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### Mental health problems among internally displaced persons in Darfur

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# Mental health problems among internally displaced persons in Darfur

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War victims are regarded as one of the highest risk groups for mental disturbances. This study investigated the effects of the Darfur conflict on mental health of 430 internally displaced persons (IDPs) from three camps located around Fasher and Nyala towns. A stratified random sampling technique was used to select participants. Male participants represented 50.6% of the sample while female participants represented 49.4%. The Posttraumatic Stress Disorder Checklist and the General Health Questionnaire (GHQ-28) were used in addition to a questionnaire measuring demographic variables and living conditions. It was hypothesized that high prevalence of posttraumatic stress disorder (PTSD) symptoms and of nonpsychotic psychiatric symptoms will be evident. Results showed a high dissatisfaction rate (72%) with living conditions among IDPs. There was also high prevalence of PTSD (54%) and general distress (70%) among IDPs. Female participants showed more somatic symptoms than their male counterparts. Married participants were more distressed, anxious, and showed more social dysfunction, while single ones reported more avoidance symptoms. Significant differences related to date of displacement were found in PTSD and hyperarousal. The group of IDPs displaced in 2003 scored higher on these scales than those displaced in 2004 and 2005. There was also significant difference related to date of displacement in distress, somatic symptoms, depression, anxiety, and social dysfunction. IDPs displaced in 2003 scored higher on these scales. Results are discussed in light of the study hypotheses and previous findings. It is concluded that three factors might affect the dissatisfaction of IDPs with living conditions inside camps. These are: lack of employment, unsuitability of food items, and lack of security around camps. It was recommended that psychological support services should be among the prime relief services provided by aid agencies.

**Keywords:** Darfur; IDPs; Posttraumatic stress; Distress.

Víctimas de guerra son considerados uno de los grupos de más alto riesgo en el desarrollo de problemas mentales. En este estudio se investigaron los efectos del conflicto en Darfur sobre la salud mental de 430 personas desplazadas al interior del país que vivían en tres campamentos localizados alrededor de los pueblos de Fasher y Nyala. Se utilizó la técnica de muestreo aleatorio estratificado para la selección de los participantes. 50.6% de la muestra eran hombres y 49.4% mujeres. Se utilizó una Lista de chequeo del Trastorno de Estrés Posttraumático (TEPT) y el Cuestionario General de Salud (GHQ-28) además de un cuestionario que evaluó las variables demográficas y las condiciones de vida. Se hipotetizó una alta prevalencia de síntomas del TEPT y de síntomas psiquiátricos no psicóticos en el grupo de desplazados. Los resultados mostraron altos porcentajes de insatisfacción (72%) con las condiciones de vida entre los desplazados. Además se pudo observar una alta prevalencia de TEPT (54%) y de distrés general (70%) entre estas personas. Las mujeres mostraron mayores síntomas somáticos en comparación con los hombres. Los casados además de estar más estresados y ansiosos, presentaron una mayor disfunción social, mientras que los solteros reportaron mayores síntomas de evitación. Se observaron además diferencias significativas entre la fecha del desplazamiento respecto del TEPT y de la sobreexcitación. El grupo de desplazados en el año 2003 mostraron puntajes más elevados en estos cuestionarios en comparación con los que fueron desplazados en los años 2004 y 2005. Además hubo una diferencia significativa entre la fecha del desalojo en relación al distrés, síntomas somáticos, depresión, ansiedad y disfunción social. Los desplazados en el año 2003 mostraron más elevados puntajes en estas escalas. Los resultados fueron discutidos tomando en consideración las hipótesis del estudio así como descubrimientos previos. Se concluyó que tres factores podrían afectar la insatisfacción de los desplazados respecto de las condiciones de vida al interior de los campamentos. Estos factores son: ausencia de empleo, inadecuado acceso a

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productos alimenticios y ausencia de seguridad alrededor de los campamentos. Se recomendó que los servicios de apoyo psicológico deberían ser uno de los servicios esenciales provistos por los organismos de ayuda.

**L**es victimes de la guerre sont considérées comme étant un des groupes les plus à risque pour les troubles mentaux. Cette étude a examiné les effets du conflit au Darfour sur la santé mentale de 430 personnes déplacées internes (PDI) provenant de trois camps situés dans les environs des villes de El Fasher et de Nyala. Nous avons utilisé une technique d'échantillonnage aléatoire stratifié pour sélectionner les participants. L'échantillon comptait 50.6% d'hommes et 49.4% de femmes. En plus d'un questionnaire mesurant les variables démographiques et les conditions de vie, nous avons utilisé l'Inventaire du Trouble de Stress Post-traumatique (TSPT) (PTSD Checklist) et le Questionnaire Général sur la Santé (QGS) (GHQ-28). Nous avons testé l'hypothèse qu'une prévalence élevée des symptômes du TSPT et une prévalence élevée des symptômes non-psychotiques seraient évidentes. Les résultats ont indiqué un niveau de mécontentement élevé (72%) quant aux conditions de vie parmi les PDI. Il y avait aussi une prévalence élevée du trouble de stress post-traumatique (54%) et de la détresse générale (70%) parmi les PDI. Les femmes ont montré plus de symptômes somatiques en comparaison aux hommes. Les participants mariés étaient en plus grande détresse, anxieux et montraient un plus grand dysfonctionnement social. En revanche, les participants célibataires ont rapporté plus de symptômes d'évitement. Des différences significatives en lien avec la date du déplacement ont été observées dans le trouble du stress post-traumatique et dans l'hyper-éveil. Le groupe des PDI déplacés en 2003 a obtenu un score plus élevé sur ces échelles en comparaison à ceux qui ont été déplacés entre 2004 et 2005. De plus, il y avait une différence significative liée à la date du déplacement dans la détresse, dans les symptômes somatiques, dans la dépression, dans l'anxiété ainsi que dans le dysfonctionnement social. Les PDI déplacés en 2003 ont eu un score plus élevé sur ces échelles. Les résultats sont discutés à la lumière des hypothèses de l'étude et des résultats précédents. Nous avons conclu que les trois facteurs peuvent affecter le mécontentement des PDI quant aux conditions de vie à l'intérieur des camps. Ces conditions de vie sont: le manque d'emploi, les items d'alimentation qui ne sont pas appropriés et le manque de sécurité dans les environs des camps. Nous avons recommandé que les services de soutien psychologique doivent être parmi les principaux services de secours offerts par les organisations humanitaires.

The Darfur region of western Sudan is composed of three states: North Darfur, South Darfur, and West Darfur. These are of large area, comprising 250,000 km<sup>2</sup> with an estimated population of 6 million persons. The starting point of the armed conflict in Darfur was around 2002. Various factors contributed to this conflict: poverty, governmental role, political neglect, dispute over grazing rights and use, land tenure, and marginalization of the region by the national governments. These factors led to a rebel movement organized by the Sudanese Liberation Army and the Justice and Equality Movement (De Waal, 2009). The scale of conflict increased noticeably in February 2003 (United Nations, 2005). The conflict resulted in massive displacement of people. Some took refuge in neighboring Chad and other countries, while others were grouped in camps inside Darfur itself.

It is well documented that conflicts, wars, violence, and being displaced negatively affect the victims' well-being and result in complex humanitarian crises. Refugees are regarded as one of the highest risk groups for mental disturbances. More than 50% of them manifest mental health problems ranging from chronic disorders to severe trauma (Bruntland, 2000). Experiencing the devastation of armed conflict

and exposure to violence has consistently been found to be associated with poor mental health (Miller et al., 2002).

Bilanaskis and Pappas (1996) studied the impact of war stress on mental health of 58 war refugees in a refugee camp in Serbia. They found that 63.8% of the sample members were suffering psychological problems as measured by the General Health Questionnaire (GHQ), and 44% were suffering posttraumatic stress disorder (PTSD). The GHQ total distress score was correlated with personal experience of traumatic events, the number of traumatic events, the degree of exposure to the events, trauma symptoms, and posttraumatic stress.

Thus, exposure to traumatic events such as war may result in severe emotional and behavioral disorders such as posttraumatic stress (Karl, Maltam, & Maercker, 2005). PTSD was first recognized during the Vietnam War when American soldiers manifested severe symptoms as a result of experiencing war (Ehlers & Clark, 2000). PTSD is defined as an anxiety disorder that develops in response to severe traumatic life stress (American Psychiatric Association, 1994). It is associated with psychological and physical dysfunctions (Palyo and Beck, 2005) such as exaggerated startle, insomnia, hypervigilance,

and distorted information processing (Karl Maltam, & Maercker, 2005). PTSD symptoms can be classified into three categories: hyperarousal, avoidance, and intrusive symptoms (American Psychiatric Association, 1994).

Forty-eight studies in the period 1970–2005 were found pertaining to the development and maintenance of PTSD in civilian survivors of war trauma and torture (Johnson & Thompson, 2008). Numerous studies on refugees and displaced populations affected by various forms of war trauma reported very high rates of PTSD among participants.

Cardozo, Vergara, Agani, and Gotway (2000) researched the mental health of Kosovar Albanians, immediately after the war in Kosovo and one year later. They found PTSD prevalence rates of 17.1% and 25% respectively. Scholte et al. (2004) reported a PTSD prevalence rate of 20.4% following war and repression in Eastern Afghanistan, whereas Somasundaram and Sivayokan (1994) reported a prevalence rate of 27% following the war in Sri Lanka.

The present study aimed at investigating the effects of the Darfur crisis on mental health of internally displaced persons (IDPs) in terms of traumatic events and resulting living conditions inside camp. We hypothesized that high prevalence of PTSD symptoms and of nonpsychotic psychiatric symptoms would be found. Sociodemographic data would be used in conducting subsequent analysis.

## METHOD

### Participants

A sample of 450 IDPs was targeted; 430 of them agreed to be interviewed. Participants were from three camps: Seraif (24.2%), Utash (23.3%), and Abu Shoak (52.6%). The first two camps were located around Nyala town (south Darfur state) and the last around Fasher town (north Darfur state). Each camp was divided into four areas. Participants were selected from households (one from each) according to their availability. If this process of sampling is to be described, it is more likely to be stratified random sampling.

Participant ages ranged from 12 to 85 (mean age = 34.62 years;  $SD = 13.88$ ). Male participants (mean age = 35.18;  $SD = 13.87$ ) represented 50.6% of the sample while female participants (mean age = 34.13;  $SD = 13.90$ ) represented 49.4%. Around 74.4% of the participants were married, 20.5% single, 0.7% divorced, and 3.8% widowed.

The majority of the participants were from north Darfur state (53.7%), while 41.9% were from south Darfur state and 4.4% from west Darfur state. Around 44.2% of the participants belonged to the Fur tribe, 20.7% to the Zaghawa tribe, and the rest belonged to other tribes. Participants entered the camps in early 2003 through 2004 to mid 2005 (10.3%, 82.9%, and 6.8% respectively).

### Materials and procedures

In the year 2005, participants (IDPs) were interviewed by the authors and two other interviewers (a male and a female) who were trained in how to interview and collect data from IDPs. Participants were approached in their tents and requested to take part in the study. The objectives of the study were explained and confidentiality of information was assured. IDPs responded to three sets of questionnaires backtranslated from English into Arabic. The first questionnaire was specially designed for the purpose of this study and consists of three parts: 10 questions exploring demographic information; 21 questions on living conditions; and 3 questions exploring displacement history. The second questionnaire was the Post Traumatic Stress Disorder Check List (PCL) (Weathers, Litz, Herman, Huska, & Keane, 1993), which was composed of 17 items rated on a 1–5 Likert scale. Test–retest reliability for the original scale was .96 ( $\alpha = .93$ ) and convergent validity was .93, as correlations with the Mississippi scale for PTSD show (Weathers et al, 1993). The PTSD Check List assesses the three symptom clusters of PTSD: re-experiencing symptoms, numbing/avoidance symptoms, and hyperarousal symptoms, corresponding to the *Diagnostic and Statistical Manual for Mental Disorders (DSM-IV)* criteria B, C, and D, respectively. Dobie et al. (2002) cited a number of studies in which a score of 35 to 50 was considered the optimal score providing cutoff points. In our study a score of 50 was used as an optimal screening cutoff point. The sum of total responses that generates a total score ranges from 17 to 85; the mean score was 50.05 ( $SD = 12.88$ ,  $\alpha$  reliability = .82). Factor analysis yielded three factors consistent with the original three-symptom clusters of the PTSD specified by DSM-IV (American Psychiatric Association, 1994). The third questionnaire was the GHQ (28 items: GHQ28; Goldberg & Williams, 1991). Factor analysis yielded four subscales consistent with the original questionnaire subscales which gauge anxiety, depression, somatic symptoms, and social dysfunction. The mean score

on this scale was 14.00 ( $SD=8.20$ , alpha reliability = .94). The GHQ is a well-validated instrument for measuring nonpsychotic psychiatric disorders in both clinical and community settings including those affected by violence (Cardozo et al., 2000; De Jong et al., 2007). There are two methods of scoring the questionnaire: the GHQ scaling method (0, 0, 1, 1) and the Likert scaling method (0, 1, 2, 3). The former is appropriate for recognizing nonpsychotic psychiatric cases and the latter for survey research (Swallow, Lindow, Masson, and Hay, 2003). For differentiating psychiatric from nonpsychiatric cases the GHQ scoring system with a cutoff point of 4 or more is usually used. When using the Likert system, the GHQ total score measures general distress. In our study, both methods of scoring were used. Both the PTSD Questionnaire and GHQ have been widely validated in many countries and cultures (Cardozo et al., 2000).

## RESULTS

### Living conditions

Descriptive statistics showed that most of the IDPs (72%) believed that living conditions in camps were poor in terms of freedom of movement, quality of shelter (tents), unfriendly environment, sanitation, clean water, and social services such as education, health, wood fuel, and employment. About 74% of IDPs reported that the camps were located in unsecured areas, though 75% of them believed that security inside the camps was adequate.

### PTSD checklist

When a cutoff point of 50 was used, 54% of IDPs were classified as possible PTSD cases. The DSM-IV criteria for diagnosing PTSD symptoms were used to differentiate symptomatic from nonsymptomatic cases. The findings of items of each diagnostic cluster are given in Table 1.

Correlations between study variables are given in Table 2. Age was negatively related to PTSD score, hyperarousal and avoidance symptoms. PTSD score, hyperarousal, and re-experiencing symptoms were each related to general distress, somatic symptoms, anxiety, social dysfunction, and depression; avoidance symptoms were related to depression only.

*T*-test results showed significant difference between the married ( $n=313$ ,  $M=8.11$ ,  $SD=2.77$ ) and single IDPs ( $n=107$ ,  $M=8.80$ ,

$SD=2.84$ ) in avoidance symptoms ( $t=2.19$ ,  $df=418$ ,  $p<.05$ ). The single participants reported more avoidance symptoms than the married participants. No significant sex differences were found in PTSD, avoidance, re-experiencing, or arousal symptoms.

Analysis of variance showed significant differences related to date of displacement in PTSD score and hyperarousal ( $F=4.64$ ,  $df=2$ , 417,  $p<.05$ ;  $F=7.65$ ,  $df=2$ , 417,  $p<.01$ , respectively); effect size estimates shown by partial Eta squared are  $\eta_p^2=.02$ ;  $\eta_p^2=.04$ , respectively. The group of IDPs who were displaced in the year 2005 reported the highest PTSD score ( $n=12$ ,  $M=55.50$ ;  $SD=8.36$ ) followed by the group those displaced in 2003 ( $n=124$ ;  $M=52.52$ ;  $SD=12.39$ ). The lowest score on PTSD was reported by those who were displaced in the year 2004 ( $n=284$ ;  $M=48.87$ ;  $SD=13.00$ ). Bonferroni post-hoc results indicated that the groups of people displaced in 2003 and 2004 were significantly different in their mean PTSD score ( $MD=3.65$ ;  $p<.05$ ). The leading group was the one that was displaced in 2003.

Analysis of variance results also showed that those who were displaced in 2005 had the highest symptoms on hyperarousal ( $M=28.33$ ;  $SD=5.33$ ), followed by the group of IDPs displaced in 2003 ( $M=26.28$ ;  $SD=7.74$ ). The lowest scores on hyperarousal symptoms were obtained by those who were displaced in 2004 ( $M=23.29$ ;  $SD=8.13$ ). Bonferroni post-hoc results of hyperarousal indicated that the groups of people displaced in 2003 and 2004 were significantly different in their mean scores ( $MD=3.03$ ;  $p<.05$ ). The leading group was the one that was displaced in 2003.

In terms of date of camp entry, ANOVA showed significant difference in PTSD score and hyperarousal ( $F=2.32$ ,  $df=4$ , 421,  $p<.05$ ;  $F=3.31$ ,  $df=4$ , 421,  $p<.05$ , respectively); effect size estimates shown by partial Eta squared were  $\eta_p^2=.02$ ;  $\eta_p^2=.03$ , respectively. Those who entered camps in the second half of 2003 reported the highest PTSD score ( $M=54.82$ ;  $SD=10.40$ ), and those who entered in the second half of 2004 were the lowest scorers ( $M=47.99$ ;  $SD=13.21$ ). Concerning hyperarousal symptoms, the highest scorers were those who entered camps in the second half of the year 2003 ( $M=27.68$ ;  $SD=7.31$ ) and the lowest were those who entered in the second half of 2004 ( $M=22.95$ ;  $SD=8.66$ ). Although Bonferroni post-hoc results showed no significant differences, at  $p\leq.05$ , in PTSD score or hyperarousal, results rendered a level of significance (.08) in hyperarousal in favor of

**TABLE 1.**  
Percentages of IDPs with PTSD symptoms vs. non-PTSD symptoms (N = 425)

<i>DSM-IV symptom cluster</i>	<i>Nonsymptomatic (%)</i>	<i>Symptomatic(%)</i>
<i>Criterion B: Persistent re-experiencing of the traumatic event</i>		
Recurrent distressing recollections of the event	12.5	87.5
Recurrent distressing dreams of the event	27.6	72.4
Acting or feeling as if events were recurring	26.4	73.6
Intense psychological distress at exposure to cues that resemble the event	21.4	78.6
Physiological reactivity on exposure to cues that resemble the event	36.9	63.1
<i>Criterion C: Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness</i>		
Efforts to avoid thoughts, feelings, or conversations associated with the trauma	38.1	61.9
Efforts to avoid activities, places, or people that arouse recollections of the trauma	37	63
Inability to recall an important aspect of trauma	56.8	43.2
<i>Criterion D: Persistent symptoms of increased hyperarousal</i>		
Markedly diminished interest or participation in significant activities	44.3	55.7
Feeling of detachment or estrangement from others	56.6	43.4
Restricted range of affect	45.5	54.5
Sense of foreshortened future	44.9	55.1
Difficulty falling or staying asleep	34.7	65.3
Irritability or outbursts of anger	48.3	51.7
Difficulty concentrating	49.5	50.5
Hypervigilance	45.4	54.6
Exaggerated startle responses	52.7	47.3

**TABLE 2.**  
Correlation of study variables

<i>Variable</i>	<i>Somatic</i>			<i>Social</i>			<i>Re-experiencing</i>	<i>Avoidance</i>	<i>PTSD</i>
	<i>Distress</i>	<i>symptoms</i>	<i>Depression</i>	<i>Anxiety</i>	<i>Dysfunction</i>	<i>Hyperarousal</i>			
Age	.09	.08	.00	.06	.12*	-.10*	-.08	-.13**	-.13**
Distress	-	.85**	.76**	.91**	.87**	.59**	.49**	.08	.58**
Somatic symptoms	-	-	.47**	.71**	.67**	.43**	.40**	.07	.58**
Depression	-	-	-	.63**	.53**	.57**	.39**	.13**	.54**
Anxiety	-	-	-	-	.71**	.54**	.45**	.05	.53**
Social dysfunction	-	-	-	-	-	.51**	.42**	.06	.49**
Hyperarousal	-	-	-	-	-	-	.57**	.28**	.92**
Re-experiencing	-	-	-	-	-	-	-	.21**	.79**
Avoidance	-	-	-	-	-	-	-	-	.49**

\* < .05; \*\* < .01.

those who entered camps in the second half of 2003.

**The General Health Questionnaire**

When a cutoff point of 9 was used, 70% of the respondents were classified as nonpsychotic psychiatric cases. Pearson correlation analysis revealed significant associations between age and social dysfunction only ( $r = .12, p < .05$ ). *T*-test results indicated that the only sex difference was in somatic symptoms ( $t = 2.11, df = 423, p < .05$ ). Female participants showed more somatic symptoms. Concerning marital status there were

significant differences in distress, anxiety, and social dysfunction ( $t = 2.45, df = 398, p < .05$ ;  $t = 2.21, df = 396, p < .05$ ;  $t = 2.63, df = 396, p < .05$ , respectively). The married participants scored higher on these variables.

Analysis of variance resulted in significant differences related to date of displacement in general distress, somatic symptoms, depression, anxiety, and social dysfunction ( $F = 7.12, df = 3, 418, p < .001$ ;  $F = 3.72, df = 3, 417, p < .05$ ;  $F = 10.31, df = 3, 415, p < .001$ ;  $F = 4.83, df = 3, 416, p < .01$ ;  $F = 3.51, df = 3, 416, p < .05$ , respectively); the effect size estimates were determined by partial Eta squared as follows:  $\eta_p^2 = .05$ ;  $\eta_p^2 = .03$ ;  $\eta_p^2 = .07$ ;  $\eta_p^2 = .03$ ;  $\eta_p^2 = .03$ ; respectively. The group

of IDPs displaced in 2004 obtained the lowest mean scores, while the group displaced in 2005 had the highest mean scores in all the abovementioned scales, except high mean scores in anxiety and depression scales. Bonferroni post-hoc results showed that the only significant mean differences in general distress, somatic symptoms, depression, anxiety, and social dysfunction were between the two groups of IDPs displaced in 2003 and 2004 ( $MD=3.77$ ,  $p<.01$ ;  $MD=0.71$ ,  $p<.05$ ;  $MD=1.22$ ,  $p<.001$ ;  $MD=1.00$ ,  $p<.001$ ;  $MD=0.82$ ,  $p<.05$ , respectively). Those who were displaced in 2003 consistently scored higher and were thus less healthy.

Regarding date of camp entry, ANOVA results showed significant differences in general distress, somatic symptoms, anxiety and social dysfunction ( $F=2.72$ ,  $df=4$ , 422,  $p<.05$ ;  $F=3.91$ ,  $df=4$ , 421,  $p<.01$ ;  $F=3.02$ ,  $df=4$ , 420,  $p<.05$ ;  $F=2.34$ ,  $df=4$ , 420,  $p<.05$ , respectively); effect size estimates were determined by partial Eta squared as follows:  $\eta_p^2=.03$ ;  $\eta_p^2=.03$ ,  $\eta_p^2=.01$ ,  $\eta_p^2=.03$ ,  $\eta_p^2=.03$ , respectively. IDPs that entered camps in 2003 reported high scores in general distress, somatic symptoms, and anxiety ( $M=16.63$ ,  $M=4.52$ ,  $M=4.63$ , respectively), while IDPs that entered camps in 2005 reported high scores in social dysfunction ( $M=5.10$ ). IDPs that entered camps in 2004 showed the lowest scores in general distress, somatic symptoms, anxiety, depression, and social dysfunction ( $M=12.75$ ,  $M=3.32$ ,  $M=3.25$ ,  $M=2.46$ ,  $M=3.82$ , respectively).

## DISCUSSION

To our knowledge, this is a pioneering study of the general and mental health of Darfurian IDPs. The results showed high levels of both posttraumatic stress symptoms and increased nonpsychotic psychiatric morbidity among Darfurian IDPs. These results support our hypotheses. The high prevalences can be attributed to the fact that those IDPs experienced and witnessed extreme violence in terms of burning and looting of properties, mass destruction, air bombardment, massive shelling, and killing of family members and relatives. Furthermore, living conditions in the camps were very difficult and most of the IDPs were unemployed.

The coexistence of PTSD, hyperarousal, and re-experiencing symptoms with general distress, somatic symptoms, anxiety, social dysfunction, and depression might reflect the fact that both PTSD and its subscales and the GHQ and its subscales are measures of symptoms of mental

ill health. Therefore, the correlation between them is expected.

Regarding marital status, the high score in avoidance obtained by single participants might refer to the lack of affective social support provided by marriage. The lack of gender differences in our study might be attributed to the fact that both sexes were at high risk because of the disastrous situations all IDPs had undergone, though women were targeted for rape. However, a previous study by Ekblad, Prochazka, and Roth (2002) suggested that female participants in their samples might have been more vulnerable to developing PTSD because of psychological consequences of being raped, violent loss of spouse and children, and becoming widowed.

It appeared from ANOVA results that the group of IDPs displaced in 2003 represents an exceptionally high-risk group for developing various mental health problems including PTSD, general distress, somatic symptoms, depression, anxiety, and social dysfunction. The group of IDPs displaced in 2004 represented the lowest risk group for developing the abovementioned mental health symptoms. Since the conflict in Darfur erupted in February 2003, IDPs displaced in 2003 were among the first war victims and the most affected and suffering groups. At that time camps were not yet established and aid work was not initiated. Therefore, this group might have encountered extremely difficult situations such as lack of shelter, food, and security, and being bewildered. It is clear from ANOVA results that IDPs who entered the camps in the second half of 2003 had the highest levels of both PTSD scores and hyperarousal symptoms. This finding might also be explained in light of the start of armed conflict in early 2003, which caused IDPs to be subjected to extreme violence.

The positive association between age and social dysfunction may signify the difficulties faced by older IDPs in their efforts to cope with their new social environment created by displacement. It might be difficult for older IDPs to regain the social status that they had enjoyed in their original societies, where roles were carefully assigned. It could also be argued that older IDPs may be socially dysfunctional even before being displaced due to limited mobility and limited activity.

The high levels of somatic symptoms reported by female IDPs are consistent with findings of Wenzel, Steer, and Beck (2005), which indicated the tendency of women to report such high symptoms compared to male participants. The higher levels of distress among married participants compared to single ones does not support the results of Roberto, Chaaya, Fares, and Abi

Khirs (2006), which showed that single participants scored higher on psychological distress measured by the GHQ. This result also contradicts the findings of Hamid (2008), which showed raised levels of distress, depression, and social anxiety among married participants. However, the conditions under which IDPs lived were not comparable to the normal conditions under which Hamid's sample lived. The association of being married with more distress, anxiety, and social dysfunction might suggest that married IDPs find themselves under more pressure as they shoulder the moral and social responsibility to protect their family members against various threats and dangers. It may also be more difficult for married IDPs to form new social networks than the younger nonmarried ones. Although marriage might be a protective factor against psychiatric morbidity under normal living conditions, this might not be the case under challenging conditions such as armed conflicts or natural disasters where married IDPs are expected to shoulder more responsibility for their family members in terms of providing security, refuge, and food.

The tendency of IDPs in Nyala camps to be more prone to higher general distress, somatic symptoms, anxiety, and social dysfunction may be attributed to the miserable living conditions in Seraif and Utash camps, around Nyala town, compared to conditions in Abu Shoak camp, around Fasher town. Utash camp is extremely crowded and some of its inhabitants received no food supplies. During our presence in Seraif camp we heard shooting and witnessed some soldiers in alert positions.

### Limitations

The cutoff point method for self-reports may not be the ideal way of diagnosing PTSD in victims. Alternatively the DSM-IV diagnostic method for PTSD could be used to increase the accuracy of diagnosing victims. Another limitation is that the *F* ratio of the DSM-IV PTSD diagnosis has not been assessed in the present study. Hence the tendency of some respondents to overestimate prevalence of symptoms is not controlled. A further possible limitation is the use of a cutoff point of 9 with the GHQ. Using a higher cutoff point will undoubtedly lower the prevalence rate of distress. The descriptive nature of the present study represents another limitation. More focus could be directed towards intervention studies rather than descriptive ones. The effect size estimates of ANOVA indicated another possible

limitation due to the small effect size estimates in some analyses. This means that some of the results might be significant because of the relatively large sample size.

### CONCLUSION

This is the first field study focusing on mental health problems encountered by IDPs in Darfur following the armed conflict that started in 2003. The study was conducted in three IDP camps located in north and south Darfur states. It represents an attempt to add to understanding of war victims' mental health. Our study reflects the wide prevalence of mental health problems among IDPs in Darfur. Three factors might affect the dissatisfaction of IDPs with living conditions inside the camps: (i) lack of employment, (ii) unsuitability of food items, and (iii) lack of security around camps. PTSD and general health distress were highly prevalent among Darfurian IDPs, in particular those who were displaced in 2003. IDPs in Nyala town experienced more health problems than those in Fasher town. This can be attributed to the better living conditions inside the Fasher camps.

Displacement and war experience were major factors endangering IDPs' mental health. Results of this study imply that psychological support services should be among the prime relief services provided by aid agencies. They also imply that living conditions inside camps need to be improved and security should be provided or enforced.

In Darfur's case, most IDPs have been staying in the camps for more than two years. Hence, future research may need to investigate post-displacement factors that might negatively influence mental health. Examples of such factors are unemployment, loss of social network and support, and dependency on relief aid. There is also a need to focus on vulnerable groups of IDPs such as children, women, and the elderly.

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