom scores would be lower, and that current stressors would be less prevalent. However, we readily acknowledge that currently this speculation is just that.

Implications for intervention and practice

Among Darfur refugees in our sample displacement stressors were more common and accounted for as much as or more variance in psychological distress and impairment than displacing stressors. This has direct implications for how humanitarian aid organizations approach psychosocial interventions. Treating traumatic stress should include an emphasis on alleviating displacement stressors as well. Such interventions might include more socio-ecologically syntonetic modes of service delivery, strengthening supportive networks through community organization efforts, or organizing gender-specific problem-solving groups. However understandable it is that Western researchers and practitioners have focused on the horrors of war, we need to be wary that our field's concern with trauma not mask the immediate problems of displacement within refugee communities. War and civil conflicts are pervasive, encompassing phenomena, destabilizing many aspects of survivors' social-ecology, setting in motion multiple stressors with distinct and specific contributions to psychological distress.

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Table 1

Displacing stressors (N = 848)

	Personal		Witnessed	
	<i>n</i>	%	<i>N</i>	%
Potentially traumatic events (PTEs)				
Beaten	370	43.6	709	83.6
Being shot	271	32.0	781	92.1
Being burned	122	14.4	635	74.9
Limbs cut off (amputation)	93	11.0	567	66.9
Being bound (e.g., ropes or chains)	125	14.7	597	70.4
Stabbing/cutting people	104	12.3	519	61.2
Suffocation or strangling	92	10.8	510	60.1
Sexual violence ^A	--	--	623	73.5
Bombing	323	38.1	717	84.6
Being chased	493	58.1	740	87.3
Drowning (e.g., in <i>wadees</i>) ^A	--	--	446	52.6
Held captive	229	27.0	575	67.8
Kidnapped	134	15.8	610	71.9
Other PTE	13	1.5	41	4.8
Material loss				
Destruction of crops ^a	--	--	830	97.9
Destruction of homes	819	96.6	828	97.6
Theft of livestock	819	96.6	826	97.4
Killing of livestock	561	66.2	646	76.2

^a Kappa < .6 for personal reports

Table 2Displacement (or “current”) stressors ($N = 848$)

	<i>n</i> (%) “a little” stressful	<i>n</i> (%) “very” stressful	<i>n</i> (%) endorsed
Basic needs			
Getting food in the camp	385 (45.4)	426 (50.2)	811 (95.6)
Getting firewood in the camp	213 (25.1)	616 (72.6)	829 (97.8)
Getting money in the camp	6 (0.7)	833 (98.2)	839 (98.9)
Problems with shelter in the camp	175 (20.6)	552 (98.8)	727 (85.7)
Finding privacy in the camp	247 (29.1)	395 (46.6)	642 (75.7)
Getting clean water	315 (37.1)	376 (44.3)	691 (81.5)
Getting medical help in the camp	313 (36.9)	355 (41.9)	668 (78.8)
Access to latrines	208 (24.5)	539 (63.6)	747 (88.1)
Domestic conflict			
Arguments with spouse	108 (12.7)	115 (13.6)	223 (26.3)
Violence against you by spouse	93 (11.0)	111 (13.1)	214 (24.1)
Arguments with your children	114 (13.4)	110 (13.0)	224 (26.4)
Perceived safety			
Problems with other camp residents	79 (9.3)	92 (10.8)	171 (20.2)
Problems with locals near the camp	214 (25.2)	518 (61.1)	732 (86.3)
Problems with camp guards	153 (18.0)	152 (17.9)	305 (36.0)
Sexual assault in or near the camp	240 (28.3)	481 (56.7)	721 (85.0)
Recruitment by rebels in the camp	62 (7.3)	152 (17.9)	214 (25.2)
Property taken by others	281 (33.1)	341 (40.1)	622 (73.3)
Not feeling safe in camp	209 (24.6)	324 (38.2)	533 (62.9)
Threats to camp from militant groups	65 (7.7)	202 (23.8)	267 (31.5)
Illness and death in family			
Illness of family member	141 (16.6)	607 (71.6)	748 (88.2)
Death of family member ^d	--	--	--

^a ICC < .80

Table 3Correlations between displacing and displacement stressors and psychological distress ($N = 848$)

Variety scores	PCL-C PTSD	BSI-D	Hozun	Majnun	WHODAS-II
Material loss					
Personal	.02	.07*	.06	.08*	.08*
Witnessed	.06	.13**	.08*	.10**	.12**
PTEs					
Personal	.10**	.14**	.19**	.13**	.23**
Witnessed	.11**	.20**	.11**	.23**	.09**
Camp stressors					
Basic needs	.19**	.19**	.27**	.19**	.18**
Perceived safety	.23**	.19**	.30**	.30**	.31**

*
 $p < .05$ **
 $p < .01$ PTE = potential traumatic event

Table 4

Hierarchical regression models predicting distress and functional impairment

I. PTSD		B	SE	β	Δ^2
1	Age	.005	.002	.090**	
	Personal PTEs	.023	.012	.072*	
	Witnessed PTEs	.031	.008	.139**	
	Months since PTEs	-.006	.003	-.078*	.038**
2	Age	.005	.002	.091**	
	Personal PTEs	.001	.012	.003	
	Witnessed PTEs	.020	.008	.089	
	Months since PTEs	-.007	.003	-.088*	
	Basic Needs	.069	.025	.105**	
	Safety Concerns	.068	.017	.164**	.045**
II. Depression					
1	Gender	-.091	.069	-.044	
	Personal PTEs	.047	.014	.112**	
	Witnessed PTEs	.051	.010	.180**	.050*
2	Gender	-.076	.069	-.037	
	Personal PTEs	.031	.015	.074*	
	Witnessed PTEs	.041	.010	.145**	
	Basic Needs	.091	.032	.105**	
	Safety Concerns	.047	.021	.085*	.023**
III. Hozun					
1	Age	.005	.002	.100**	
	Personal PTEs	.059	.011	.182**	
	Witnessed PTEs	.025	.007	.115**	.051**

I. PTSD	B	SE	β	Δ^2
2				
Age	.005	.002	.099**	
Personal PTEs	.033	.011	.101**	
Witnessed PTEs	.010	.007	.045	
Basic Needs	.106	.024	.162**	
Safety Concerns	.083	.016	.200**	.082**
IV. <i>Majnun</i>				
1				
Years of education	-.022	.008	-.095**	
Number of wives	.042	.024	.062	
Personal PTEs	.029	.011	.091**	
Witnessed PTEs	.052	.008	.237**	.069**
2				
Years of education	-.020	.008	-.089**	
Number of wives	.044	.023	.065	
Personal PTEs	.005	.011	.015	
Witnessed PTEs	.039	.008	.180**	
Basic Needs	.020	.025	.030	
Safety Concerns	.103	.016	.249**	.060**
V. Functional Impairment				
1				
Age	.009	.002	.153**	
Personal PTEs	.075	.013	.198**	
Witnessed PTEs	.023	.009	.090**	
Months since PTEs	-.008	.003	-.097**	.082**
2				
Age	.009	.002	.155**	
Personal PTEs	.040	.013	.108**	
Witnessed PTEs	.010	.009	.037	
Months since PTEs	-.009	.003	-.110**	

L PTSD	B	SE	β	Δ^2
Basic Needs	.026	.028	.034	
Safety Concerns	.126	.019	.263**	.066**

* $p < .05$
** $p < .01$