# Classifying childhood war trauma exposure: latent profile analyses of Sierra Leone's former child soldiers

child soldiers were often exposed to different forms of traumatic events and different cumulative numbers

follows: loss of assets and separation, loss of parent(s), loss of

gender and years). Primary analyses included a series of LPA solutions using the cumulative scores of items within each form of trauma exposure. To confirm that this method of analysis did not obscure important detail of traumatic war exposures, results of alternative LPA solutions using individual trauma items (dummy coded scores of the 40 CWTQ items) were also estimated as comparisons. Finally, based on data integrating the classes of war exposure and indicators of psychosocial outcomes assessed from at least one wave, we used ANOVA (for continuous variables) or chi-square tests (for categorical variables) to examine whether the latent profiles of war exposures were associated with any sociodemographic characteristics or mental health outcomes. We examined differences in the mean (or sum) scores of each psychosocial outcome variable (i.e., PTSD, rates above PTSD clinical threshold, specific types of PTSD symptoms, emotion regulation, internalizing problems, and IPV perpetration) at each time point by latent patterns of exposure with ANOVA or chi-square tests. For emotion dysregulation, the analysis was conducted only at T4. Descriptive analyses and ANOVA or chi-square tests were conducted in SPSS 25.0 (IBM Corp, 20172017). LPA was performed using Mplus 7.4 (Muthén & Muthén, 2011).

In the LPA, we tested profile solutions ranging from two to three latent profiles for each scoring method of trauma exposure (i.e., cumulative scores of eight forms of trauma as the primary analysis and binary scores of the 40 individual items as a comparison). Four models (A, B, C, and D) were estimated for each latent profile solution (Pastor, Barron, Miller, & Davis, 2007). Model A allowed variance to differ across indicators (i.e., eight forms of trauma if the cumulative scoring method was estimated) but constrained variance to be equal across classes and constrained covariance to 0. With these parameters, the means of indicators can differ within classes but are the same across classes, and indicators are unrelated to each other within or across classes. Model B allowed variance to differ across binary indicators and classes, and all covariance was constrained to 0. Model C allowed variance to differ across binary items and classes, and it allowed different correlations among indicators within classes, but constrained covariance to be equal across classes. Model D allowed variances and covariance to differ across indicators and classes (Pastor, et al., 2007).

We used several statistical indices to assess goodness of fit for the LPA models, including the sample-adjusted Bayesian information criterion (BIC) and the Lo–Mendell–Rubin (LMR)
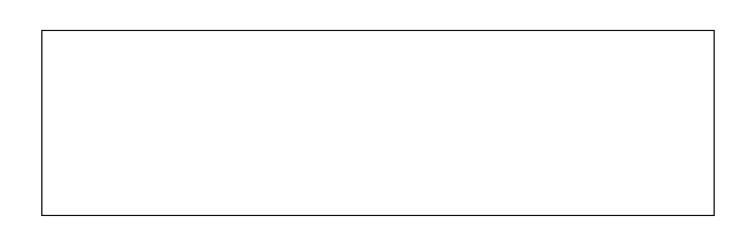
in armed groups. Model fit statistics are presented in Table S2. Model A2 of the two-profile solution showed acceptable model fit statistics: sample-size adjusted $BIC = 12,360$; $LMR = 1,389.80$, $p < .001$. The entropy was 0.90, and the average classification probabilities ranged from 0.97 to 0.98. However, our comparison indicated that Model B1 of the two-profile solution for eight forms of trauma was more optimal because it had a smaller sample-size adjusted BIC and exhibited greater differences in traumas types or forms across captured profiles.

Comparison of characteristics of postwar assessed measures between profiles identified based on eight categories of trauma

| | Lower exposure (%)/mean (SD) [CI] | Higher exposure (%)/mean (SD) [CI] | $F/\chi^2$ | Cohen's $d$/odds ratio [CI] |
|---|---|---|---|---|
| $N$ | 189 (45.54%) | 226 (54.46%) | | |

(Betancourt et al., 2011; Layne et al., 2010), injuring

enhancing the understanding of war exposure and its potential impact on subsequent mental health outcomes among former child soldiers who were exposed to relatively high levels of trauma and loss during the civil war in Sierra Leone. This approach may also inspire a new direction for war trauma research that involves classifying trauma history. Future research may take a more nuanced approach (integrated person- and variable-centered approaches) to examine more precise associations between war experiences and developmental risks among children associated with armed forces and armed groups, as well as factors leading to resilience in this population. Findings that former child soldiers with higher trauma exposure reported more PTSD symptoms at T2, hyperarousal symptoms across all waves, and difficulties in emotional regulation at T4 have important implications for systems of sustainable psychosocial support services in armed conflict and/or postconflict settings. An early detection of war exposure patterns and individuals with greater, more toxic exposures should be conducted to identify individuals for psychosocial sup-

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