

**PTSD and the “building block” effect of psychological trauma  
among West Nile Africans**

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Epidemiological data indicates that psychological dysfunction typically occurs in 20-40% of individuals surviving violent acts, such as combat veterans or rape victims, suggesting that chronic PTSD is less than imminent following exposure to a variety of isolated traumatic stressors. Given that severe, potentially traumatizing experiences are not sufficient determinants of PTSD, other factors must account for an individual's vulnerability to developing this disorder<sup>1, 2, 3</sup>. We present the notion that PTSD has a “building block” effect and that exposure to trauma and violence is cumulative or additive, contributing to the development of PTSD over time, given a high enough “dose” of trauma. While previous studies indicate a correlation between degree of exposure to potentially traumatizing events and the frequency and severity of posttraumatic symptomology<sup>4, 5</sup>, an investigation of a community sample extremely affected by organized violence was necessary in order to quantify the dose-response curve and to discover the absence of a saturation level for the proportion of affected survivors.

As part of our study examining the impact of forced migration on fertility, mortality, violence and traumatic stress among Sudanese and Ugandan refugees and nationals, we interviewed 3371 individuals from 1842 households in the West Nile. Interviews were structured, and were administered in the native languages of Lugbara or Juba Arabic. The study's design involved a multi-stage sampling design. Data were complete and analyzed for N=3179 respondents: 2,540 female respondents (75 %; ages 15-50) and 831 males (25%; ages 20-55). Respondents were asked whether they had either experienced or witnessed potentially traumatizing events in their lifetime or in the past year such as witnessing or experiencing injury by weapon or gun, beatings/torture/murder, harassment, robbery/extortion, imprisonment, poisoning, sexual abuse/rape, abduction, prostitution/sexual slavery, forced circumcision, suicide, combat situation/shelling/bombings, evacuation under dangerous conditions.

The survey revealed a high prevalence of potentially traumatizing events (Criterion A, DSM-IV) and supported the theory of the “building block” effect by examining the relationship between traumatic experiences and PTSD. PTSD diagnoses were assessed using a translation of Foa's PDS<sup>6</sup>, which was translated and back translated by trained paramedical personnel and administered by local interviewers. The instrument's validity was assessed with a structured interview (CIDI, SRQ) per-

formed by German clinical psychologists in N=77 randomly selected respondents. The reliability was high ( $\alpha = .91$ ), confirmed by retesting a subsample (N=155). One fifth (N=679) of the refugee sample reported three or fewer traumatic events, of these 23% met the full criteria for PTSD. All individuals N=58 who reported 28 events met the full criteria for PTSD. The observed prevalence rates of PTSD varied with the frequency of traumatic events, including a near linear rise for increasing psychological strain with the number of traumatizing experiences (see Figure 1), and a pronounced increase of PTSD symptoms for traumatic events in the past year.

Given that the cumulative severity of exposure to psychological stressors contributes to the expression of PTSD<sup>4,5</sup>, correlations of types of stressors were examined. The total magnitude of events correlated with the frequency of intrusions ( $r = .58$ ,  $p < .001$ ), hyperarousal ( $r = .59$ ) and avoidance ( $r = .64$ ). Traumatic events, both experienced and witnessed, accounted for a similar amount of variance. Regarding traumatic events experienced in the whole life, sexual traumatization explained the highest variance of the severity of PTSD ( $r = .50$ ,  $p < .001$ ).

The high prevalence of posttraumatic stress, a disorder characterized by the survivor's pathological sense of current, impending threat or danger, challenges community functioning in refugee populations. Traumatic experiences during flight and exile leave refugees prone to cumulative traumatic stressors with an increased likelihood of developing PTSD. These results suggest there is no ultimate resilience capable of warding off disabling psychological damage and that even the most resistant individual has a psychobiological breaking point. The repeated occurrence of traumatic stress over time, clearly has a cumulative damaging effect on the mental health of the victim, even with varying traumatic stressors. These figures underscore the need to better understanding psychological dynamics due to violence and forced migration, and for workable guidelines on how to assist war-affected societies in refugee camps.

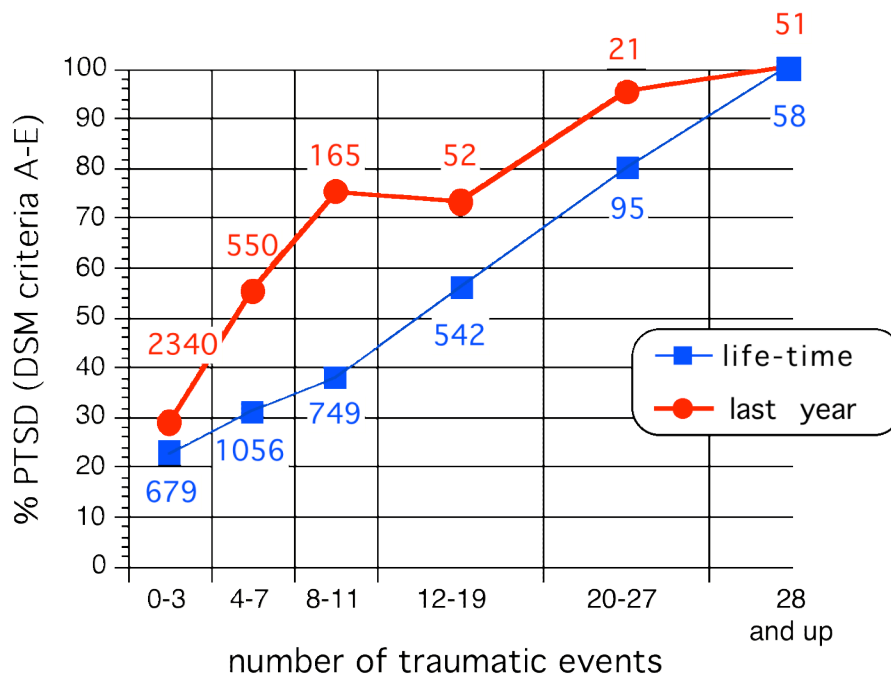


Figure 1: Prevalence rates for PTSD (DSM criteria A-E) for the various numbers of traumatic events during the life-time (squares) and during the past year (circles). Differences for the lower three categories are significant (chi2) including the difference between the 23 vs. 29% for the 0-3 events category ( $p < .01$ ).

<sup>1</sup> McFarlane AC: The aetiology of post-traumatic morbidity: predisposing, precipitating and perpetuating factors. *Br J Psychiatry* 1989, 154: 221-228.

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<sup>3</sup> Resnick HS, Kilpatrick DG, Best CL, Kramer TL: Vulnerability-stress factors in development of posttraumatic stress disorder. *J Nerv Ment Dis* 1992; 180: 424-430.

<sup>4</sup> Fox, S. H., & Tang, S. S. (2000). The Sierra Leonean refugee experience: traumatic events and psychiatric sequelae. *J Nerv Ment Dis*, 188(8), 490-495.

<sup>5</sup> Mollica, R. F., McInnes, K., Poole, C., & Tor, S. (1998b). Dose-effect relationships of trauma to symptoms of depression and post-traumatic stress disorder among Cambodian survivors of mass violence. *Br J Psychiatry*, 173, 482-488

<sup>6</sup> Foa, E. B. (1995). *Posttraumatic Stress Diagnostic Scale: Manual*. Minneapolis, MN: National Computer Systems.