CrossMark

Traumatic Life Events and Psychopathology in a High Risk, Ethnically Diverse Sample of Young Children: A Person-Centered Approach

Melissa J. Hagan[1] · Michael J. Sulik[2] · Alicia F. Lieberman[3]

Abstract Studies of the association between traumatic experiences and psychopathology in early childhood have primarily focused on specific types of events (e.g., sexual abuse) or aggregated different types of events without differentiating among them. We extend this body of work by investigating patterns of traumatic event exposure in a high-risk, ethnically diverse sample of children ages 3–6 ($N=211$; 51 % female) and relating these different patterns to parents' reports of child externalizing, internalizing, and post-traumatic stress symptomatology. Using latent class analysis, which divides a heterogeneous population into homogenous subpopulations, we identified three patterns of traumatic events based on parents' responses to an interview-based assessment of trauma exposure in young children: (1) severe exposure, characterized by a combination of family violence and victimization; (2) witnessing family violence without victimization; and (3) moderate exposure, characterized by an absence of family violence but a moderate probability of other events. The severe exposure class exhibited elevated internalizing and post-traumatic stress symptoms relative to the witness to violence and moderate exposure classes, controlling for average number of traumatic events. Results highlight the need for differentiation between profiles of traumatic life event exposure and the potential for person-centered methods to complement the cumulative risk perspective.

Keywords Early childhood · Traumatic events · Psychopathology · Latent class analysis · Post-traumatic stress

✉ Melissa J. Hagan
mjhagan@sfsu.edu

Michael J. Sulik
Michael.Sulik@nyu.edu

Alicia F. Lieberman
Alicia.Lieberman@ucsf.edu

[1] Department of Psychology, San Francisco State University, 1600 Holloway Avenue, EP 239, San Francisco, CA 94132, USA

[2] Neuroscience and Education Lab, New York University, 196 Mercer St., Rm. 810, New York, NY 10012, USA

[3] Child Trauma Research Program, Department of Psychiatry, University of California, San Francisco, 1001 Potrero Avenue, Building 20, Suite 2100, San Francisco, CA 94110, USA

According to the DSM-5 (American Psychiatric Association 2013) and the DC:0-3R (Zero to Three 2005), a traumatic event for a child under the age of 6 involves exposure to actual or threatened death, serious injury, sexual violence, or threats to the psychological integrity of the child or others. Traumatic events, such as experiences of family violence, accidental injury, animal attacks, disproportionately occur among children under the age of 6 (Briggs-Gowan et al. 2010b), and rates are particularly high among children in low-income families (Jones et al. 1996). Trauma in early childhood is associated with greater rates of internalizing, externalizing, and post-traumatic stress symptoms (Chu and Lieberman 2010), and as many as one third of adult psychiatric disorders may be attributable to experiences of trauma in childhood (Kessler et al. 2010). Although exposure to multiple events is common (Green et al. 2010), and many types of trauma tend co-occur (Finkelhor et al. 2007b), research on early childhood trauma has often focused on the consequences of a single event, one type of trauma, or a count of traumatic experiences (Evans et al. 2013; Finkelhor et al. 2007a; Lieberman et al. 2011). A limitation of these approaches is that none distinguishes between the different constellations of traumas experienced by

 Springer

young children. This omission is notable because the early childhood period is a sensitive time for the development of neurobiological stress systems and emotion regulation abilities (Gunnar and Quevedo 2007). Identifying subgroups of young children exposed to particular types of experiences has the potential to inform screening procedures and to facilitate more targeted interventions that can alter problematic developmental trajectories and promote resilience early on (Cicchetti 2013).

Multiple Traumatic Events and Psychopathology

Beginning with Rutter's (1979) and Sameroff and colleagues' studies on the predictive power of multiple risk exposure (Sameroff et al. 1987), developmental psychopathology research has demonstrated that the accumulation of traumatic events is often a stronger predictor of child outcomes on average than a single, even if serious, event (Evans et al. 2013; Rutter and Sroufe 2000). The general approach taken to assess cumulative trauma is an additive one: a traumatic event or type is counted as either present or absent and then events or types are summed to arrive at a number that is reflective of quantity of exposure. This method implicitly assumes that all traumas have equal weight and are interchangeable. However, even within a given type of trauma, there is considerable variability in the domains of life affected. Illustratively, the broad category of witnessing family violence could include one or more of the following: threats between family members, actual physical violence between family members, police presence in the home, or the arrest of a family member. Different configurations of these multiple experiences may be uniquely related to different types of mental health symptoms (Briggs-Gowan et al. 2010a).

As early as age 6, a dose–response relation between traumatic events and psychological functioning is evident (Snyder et al. 2012); however, it is unknown whether particular clusters of traumatic experiences impact psychopathology in very young children. Given the multiplicity of trauma exposure and psychological consequences, examining individual differences in exposure within a trauma-affected sample may allow for more precise and developmentally-informed treatment planning (Berzenski and Yates 2011). For example, in one of the few studies to assess a wide range of traumatic events and post-traumatic stress symptoms in low-income preschool-aged children (Graham-Bermann et al. 2012), traumatic loss of a family member was uniquely related to greater emotional reactivity, whereas family violence was strongly related to intrusive thoughts and fears. This finding suggests that providers may wish to pay particular attention to a preponderance of mood versus anxiety-related post-traumatic stress symptoms

depending on whether traumatic experiences were loss-related or violence-related. Although specificity between trauma type and mental health problems has been examined in middle childhood and adolescence, it remains relatively understudied in early childhood (Graham-Bermann et al. 2008; Margolin et al. 2010).

Person-Centered Approaches to the Study of Traumatic Events

Developmental psychopathology and dynamic systems frameworks imply that individual development involves multiple factors that can be described as patterns or profiles (Bogat 2009) and highlight the need to utilize methods sensitive to individual differences in environmental exposure and behavior (Cicchetti 2013). Studies employing variable-centered approaches, in which variables are the units of analysis (e.g., factor analysis), have shown that different childhood adversities may cluster in predictable ways (Jacobs et al. 2012). However, variable-centered approaches assume a homogenous population in which relations between different variables hold across all individuals (Laursen and Hoff 2006). Person-centered methods use the individual as the unit of analysis and decompose a heterogeneous population into smaller homogenous subpopulations. Because a person-centered approach allows the identification of subgroups of individuals who share similar experiences (Bergman et al. 2003), it can inform screening procedures in a way that variable-centered procedures may not (e.g., screening for a specific kind of exposure may be especially important when a child has been exposed to other particular events).

There are also empirical reasons to use a person-centered approach as a complement to a variable centered approach. Person-centered methods have the potential to increase generalizability relative to variable-centered investigations because variance is almost never distributed equally across all individuals studied (Laursen and Hoff 2006). As noted by von Eye (2010), focusing on subpopulations rather than shared variance across the full population increases the portion of variance explained and the validity of statements made. Latent class analysis (LCA), one type of person-centered approach, is increasingly being used to capture the complexity of individuals' traumatic life experiences (e.g., Berzenski and Yates 2011). The increasing popularity of LCA may be a result of the advantages it has over other-person-centered methods. For example, unlike cluster analysis, which can lead to multiple solutions, LCA (1) offers a single solution based on maximum likelihood estimation; (2) generates fit statistics, which provide information about absolute fit between the data and the model and allow for comparisons between different models; and, (3) disattenuates

measures of association based on estimates of measurement error. At the same time, LCA—like any statistical model—simplifies reality, and the use of person-centered approaches such as LCA does not necessary imply that the population consists of categorically distinct groups (Nagin 2005).

Studies employing LCA to examine constellations of traumatic events have been conducted primarily with adolescent and adult populations (Berzenski and Yates 2011; Houston et al. 2011; Menard et al. 2004; Shevlin and Elklit 2008). To our knowledge, there have been no studies applying this method to the study of young children exposed to interpersonal trauma. Findings from adult studies using LCA indicate that exposure to different traumatic events increases the risk for certain psychological disorders and attenuates the risk for other disorders depending on trauma type (Houston et al. 2011; Menard et al. 2004; Shevlin and Elklit 2008). For example, in a multiply maltreated sample of young adults, different constellations of maltreatment types were related to specific symptoms (Berzenski and Yates 2011). In that study, four classes of multiply maltreated young adults were identified: hostile home (emotional abuse and exposure to interparental violence); violent home (physical abuse and exposure to interparental violence); harsh parenting (emotional and physical abuse); and sexual abuse. Individuals in the harsh parenting class reported significantly greater substance use compared to the hostile home class and more emotion dysregulation compared to the violent and hostile home classes, despite all three classes being characterized by two maltreatment types. This result suggests that supplementary information can be gained by examining constellations of traumatic experiences in addition to type or number of events.

The Current Study

Understanding the landscape of traumatic experiences and the association between patterns of trauma exposure and different dimensions of symptomatology in young children will remain difficult if we fail to place single events within the broader lens of chronic or multiple traumas (Chu and Lieberman 2010). The current study had two goals. First, we used LCA to identify groups characterized by different patterns of traumatic (as defined by the DSM-5 and DC:0-3R) events in a high-risk population of young children. This was a descriptive goal and therefore exploratory in nature: in other words, we did not have hypotheses about the number of classes or the specific events that would characterize each class. The second goal was to evaluate whether particular constellations of trauma were associated with greater externalizing, internalizing, or post-traumatic stress symptoms compared to other constellations.

Method

Participants

Participants were drawn from a larger population of children and families ($N=283$) between the ages of 3–6 years old who presented to an outpatient hospital-based trauma clinic dedicated to ameliorating the negative effects of trauma on the child–parent relationship and child psychological functioning. Participants were eligible for inclusion in our analytic sample if the family was presenting to the clinic for the first time, the primary caregiver was a biological parent, and at least 80 % of the items on the trauma questionnaire had been completed. Seventy-two children were excluded from the current analyses because a non-biological parent completed the traumatic event interview ($n=34$), the family dropped out before completing the traumatic event interview ($n=34$), or more than 20 % of the event interview items were missing ($n=4$). The final sample included 211 children (49 % male; M age=4.23 years) and their primary caregiver (93 % mothers; M age=32 years). Racial and ethnic composition of the children in the sample was as follows: 46 % Latino; 14 % European American; 11 % African American; 3 % Asian; 3 % missing/other, and 22 % mixed race and/or ethnicity. Of the 84 % of parents reporting educational attainment, 75 % of parents had completed at least 12 years of education. Median annual household income was $18,000 (range=$0–$480,000), and 74 % of parents were single (i.e., unmarried and not cohabitating with a romantic partner). Although child age, sex of the child, and single parent status were unrelated to inclusion ($n=211$) versus exclusion ($n=72$) in the analytic sample, Spanish speakers were less likely than English speakers to be included in the analytic sample, $r(277)=-0.13$, $p=0.027$, children whose parent completed at least a high school education were less likely to be included in the analytic sample, $r(203)=-0.15$, $p=0.037$, and greater income was related to lower likelihood of inclusion, $r(205)=-0.27$, $p<0.001$.

Procedure

The San Francisco General Hospital and the University of California, San Francisco Medical Center institutional review boards approved all study procedures. All procedures involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Families were referred to the clinic from pediatric care or mental health clinics, social service agencies, family resource centers, the family court system, the state department of human services and outpatient hospital clinics. The intake coordinator, a licensed mental health clinician, requested detailed

demographic information from the referral source as well as descriptions of the family circumstances, mental health status, and diagnoses of medical or developmental conditions: Parents or children who were diagnosed with mental retardation, suicidal or homicidal ideation or severe psychosis, parents who were reportedly actively abusing substances, and children diagnosed with a pervasive developmental disorder were deemed ineligible and referred to an appropriate alternative service.

The intake coordinator contacted the parent by telephone and briefly explained the research study and associated services. Families who agreed to participate in services (n=238, see above) were assigned to a clinician for a comprehensive assessment. Upon their first visit to the clinic, parents were provided a description of the treatment modality offered (Child Parent Psychotherapy; Lieberman and Van Horn 2008) and invited to participate in a research study of the treatment's effectiveness. Following informed consent process, the parent and child participated in several assessment sessions designed to gather comprehensive information on the family's historical and current circumstances and functioning. All measures were administered in either interview or paper/ pencil format, as described below, in the parent's native language (English or Spanish). All interviews and assessment procedures were conducted by licensed mental health professionals or psychology/social work interns and postdoctoral fellows who were under the supervision of a licensed mental health professional.

Measures

Child Psychological Functioning Two well-validated, standardized instruments were used to assess child internalizing, externalizing, and post-traumatic stress (PTS) symptoms. The Child Behavior Checklist for Ages 1.5–5 (Y-CBCL; Achenbach and Rescorla 2000) was administered in paper/ pencil format (unless literacy was an issue, in which case an interview was conducted) to assess general mental health symptomatology. The Y-CBCL is a 99-item parent-report measure of children's behavioral symptoms. Parents were asked to report on their child's behavior over the past month, thus allowing a comparable time-frame to the measure of child PTS symptoms. Items were rated on a 3-point scale: not true= 0; somewhat or sometimes true=1; and very or often true=2. The instrument has demonstrated predictive and external validity, has high one-week test-retest reliabilities for externalizing, internalizing, and total symptom scores and is valid for use in cross-cultural samples and Latino populations in particular (Gross et al. 2006). Alpha reliability was 0.91 for externalizing and 0.90 for internalizing. The Trauma Symptom Checklist for Young Children (TSCYC), a 90-item instrument, measures the frequency of various trauma-related symptoms over the previous month in children ages 3–12 years old

(Briere et al. 2001). The TSCYC was administered to parents in an interview format (without the child present). Items were rated on a four-point scale ranging from "not at all" (1) to "often" (4). Three of the nine subscales assess PTS symptoms, including intrusion, avoidance and arousal. Consistent with other studies of PTS symptoms in young children (e.g., Crusto et al. 2010), scores on the three subscales were combined to form a PTS total symptoms score (α=0.90).

Child Exposure to Traumatic Events The Traumatic Events Screening Inventory–Parent Report Form, Revised (TESI-PR; Ippen et al. 2002), which was developed specifically to assess for trauma exposure in children under the age of six, was used to assess child exposure to 23 specific traumatic or adverse events over the child's lifetime (see Table 1). The TESI-PR was administered in an interview format, as designed (Ippen et al. 2002), with responses coded as 0 (not exposed) or 1 (exposed). The total score is the sum of the number of categories of traumatic events (total possible=23). The TESI-PR has been validated against other measures of children's violence exposure (Berent et al. 2008) and has been shown to correlate with child mental health symptoms in multiple studies of children under the age of 6 (e.g., Berent et al. 2008; Crusto et al. 2010; Roberts et al. 2013; Snyder et al. 2012).

Data Analysis Plan

We estimated two LCA models with Mplus 7.3 using the robust maximum likelihood estimator (Muthén and Muthén 2012). The first model was an exploratory analysis based on the 20 TESI items that were endorsed by more than 5 % of the sample, whereas the second model was a refinement of the initial model based on TESI items that provided the greatest class discrimination. The absolute fit of each LCA model was evaluated using a bootstrap of the Pearson $\chi 2$ statistic with 5000 bootstrap draws (Collins et al. 1993; Langeheine et al. 1996); as in factor analysis using maximum-likelihood estimation, a non-significant $\chi 2$ indicates good fit. To determine the optimal number of latent classes, we relied on methods that have been demonstrated to most accurately identify the true number of population classes in simulation studies (Nylund et al. 2007). We used a combination of the Bayesian Information Criterion (BIC), Vuong-Lo-Mendell-Rubin (VLMR) likelihood ratio test, and bootstrap likelihood ratio test (with 500 bootstrap draws). For the refined LCA model, class membership was (1) predicted from demographic covariates; and (2) used as a predictor of child symptoms, adjusting for covariates.

To examine the relations between class membership and child symptomatology, we implemented the three-step analysis approach advocated by Asparouhov and Muthén (2014). In the first step, the latent class model was estimated without covariates or distal outcome variables included in the model.

Table 1 Frequencies for endorsed TESI Items

Item	N	Frequency	Percentage
Seen, heard, heard about family violence	210	160	0.76
Separated from caregiver for more than a few days	210	129	0.61
Seen/heard family threaten serious harm to one another	203	99	0.49
Aware/present during arrest of family member	202	88	0.44
Seen/heard war or terrorism on the television or radio	201	80	0.40
Undergone medical procedures or had serious illness	208	78	0.38
Seen/heard violence between non-family members	205	75	0.37
Intentionally injured (hit, choked, shaken, burned, bit)	200	67	0.34
Verbally abused (repeatedly told s/he was no good, yelled at)	204	61	0.30
Experienced illness of someone close	208	61	0.29
Experienced death of someone close	210	49	0.23
In serious accident that may have caused injury/death	209	38	0.18
Seen serious accident that may have caused injury/death	208	33	0.16
Lacked appropriate care (lack food, shelter, left alone)	207	28	0.14
Directly threatened with serious physical harm	204	27	0.13
Made to see/do something sexual	192	25	0.13
Attacked by a dog or other animal	210	24	0.11
Someone close attempted suicide or self-inflicted harm	209	19	0.09
Witnessed forced sexual activity	202	15	0.07
Experienced/seen mugging	208	13	0.06
Kidnapped or close to someone who was kidnapped	210	9	0.04
Been in a natural disaster	209	5	0.02
Directly exposed to war, armed conflict or terrorism	211	1	0.00

Note: N=Number of cases with non-missing data on item

In the second step, individuals were assigned membership in the class in which they had the highest probability of membership. In the third step, class membership was related to predictors or an outcome variable with an adjustment based on classification uncertainty. Asparouhov and Muthén (2014) have documented good performance for the three-step method when class separation is good (i.e., entropy>0.6), and we follow their recommendation to not assume homogeneity of variance for outcome variables across classes.

Results

Descriptive Statistics and Measures of Association

Zero-order correlations among study variables, including demographics, total number of events, and child symptomatology, are available in supplemental materials (S1). On average across the sample, children experienced 5.78 different traumatic events (SD=2.92; range=1–23). Frequencies for the event data highlight that children referred for services due to experiencing at least one interpersonal trauma (i.e., abuse, neglect, exposure to interpartner violence, etc.) experienced a number of other traumatic events (see Table 1). The three most common experiences were "seeing, hearing, or hearing about family violence" (76 %), "separated from a caregiver for more than a few days or under very stressful circumstances" (61 %), and "seen or heard family members threaten serious harm to one another" (49 %). Three of the items were rare (i.e., prevalent in less than 5 % of participants): "been in a natural disaster," "kidnapped or close to someone who was kidnapped," and "directly exposed to war, armed conflict, or terrorism." Given that these events were experienced so infrequently, subsequent analyses did not include these three items.

A considerable number of children were rated as displaying clinically significant psychological symptoms (i.e., T-score> 65 on the symptom measures), with 65 % exhibiting clinical levels of at least one of the three symptom dimensions (internalizing, externalizing, or PTS symptoms). Among all children, 54 % of children exhibited clinical levels of PTS symptoms, 25 % displayed clinically significant externalizing problems, and 34 % presented with clinically significant internalizing symptoms. Comorbidity in the sample was also substantial. Of the children scoring in the clinical range on at least one symptom dimension (n=120), 48 % were above the clinical threshold on more than one dimension: 26 % scored in the clinical range on 2 of the 3 domains, and 22 % scored in the clinical range on all three measures. Boys were significantly

more likely than girls to score in the clinical range on the externalizing scale, $\chi2(1)=9.61$, $p=0.007$, and the internalizing scale, $\chi2(1)=4.99$, $p=0.030$, but there were no sex differences in clinical levels of PTS symptoms. Finally, average number of TESI events was positively correlated with internalizing, $r(192)=0.17$, $p=0.017$, and PTS symptoms(196), $r=0.38$, $p<0.001$, but was unrelated to externalizing symptoms, $r(192)=0.10$, $p=0.166$.

Exploratory Latent Class Analysis

Due to the large size of the frequency table (220=1,048,576 cells), $\chi2$ fit statistics could not be computed for this model. The likelihood ratio test indicated that the 3-class model fit better than the 2-class model, VLMR $p=0.020$, bootstrap $p<0.001$, whereas the BIC was smaller for the 2-class model (BIC=4283.256) than for the 3-class model (BIC=4308.254), indicating better fit (relative to model complexity) for the 2-class model. We obtained inconsistent likelihood ratio tests for the 4-class model relative to the 3-class model, VLMR $p=0.252$, bootstrap $p<0.001$. In addition, the BIC for the 3-class model was smaller than the BIC for the 4-class model (BIC=4355.297). Given the inconsistency in these fit statistics, there was some ambiguity about how many classes to extract. According to Collins and Lanza (2010) model selection should be guided by parsimony of a latent class model and interpretability of the latent classes. Based on this, we selected the 3-class model. Entropy for this model was 0.76. Within each class, the average probability of belonging to that class ranged from 0.86 to 0.94, indicating adequate classification accuracy (values of 1.00 indicate certainty with respect to classification).

Conditional response probabilities (CRPs) are defined as the probability that an individual from a specific latent class will endorse an item. CRPs provide clear interpretation to the classes when the CRP is close to the lower or upper bound—zero and one, respectively—and differ across classes. CRPs for the exploratory LCA model are shown in Fig. 1; as shown, one class was characterized by primarily by witnessing family violence and a low probability of experiencing many other traumatic events ("witness to violence" in Fig. 1), a second class was characterized by the highest probability of experiencing many traumatic events, especially victimization ("severe exposure" in Fig. 1), and a third class was characterized by a comparatively low probability of witnessing actual or threatened family violence but a moderate probability, relative to the other two classes, of experiencing death or illness of someone close, serious physical illness, and separation from a caregiver ("moderate exposure" in Fig. 1). Despite the interpretability of the classes, there were nonetheless many items for which the CRPs did not differ meaningfully across classes (see Fig. 1). This can be problematic because items that are only weakly related to class membership can influence

the latent classes. To obtain greater clarity in conceptual interpretation and prior to testing associations between classes and symptomatology, we estimated a refined latent class solution for the seven indicators with the largest differences in CRPs across classes.

### Refinement of the Initial Latent Class Analysis Model

As noted above, CRPs are defined as the probability that an individual from a specific latent class will endorse an item. Items were included in the refined LCA if they had CRPs with a difference of 0.35 or greater between at least one pair of classes in the exploratory LCA based on 20 items.[1] The 2-class model exhibited poor global fit, $\chi2(df=111)=248.89$, bootstrap $p=0.005$, whereas global fit for the 3-class model was acceptable, $\chi2(df=103)=101.727$, bootstrap $p=0.328$. The likelihood ratio tests and the BIC values indicated that the 3-class model (BIC=1699.877) fit better than the 2-class model (BIC=1700.522), VLMR $p=0.044$, bootstrap $p<0.001$. The 4-class model also exhibited acceptable global fit, $\chi2(df=95)=98.953$, bootstrap $p=0.193$, but had a larger BIC value (BIC=1727.073) than the more parsimonious 3-class model, and did not fit better based on the likelihood ratio tests, VLMR $p=0.471$, bootstrap $p=0.230$. These results consistently favored the 3-class model, which was selected for subsequent analysis. Entropy for the 3-class model was 0.83, which was superior to the exploratory model.

Within each class, the average probability of belonging to that class ranged from 0.91 to 0.95, indicating excellent classification accuracy. As shown by the pattern of CRPs for the refined 3-class model depicted in Fig. 2, the interpretation of the classes was similar to the exploratory LCA: one class was characterized by a high probability of witnessing family violence but a low probability of experiencing all other traumatic events ("witness to violence" in Fig. 2; $n=131$), a second class was characterized by the highest probability of experiencing victimization (including physical assault, verbal abuse, and threats of physical harm), witnessing family violence and experiencing a serious physical illness ("severe exposure" in Fig. 2; $n=34$), and a third class was characterized by a zero probability of witnessing family violence but a moderate probability, relative to the witness to violence class, of experiencing physical assault and a serious illness or medical condition ("moderate exposure" in Fig. 2; $n=49$).

Demographic Characteristics and Class Membership In the refined model, we tested whether the following characteristics were related to children's membership in a particular

---

[1] We conducted sensitivity analyses that included additional items. Results were highly similar to the solution reported in the manuscript and the CRPs for other items did not meaningfully differ across the classes.

Fig. 1 Conditional Response Probabilities for the Exploratory 3-Class Model Using 20 TESI Items. The items are ordered here by decreasing prevalence
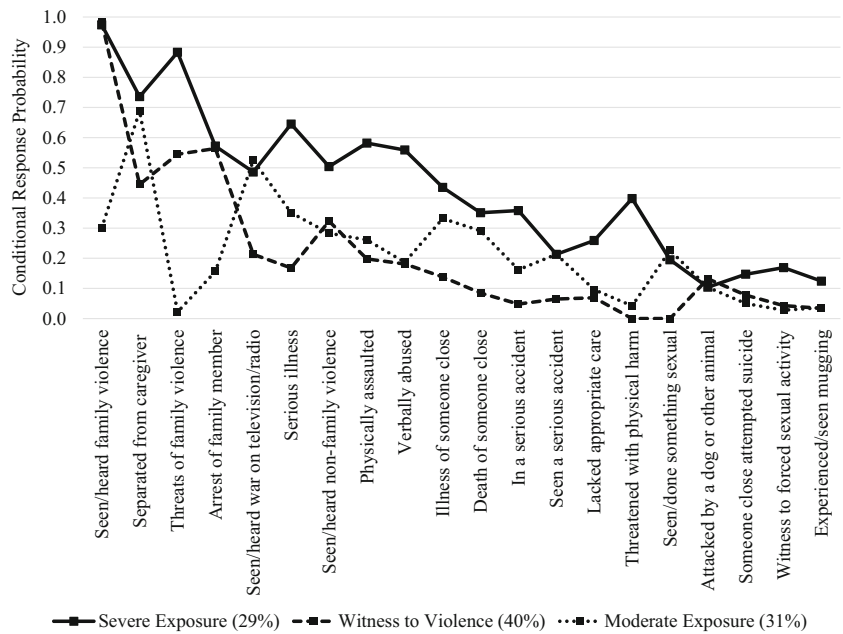

class. Age and sex of the child, household monthly income, parental completion of 12 years of education, child race, and single parent status were not significantly related to class membership.

Prediction of Child Symptomatology All analyses controlled for the demographic covariates noted above. Results indicated that there were significant between-class differences in PTS symptoms, internalizing symptoms, and externalizing symptoms, $\chi2(df=2)=45.631$, 21.203, and 11.384, ps<0.001, <0.001, and $=0.003$. Specific contrasts indicated that the PTS symptom intercept was greater in the severe exposures class

(55.85, SE=2.93) relative to the moderate exposure (38.07, SE=2.44) and witness to violence classes (37.55, SE=3.85), $\chi2(df=1)=35.070$, $p<0.001$ and $\chi2(df=1)=28.796$, $p<0.001$. There was no difference in PTS symptoms between the moderate exposure and witness to violence classes, $\chi2(df=1)=0.022$, $p=0.883$. Similarly, internalizing symptoms were greater in the severe exposure class (30.61, SE= 2.68) relative to the moderate exposure (19.01, SE=3.07) and witness to violence classes (14.96, SE=3.92), $\chi2(df=1)=$ 16.697, $p<0.001$ and $\chi2(df=1)=19.394$, $p<0.001$. There were no differences in internalizing symptoms between the moderate exposure and witness to violence classes, $\chi2(df=$

Fig. 2 Conditional Response Probabilities based on the 3-Class Model Using 7 TESI Items. Items are ordered here by decreasing prevalence
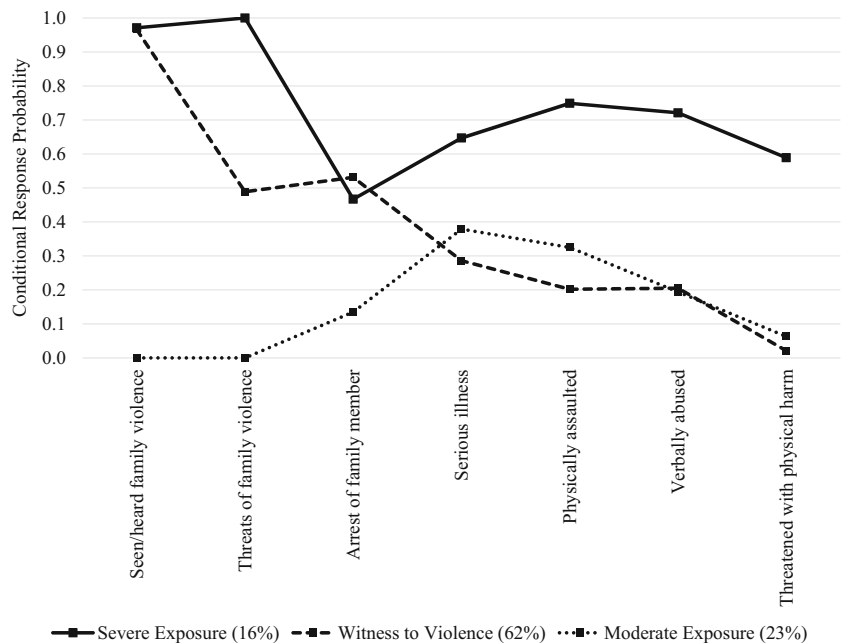
1)=2.615, p=0.106. Externalizing symptoms were greater in the severe exposure class (30.29, SE=2.54) relative to the moderate exposure (24.99, SE=2.09) and witness to violence classes (22.25, SE=1.82), χ2(df=1)=4.859, p=0.028 and χ2(df=1)=11.164, p<0.001. The witness to violence and moderate exposure classes did not differ in externalizing symptoms, χ2(df=1)=2.612, p=0.106.

The severe exposure class had a significantly greater number of traumatic events (M=9.29, SD=2.47) compared to the witness to violence (M=5.50, SD=2.61), t(209)=−7.26, p<0.001, and moderate exposure classes (M=4.13, SD=1.89), t(209)=−9.39, p<0.001. The witness to violence class also had a significantly greater number of traumatic events compared to the moderate exposure class, t(209)=−3.31, p=0.001. Given the significant difference in number of experiences across the classes, we examined whether symptomatology differed across classes while controlling for the set of covariates and the average number of events experienced by each individual. In these analyses, class differences in symptomatology remained significant for PTS symptoms, χ2(df=2)=10.016, p=0.007, and internalizing symptoms, χ2(df=2)=26.742, p<0.001. Specific contrasts indicated that the PTS symptom intercept was greater in the severe exposure class (52.27, SE=5.03) relative to the moderate exposure class (37.26, SE=2.61) and marginally higher relative to the witness to violence class (38.77, SE=3.50), χ2(df=1)=6.687, p=0.010 and χ2(df=1)=3.070, p=0.080, respectively. There was no difference in PTS symptoms between the moderate exposure and witness to violence classes, χ2(df=1)=0.237, p=0.626. Similarly, internalizing symptoms were greater in the severe exposure class (31.29, SE=2.69) relative to the moderate exposure class (18.55, SE=2.68) and the witness to violence class (16.86, SE=2.02), χ2(df=1)=13.616, p<0.001 and χ2(df=1)=25.939, p<0.001. There were no differences in internalizing symptoms between the moderate exposure and witness to violence classes, χ2(df=1)=0.744, p=0.388. There were no differences across classes for externalizing symptoms, χ2(df=2)=4.093, p=0.129.[2]

Discussion

Early childhood is a developmental period characterized by significant vulnerability for young children exposed to multiple traumatic events (Chu and Lieberman 2010). Although research based on the cumulative risk model has generated critical information on the psychological impact of multiple trauma exposures in childhood, there have been calls to move

trauma research in the direction of identifying constellations of experiences on an individual level (e.g., Evans et al. 2013; Jacobs et al. 2012), especially among children exposed to at least one interpersonal traumatic event (Kisiel et al. 2014; Roesch et al. 2010). The current results suggest that extending cumulative trauma models to also consider patterns of exposure can advance the study of the co-occurrence of a wide range of traumatic or adverse experiences and social-emotional functioning in very young children. Our methods and findings also demonstrate the utility of latent class analysis (LCA) for studying the epidemiology and psychological correlates of traumatic experiences among a population of low-income, predominately ethnic minority children under the age of six.

Constellations of Trauma Exposure

We identified three qualitatively distinct patterns of exposure to traumatic life events: a severe exposure class characterized by family violence combined with child victimization (verbal and physical) and serious physical illness, a witness to violence class characterized by witnessing actual or threatened violence between family members, and a moderate exposure class distinguished by the absence of both family violence and verbal abuse and a relatively moderate probability of experiencing physical assault (i.e., being hit, choked, burned, bit) and serious physical illness. Class membership was not related to child age, sex, or race, parent marital status, parental education, or household income. However, the three classes did differ significantly in regard to overall number of traumatic events, with the severe exposure class reporting the greatest number nine events), followed by the witness to violence class (between five and six events), and the moderate exposure class (four events).

The identification of qualitatively distinct patterns of traumatic life events is consistent with research involving adult populations (Houston et al. 2011; Menard et al. 2004; Shevlin and Elklit 2008). Houston and colleagues (2011), for example, identified separate classes of individuals exposed to interpersonal trauma: those who experienced victimization and those who primarily witnessed violence and did not experience it. The similarities between our results and those from studies of adult populations are notable given the differences in demographics: the majority of person-centered investigations have focused on community-based sample of primarily Caucasian individuals living above the poverty line, whereas the current study focused on very young children who were clinic-referred due to exposure to at least one interpersonal trauma and predominately from ethnic minority backgrounds and low-income families.

Although similar to findings from adult research, the classes that emerged in this study were also distinct. The severe exposure class had the greatest number of traumas and the

---

[2] We explored whether associations between class and child symptomatology varied by language spoken, ethnicity, child age, or child sex (see S2 in supplemental materials). There was no evidence of moderation by these demographic variables.

highest probability of experiencing almost all trauma types. However, this class of children was best distinguished from the other two classes by the co-occurrence of physical assault, verbal abuse and serious illness. The moderate exposure class, which was best distinguished from the other two classes by the lack of exposure to actual or threatened family violence, was similar to the severe exposure class in that experiences in this class were most likely to include physical assault and serious illness. The coupling of physical assault and illness in two of the three classes highlights the need for service providers to pay attention to potential physical health issues arising in the context of complex trauma. It also reinforces the call for pediatric clinics to include assessment of trauma exposure, especially among young children (Groves and Augustyn 2011).

Exposure to family violence is common in both clinical and non-clinical populations of children and disproportionately occurs in families with young children (Fantuzzo and Fusco 2007). The high rate of witnessing family violence observed in the current study is consistent with other investigations. For example, Smith Slep and O'Leary (2005) reported that among a representative sample of 450 dual-parent families with children below the age of seven, almost 90 % reported physical aggression in the family. The witness to violence class identified in the present investigation is remarkably consistent with a recent study that found 62 % of preschool-aged children who were exposed to family violence did not also experience additional traumatic events (Graham-Bermann et al. 2012). These findings serve as a reminder that while exposure to violence in the family is one of the most commonly occurring traumatic experiences in early childhood, it should not be presumed to invariably co-occur with child abuse or other traumas.

## Patterns of Trauma & Psychopathology

The current results demonstrate that person-centered analytic methods can be useful for investigating relations between different patterns of trauma and symptomatology in a multiethnic, high-risk population. Illustratively, children in both the severe exposure class and witness to violence class were likely to witness family violence; yet it was the severe exposure class—in which children were also likely to experience victimization and serious illness—that presented with the greatest number of post-traumatic stress (PTS) and internalizing symptoms. It is notable that the severe exposure class demonstrated significantly greater symptomatology than the other two classes even when controlling for overall number of traumatic events. This suggests that it may be a particular constellation of exposures that increases the risk for psychological symptoms in young children.

Research based on the cumulative risk model has shown that the number of traumatic experiences is a robust predictor

of psychopathology throughout the lifespan (Chapman et al. 2007). The current finding is consistent with that research. As demonstrated in Fig. 3, the classes are at least partially differentiated based on level of severity. That said, the findings also demonstrate that a more nuanced person-centered approach has value: the combination of verbal and physical victimization, witnessing violence, and serious illness was a strong predictor of PTS and internalizing symptoms, above and beyond number of experiences. Interestingly, although the witness to violence class was exposed to a significantly greater number of traumatic events compared to the moderate exposure class, the witness to violence class did not present with a greater number of psychological problems as might be expected in a cumulative risk framework. These findings highlight the importance of considering not just number of events, but also the patterns in which they co-occur and how different patterns may have particular effects on developmental outcomes.

The high rate of PTS symptoms in the severe exposure class is in line with other investigations that have found an increased risk of PTS disorder in young children who have experienced multiple traumas (Dow et al. 2013; Levendosky et al. 2013). The current finding is notable given that studies of young child trauma exposure have largely focused on externalizing and internalizing symptoms (Snyder et al. 2012) or studied post-traumatic stress symptoms in relation to a specific trauma type (Lang and Stover 2008). Young children have an increased risk of developing PTS symptoms that are unremitting compared to older children and adults (Coates and Gaensbauer 2009). The current findings add to an empirical literature devoted to identifying those most at risk.

Contrary to expectations, no class differences were found for externalizing problems when number of traumatic events was controlled, and the number of events was not significantly
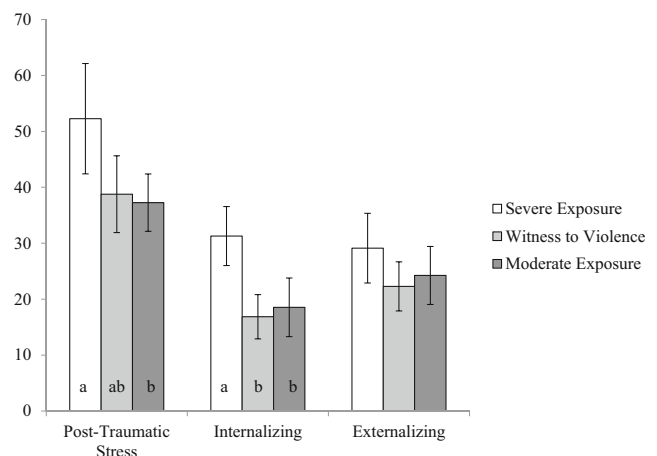
Fig. 3 Differences in raw number of psychological symptoms by class membership in the refined model. Bars with the same letter are not significantly different at $p < 0.05$. Error bars represent 95 % confidence intervals

related to externalizing problems. Although one study found a significant relation between trauma and externalizing behaviors in preschool-aged children (Graham-Bermann et al. 2012), other studies have failed to find an association in young children (e.g., Briggs-Gowan et al. 2010a). It may be that externalizing symptoms are more likely to manifest as children age and enter more structured and socially complex school environments. Notably, the children in the current study were slightly younger on average than those included in Graham-Bermann's et al. (2012) investigation. Alternatively, externalizing symptoms were reported at a much lower rate than either internalizing or PTS symptoms in the current study, and this may have influenced the ability to detect significant relations between trauma and externalizing symptoms. Another possibility is that subtypes of externalizing problems are differentially predicted by particular constellations of traumatic events (e.g., Mrug et al. 2008). Future research that focuses on subdomains rather than broad dimensions would shed light on this possibility.

Limitations and Strengths

A number of limitations must be considered when interpreting the results. First, the families that participated in the current study were referred to a clinic for treatment for their children due to trauma exposure. Although high rates of trauma exposure have been found in studies of low-income non-treatment-seeking families (with as many as 77–93 % of caregivers reporting trauma exposure in their preschool-aged children; Graham-Bermann et al. 2008), the present results may not generalize to community-based samples of children. Second, the current study restricted the sample to children who presented with their biological caregivers, and children removed from the home or in the care of relatives other than their biological parents may have different constellations of trauma exposure and symptomatology. Third, parents reported both on exposure to trauma and child psychological functioning, and shared method variance may bias our estimates of the relations between trauma exposure and child symptomatology. In addition, the cross-sectional nature of the study design limits our conclusions in two ways. Although we have documented associations between patterns of traumatic event exposure and child symptomatology, we cannot provide evidence of a causal relation because we do not know whether child symptomatology preceded traumatic event exposure. In addition, because we measured exposure to traumatic events at any time during the young child's life, we did not capture characteristics known to qualify the impact of an event including frequency, severity, and timing of the exposure.

Finally, and perhaps most importantly, young children's development unfolds in moments situated within the larger contexts of family processes and social and community level resources and risks. Although we examined relations between demographic characteristics, class membership, and symptomatology, the current study did not integrate measures of different dimensions of community violence, social support, or family characteristics, all of which play a critical role in child adaptation following trauma (Lieberman et al. 2011). Especially for younger children, the availability and capacity of the primary caregiver to provide support and nurturance in the face of trauma may be more critical in determining mental health outcomes than the trauma itself (Lang and Stover 2008; Lieberman et al. 2011; Lieberman and Van Horn 2008). It will be important for future person-centered investigations of trauma exposure in early childhood to incorporate measures of parental symptomatology and the parent–child relationship.

The study has a number of strengths that offset these limitations. First, we focused on a sample of predominately low-income, ethnic minority young children (ages 3–6) exposed to at least one interpersonal traumatic event. Relatively few investigations have used person-centered analyses to examine traumatic experiences and psychopathology in populations of ethnic minority children or families living below the poverty line (Thakar et al. 2013), despite the increased rates of exposure in this population (Mongillo et al. 2009). Second, we employed an in depth, interview-based structured assessment of trauma exposure that incorporated techniques known to lead to more accurate disclosure, including placing sensitive questions toward the end and using clarifying examples in the question stem to facilitate caregiver recall and understanding (Saunders and Adams 2014). This method may have also reduced bias associated with parents' own trauma history and psychological state—a common criticism of parent-report event checklists (Evans et al. 2013). Finally, the use of standardized measures to measure externalizing, internalizing, and PTS symptoms in young children, extends previous investigations that focused solely on total symptoms or PTS symptoms in isolation.

Conclusion

Researchers have suggested that understanding the complexity of young children's lived experiences allows for more precise screening and developmentally-informed treatment planning (Berzenski and Yates 2011). The current study identified specific patterns of traumatic life events in a high-risk sample of young children and used person-centered analytic methods to demonstrate that severe exposure (a pattern of trauma that included verbal and physical victimization, witnessing violence, and serious physical illness) predicted greater internalizing and PTS symptomatology compared to other constellations of traumatic experiences. Results underscore the value of extending cumulative risk models to consider more nuanced patterns of traumatic life events and the ways in which these patterns may be differentially related to child symptomatology.

References

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms & profiles*. Burlington: University of Vermont, Research Center for Children, Youth, & Families.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatry Association.

Asparouhov, T., & Muthén, B. (2014). Auxiliary variables in mixture modeling: Three-step approaches using Mplus. *Structural Equation Modeling: A Multidisciplinary Journal, 21*, 329–341. doi:10.1080/10705511.2014.915181.

Berent, R., Crusto, C. A., Lotyczewski, B. S., Greenberg, S. R., Hightower, A. D., & Kaufman, J. S. (2008). Development and psychometric refinement of a measure assessing young children's exposure to violence: parent report of children's experiences. *Best Practices in Mental Health: An International Journal, 4*, 19–30.

Bergman, L. R., Magnusson, D., & El-Khouri, B. M. (2003). *Studying individual development in an interindividual context: A person-oriented approach*. Mahwah: Erlbaum.

Berzenski, S. R., & Yates, T. M. (2011). Classes and consequences of multiple maltreatment: a person-centered analysis. *Child Maltreatment, 16*, 250–61. doi:10.1177/1077559511428353.

Bogat, G. A. (2009). Is it necessary to discuss person-oriented research in community psychology? *American Journal of Community Psychology, 43*, 22–34.

Briere, J., Johnson, K., Bissada, A., Damon, L., Crouch, J., Gil, E., . . . Ernst, V. (2001). The trauma symptom checklist for young children (TSCYC): Reliability and association with abuse exposure in a multi-site study. *Child Abuse & Neglect, 25*, 1001–1014.

Briggs-Gowan, M. J., Carter, A. S., Clark, R., Augustyn, M., McCarthy, K. J., & Ford, J. D. (2010a). Exposure to potentially traumatic events in early childhood: differential links to emergent psychopathology. *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 51*, 1132–1140.

Briggs-Gowan, M. J., Ford, J. D., Fraleigh, L., McCarthy, K., & Carter, A. S. (2010b). Prevalence of exposure to potentially traumatic events in a healthy birth cohort of very young children in the northeastern United States. *Journal of Traumatic Stress, 23*, 725–733.

Chapman, D. P., Dube, S. R., & Anda, R. F. (2007). Adverse childhood events as risk factors for negative mental health outcomes. *Psychiatric Annals, 37*, 359–364.

Chu, A. T., & Lieberman, A. F. (2010). Clinical implications of traumatic stress from birth to age five. *Annual Review of Clinical Psychology, 6*, 469–494.

Cicchetti, D. (2013). Annual research review: resilient functioning in maltreated children – past, present and future perspectives. *Journal of Child Psychology and Psychiatry, 54*, 402–422.

Coates, S., & Gaensbauer, T. J. (2009). Event trauma in early childhood: symptoms, assessment, intervention. *Child and Adolescent Psychiatric Clinics of North America, 18*, 611–626.

Collins, L. M., & Lanza, S. T. (2010). *Latent class and latent transition analysis: Applications in the social, behavioral, and health sciences*. New York: Wiley.

Collins, L. M., Fidler, P. L., Wugalter, S. E., & Long, J. D. (1993). Goodness-of-fit testing for latent class models. *Multivariate Behavioral Research, 28*, 375–389.

Crusto, C. A., Whitson, M. L., Walling, S. M., Feinn, R., Friedman, S. R., Reynolds, J., . . . Kaufman, J. S. (2010). Posttraumatic stress among young urban children exposed to family violence and other potentially traumatic events. *Journal of Traumatic Stress, 23,* 716–724.

Dow, B. L., Kenardy, J. A., Le Brocque, R. M., & Long, D. A. (2013). The diagnosis of posttraumatic stress disorder in school-aged children and adolescents following pediatric intensive care unit admission. *Journal of Child and Adolescent Psychopharmacology, 23*, 614–619.

Evans, G. W., Li, D., & Whipple, S. S. (2013). Cumulative risk and child development. *Psychological Bulletin, 139*, 1342–96.

Fantuzzo, J. W., & Fusco, R. A. (2007). Children's direct exposure to types of domestic violence crime: a population-based investigation. *Journal of Family Violence, 22*, 543–552.

Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007a). Polyvictimization and trauma in a national longitudinal cohort. *Development and Psychopathology, 19*, 149–166.

Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007b). Re-victimization patterns in a national longitudinal sample of children and youth. *Child Abuse & Neglect, 31*, 479–502.

Graham-Bermann, S. A., Howell, K., Habarth, J., Krishnan, S., Loree, A., & Bermann, E. A. (2008). Toward assessing traumatic events and stress symptoms in preschool children from low-income families. *American Journal of Orthopsychiatry, 78*, 220–228.

Graham-Bermann, S. A., Castor, L. E., Miller, L. E., & Howell, K. H. (2012). The impact of intimate partner violence and additional traumatic events on trauma symptoms and PTSD in preschool-aged children. *Journal of Traumatic Stress, 25*, 393–400.

Green, J. G., McLaughlin, K., Berglund, P., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Childhood adversities and adult psychiatric disorders in the National Comorbidity Survey Replication I: associations with first onset of DSM-IV disorders. *Archives of General Psychiatry, 67*, 113–123.

Gross, D., Fogg, L., Young, M., Ridge, A., Cowell, J. M., Richardson, R., & Sivan, A. (2006). The equivalence of the Child Behavior Checklist 1 ½-5 across parent race/ethnicity, income level and language. *Psychological Assessment, 18*, 313–323.

Gunnar, M., & Quevedo, K. (2007). The neurobiology of stress and development. *Annual Review of Psychology, 58*, 145–173.

Groves, B. M., & Augustyn, M. (2011). The role of pediatric practitioners in identifying and responding to traumatized children. In J. D. Osofsky (Ed.), *Clinical work with traumatized young children* (pp. 313–335). New York: Guilford.

Houston, J. E., Shevlin, M., Adamson, G., & Murphy, J. (2011). A person-centred approach to modelling population experiences of trauma and mental illness. *Social Psychiatry and Psychiatric Epidemiology, 46*, 149–157.

Ippen, C. G., Ford, J., Racusin, R., Acker, M., Bosquet, M., Rogers, K., . . . Edwards, J. (2002). *Traumatic Events Screening Inventory–parent report revised*. Hanover, NH: U.S. Department of Veteran's Affairs, National Center for PTSD.

Jacobs, J., Agho, K., Stevens, G., & Raphael, B. (2012). Do childhood adversities cluster in predictable ways? *Vulnerable Children and Youth Studies, 7*, 103–115.

Jones, B., Better, M., Kendziora, K., & Shahinfar, A. (1996). Family foundations: The implementation and evaluation of a Head Start violence prevention program. *Making a Difference for Children, Families, and Communities: Partnerships among Researchers, Practitioners, and Policymakers*. Head Start's Third National Research Conference, Washington, DC.

Kessler, R. C., McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, . . . Williams, D. R. (2010). Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *British Journal of Psychiatry, 197,* 378–385.

Kisiel, C. L., Fehrenbach, T., Torgersen, E., Stolbach, B., McClelland, G., Griffin, G., & Burkman, K. (2014). Constellations of interpersonal trauma and symptoms in child welfare: Implications for a developmental trauma framework. *Journal of Family Violence, 29,* 1–14. doi:10.1007/s10896-013-9559-0.

Lang, J. M., & Stover, C. S. (2008). Symptom patterns among youth exposed to intimate partner violence. *Journal of Family Violence, 23,* 619–629.

Langeheine, R., Pannekoek, J., & Van De Pol, F. (1996). Bootstrapping goodness-of-fit measures in categorical data analysis. *Sociological Methods & Research, 24,* 492–516.

Laursen, B., & Hoff, E. (2006). Person-centered and variable-centered approaches to longitudinal data. *Merrill-Palmer Quarterly, 52,* 377–389. doi:10.1353/mpq.2006.0029.

Levendosky, A. A., Bogat, G. A., & Martinez-Torteya, C. (2013). PTSD symptoms in young children exposed to intimate partner violence. *Violence Against Women, 19,* 187–201.

Lieberman, A. F., & Van Horn, P. (2008). *Psychotherapy with infants and young children: Repairing the effects of stress and trauma on early attachment* (Reprintth ed.). New York: Guilford.

Lieberman, A. F., Chu, A., Van Horn, P., & Harris, W. W. (2011). Trauma in early childhood: empirical evidence and clinical implications. *Development and Psychopathology, 23,* 397–410.

Margolin, G., Vickerman, K. A., Oliver, P. H., & Gordis, E. B. (2010). Violence exposure in multiple interpersonal domains: cumulative and differential effects. *Journal of Adolescent Health, 47,* 198–205.

Menard, C., Bandeen-Roche, K. J., & Chilcoat, H. D. (2004). Epidemiology of multiple childhood traumatic events: child abuse, parental psychopathology, and other family-level stressors. *Social Psychiatry and Psychiatric Epidemiology, 39,* 857–865.

Mongillo, E. A., Briggs-Gowan, M., Ford, J. D., & Carter, A. S. (2009). Impact of traumatic life events in a community sample of toddlers. *Journal of Abnormal Child Psychology, 37,* 455–468.

Mrug, S., Loosier, P. S., & Windle, M. (2008). Violence exposure across multiple contexts: individual and joint effects on adjustment. *American Journal of Orthopsychiatry, 78,* 70–84.

Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén. Retrieved from http://www.statmodel.com.

Nagin, D. S. (2005). *Group-based modeling of development*. Cambridge: Harvard University.

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: a Monte Carlo simulation study. *Structural Equation Modeling: A Multidisciplinary Journal, 14,* 535–569.

Roberts, Y. H., Campbell, C. A., Ferguson, M., & Crusto, C. A. (2013). The role of parenting stress in young children's mental health functioning after exposure to family violence. *Journal of Traumatic Stress, 26,* 605–612.

Roesch, S. C., Villodas, M., & Villodas, F. (2010). Latent class/profile analysis in maltreatment research: a commentary on Nooner et al., Pears et al., and looking beyond. *Child Abuse and Neglect, 34,* 155–160.

Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In J. Bruner & A. Garten (Eds.), *Primary prevention of psychopathology* (pp. 49–74). Hanover: University Press of New England.

Rutter, M., & Sroufe, L. A. (2000). Developmental psychopathology: concepts and challenges. *Development and Psychopathology, 12,* 265–296.

Sameroff, A., Seifer, R., Zax, M., & Barocas, R. (1987). Early indicators of developmental risk: rochester Longitudinal Study. *Schizophrenia Bulletin, 13,* 383–394.

Saunders, B. E., & Adams, Z. W. (2014). Epidemiology of traumatic experiences in childhood. *Child and Adolescent Psychiatric Clinics of North America, 23,* 167–184.

Shevlin, M., & Elklit, A. (2008). A latent class analysis of adolescent adverse life events based on a Danish national youth probability sample. *Nordic Journal of Psychiatry, 62,* 218–224.

Smith Slep, A. M., & O'Leary, S. G. (2005). Parent and partner violence in families with young children: Rates, patterns, and connections. *Journal of Consulting and Clinical Psychology, 73,* 435–444.

Snyder, F. J., Roberts, Y. H., Crusto, C. A., Connell, C. M., Griffin, A., Finley, M. K., … Kaufman, J. S. (2012). Exposure to traumatic events and the behavioral health of children enrolled in an early childhood system of care. *Journal of Traumatic Stress, 25,* 700–704.

Thakar, D., Coffino, B., & Lieberman, A. F. (2013). Maternal symptomatology and parent–child relationship functioning in a diverse sample of young children exposed to trauma. *Journal of Traumatic Stress, 26,* 217–224.

von Eye, A. (2010). Developing the person-oriented approach: Theory and methods of analysis. *Development and Psychopathology, 22,* 277–285.

Zero to Three: National Center for Infants, Toddlers and Families. (2005). *Diagnostic classification of mental health and developmental disorders of infancy and early childhood (DC:0-3R)*. Washington, DC: Zero to Three.