Polyvictimization and Psychosocial Outcomes among Trauma-Exposed, Clinic-Referred Youth Involved in the Juvenile Justice System

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Abstract

Polyvictimization is a robust predictor of emotional and behavioral problems and is linked to involvement in juvenile justice and other public sector systems. This study extends this research by employing person-centered methods for identifying polyvictimization patterns among trauma-exposed, clinic-referred, justice-involved youth (*n* = 689; ages 12 to 18 years) and how identified classes differ on psychosocial outcomes and demographic characteristics. Most participants had experienced multiple TE types. Latent class analyses identified three classes: mixed trauma/bereavement exposure group (55.1%; Mean = 3.0 TE types); maltreatment polyvictimized group (29.3%; Mean = 5.7 TE types); and maltreatment plus extreme violence polyvictimized group (15.7%; Mean = 9.3 TE types). Polyvictimized youth were more likely to be female, in out-of-home placements, and experiencing negative psychosocial outcomes (e.g., Posttraumatic Stress Disorder). Hispanic/Latino youth were overrepresented in the extreme polyvictimized subgroup. Results underscore the need for cross-system coordination of trauma-informed, comprehensive services for clinic-referred, justice-involved youth.

Keywords: trauma; juvenile justice, adolescents

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More than half of adolescents in the United States have experienced at least one traumatic event (TE; e.g., sexual abuse, natural disasters, and community violence) with a majority of these youth experiencing multiple types of TEs by late adolescence (e.g., Finkelhor et al., 2011; McLaughlin et al., 2013). TEs involve exposure to the threat of or actual serious injury, sexual violence, or death through experiencing, witnessing, or hearing details about the TEs (American Psychiatric Association, 2013). Polyvictimization or exposure to multiple types of TEs regardless of exposure characteristics, such as chronicity, has been shown to have a cumulative adverse impact on youth (Finkelhor et al., 2007a, 2007b). Numerous studies have documented that youth who have experienced polyvictimization face more severe and pervasive psychiatric, health risk behavior, academic, and legal problems, over and above the adverse effects of any specific type of victimization alone (e.g., Adams et al., 2016; Dierkhising et al., 2019; Finkelhor et al., 2009; Ford et al., 2010). Given the heightened, deleterious impact of polyvictimization, it is not surprising that polyvictims are disproportionally involved in multiple public sector systems, such as the juvenile justice and mental health systems (e.g., Dierkhising et al., 2013).

Polyvictimization has been operationalized in several ways, including as a pre-defined number or threshold (e.g., top tenth percentile) of TE types experienced (e.g., Finkelhor et al., 2007a, 2007b), at times including weighted scores for certain types of TE associated with greater impairment (e.g., Finkelhor et al., 2009). Alternatively, polyvictimization has been defined empirically using a person-centered approach, specifically Latent Class Analyses (LCA), which identifies discrete groups of individuals with similar profiles of co-occurring TE types (e.g., Ford et al., 2010). Utilization of LCA to examine polyvictimization may be a promising approach given emerging support for a risk factor caravan framework (e.g., Layne et al., 2014). This framework suggests that TEs co-occur in distinct patterns and accumulate over time, thereby

increasing the risk and complexity of adverse psychosocial outcomes. Specifically, LCA expands on the cumulative risk approach (i.e., dose-response relationship between TEs and adverse outcomes) by detecting more complex, non-linear patterns of TE exposure that may be associated with certain adverse outcomes (e.g., Finkelhor et al., 2007b). Also, LCA employs a person-centered approach to identify polyvictimization patterns rather than assuming *a priori* the threshold for polyvictimization or the relative impact of each TE type on impairment across individuals or populations.

Juvenile justice-involved youth have particularly high rates of trauma exposure, posttraumatic stress disorder (PTSD), other severe mental health problems and functional impairments (e.g., substance use, suicidal ideation, self-injurious behaviors, school problems; Ford et al., 2013; Kerig et al., 2012). Involvement with the justice system, in and of itself, also increases the risk of trauma exposure (National Research Council, 2013). The disproportionate rates of Black, Hispanic/Latino, and indigenous youth involved with the justice system and their exposure to violent TEs compounded with other adversities, including discrimination, may place these groups at higher risk for mental health problems and chronic delinquency (e.g., National Research Council, 2013). Further, justice-involved girls have higher rates of TEs, particularly interpersonal trauma and relatedly PTSD compared to boys, and these experiences may contribute to risk for delinquency (e.g., National Research Council, 2013). In efforts to inform interventions for this high-risk population, the present study aimed to advance understanding of polyvictimization patterns and associated mental health needs and demographic characteristics among clinic-referred youth who had been recently involved in the juvenile justice system. Numerous studies have documented high rates of exposure to certain TE types, such as maltreatment, among justice-involved youth (e.g., Sedlak & McPherson, 2010). However, only two studies with justice-involved youth have specifically investigated polyvictimization using

LCA to identify polyvictim subgroups/classes characterized by distinct patterns of exposure to a range of TE types (Charak et al., 2019; Ford et al., 2013).

The study by Ford and colleagues (2013) examined 19 TE types among adjudicated youth referred to detention centers and revealed three classes of TEs (i.e, polyvictims [5.3%], moderate adversity [36%], and low adversity [59%]). Polyvictims had been exposed to the highest number of TE types, including multiple types of traumatic victimization, and demonstrated more severe posttraumatic stress, internalizing and externalizing symptoms compared to the low and moderate trauma/adversity groups (Ford et al., 2013). Girls were overrepresented in the polyvictim and moderate adversity groups, while more non-Hispanic White and African-American youth were in the polyvictim group (Ford et al., 2013). Charak and colleagues (2019) replicated and extended these findings by including more adversities (e.g., neglect) and psychosocial outcomes (i.e., emotion dysregulation). Of the three identified classes, the polyvictimization (PV; 20%) and violent environment (40%) classes had complex profiles of multiple types of TEs and included older youth as compared to a mixed adversity class (40%). The PV group was distinct in that its members over-represented girls and had the highest number of adversity types, including higher rates of maltreatment, intra-familial violence, and impaired caregiving, and more severe PTSD, depression, and anxiety (Charak et al., 2019).

While these two studies highlighted patterns of TEs and correlates among general samples of justice-involved youth, additional knowledge is needed about patterns of polyvictimization and their differential impact on psychosocial outcomes specifically among clinical samples of justice-involved youth. Delineating these connections, particularly for justice-involved youth referred for trauma-specific mental health services, will help providers to develop and target services for this high-risk population. Given the heightened rates of polyvictimization among youth involved in multiple service systems (Vidal et al., 2019), this study extended prior research by using LCA to examine the TE profiles of justice-involved youth who received

mental health treatment services through the National Child Traumatic Stress Network (NCTSN). One previous investigation with justice-involved youth in the NCTSN Core Data Set (CDS) found a relationship between age of TE onset and cumulative number of TE types with parent-rated mental health problems, but that study only sampled youth 13 or older and did not explore whether a polyvictim subgroup could be identified (Dierkhising et al., 2013).

In addition to the downward extension of age to include 12-year-olds involved in the juvenile justice system, the current study also sought to overcome challenges and limitations noted in the Charak et al. (2019) and Ford et al. (2013) studies. For example, this study included a more geographically diverse sample. It also included youth newly admitted to or living in juvenile justice detention facilities, as well as those living in the community (e.g., on probation). In addition, this study incorporated a more comprehensive approach to TE assessment as it consisted of reports by multiple informants, including adolescents, parents/caregivers, and/or other collateral sources (e.g., caseworkers). Lastly, given the relationship between trauma exposure (i.e., polyvictimization), suicidality, and substance use problems among justice-involved youth (e.g., Ford et al., 2013), the current investigation examined the link between identified TE classes and these two indicators of functional impairment. This study also included two additional psychosocial outcomes, self-injurious behaviors and problems with academics/ truancy, which are often linked with trauma exposure and indicative of high levels of impairment among justice-involved youth (e.g., Dierkhising et al., 2013; McReynolds et al., 2017).

Overall, the current study aimed to: (1) delineate classes of youth based on idiographic patterns of co-occurring TEs among a large, ethnically diverse, trauma-exposed, clinic-referred sample of youth involved in the juvenile justice system; and (2) examine potential differences across classes on internalizing and externalizing behavior problems, posttraumatic stress, and indicators of functional impairment (i.e., alcohol/substance use; suicidal behavior; self-harm behaviors; school problems). In addition, to provide clarification of prior mixed findings, a third

aim involved exploratory analyses to: (3) examine associations between identified TE classes and demographic characteristics (i.e., gender, age, race/ethnicity, living situation). Similar to prior studies using LCA to examine polyvictimization among justice-involved youth (Charak et al., 2019; Ford et al., 2013), the emerging model was expected to reveal three to five classes, with at least one of these subgroups identified as polyvictims.

Method

Procedure

Participants were drawn from the NCTSN CDS, which includes data collected in 2004-2010 from children receiving trauma-focused, mental health services with clinicians working at one of 56 NCTSN centers (N = 14,088; Briggs et al., 2013; Pynoos et al., 2008). Centers represented an array of settings, including community-based mental health clinics, juvenile justice facilities, child welfare settings, residential treatment centers, hospitals, and schools across the United States. Clinicians conducted assent/consent and collected data from youth and caregivers during a standard intake assessment. Only intake/baseline assessment data were used for the current study. Study procedures were approved by the Duke University Health System Institutional Review Board (IRB) and the IRB for each NCTSN CDS site that contributed data.

Participants

Participants included a subsample of adolescents (ages 12 to 18 years; M = 15.5, SD=1.4) from the NCTSN CDS who had exposure to at least one suspected or confirmed TE, recent involvement with the juvenile justice system (past 30 days), and complete demographic information (n = 677). Eighty-nine percent of youth experienced two or more types of TEs (M = 4.8, SD = 2.8). Participants were 53.2% female, and 40.2% White, 31.2% Hispanic/Latino, and 21.9% Black. Over half of the youth (54.0%) lived with their parent(s), and 67.4% had public health insurance as a marker of low socioeconomic status. Sample characteristics are described further in Table 1.

Measures

Demographic Characteristics.

Data on child demographic characteristics, including age, gender, race/ethnicity, living situation, and whether they had public insurance (i.e., Medicaid) were obtained via youth self-reports. Caregivers and collaterals also provided supplemental information on demographics characteristics.

Trauma History Profile (THP)

The THP is a 20-item questionnaire based on the NCTSN General Trauma and Trauma Detail Forms, and the UCLA PTSD-Reaction Index (UCLA PTSD-RI; Steinberg et al., 2004) for lifetime exposures to 19 different TEs: sexual maltreatment/abuse (by a caregiver); sexual assault/rape (not by a caregiver); neglect (physical, medical, or educational); impaired caregiver (exposure to caregiver depression, other medical illness, or alcohol/drug abuse), and extreme interpersonal violence (not reported elsewhere, e.g., homicide/suicide). For this study, three low prevalence TEs (war/terrorism inside or outside the U.S. and forced displacement) were combined and the "other trauma, not otherwise specified" item was not used, resulting in 17 TE types (Table 3). For more details on all 20 TE items, see Briggs et al. (2013). Detailed definitions modeled after the National Child Abuse and Neglect Data System (NCANDS) Glossary (U.S. Department of Health and Human Services, 2000) were provided to assessors as part of CDS mandatory training. Trauma history was reported by multiple informants. Given the importance of using a multi-informant approach in obtaining TE information (Hambrick et al., 2016), assessors reviewed information from all available sources (e.g., child, caregiver, caseworker) during the intake assessment to identify whether each child had any TE(s) reported. Respondents were not mutually exclusive and included adolescents (67.3%), parents (59.8%), other adult

relatives (7.4%), foster parents (3.5%), agency staff (20%), and other adult respondents who had regular contact with the adolescent (e.g., caseworker; 17.8%).

Recent Juvenile Justice-Involvement

Recent juvenile justice-involvement, in the 30 days prior to treatment entry, was indicated by endorsement of the following: (1) being in a detention center, training school, jail or prison; and/or (2) having a probation officer or court counselor. Recent juvenile justice involvement was considered to be present if any informant endorsed either criterion.

UCLA PTSD-Reaction Index (UCLA PTSD-RI)

The UCLA PTSD-RI (Steinberg et al., 2004) assessed the frequency and severity of self-reported PTSD symptoms during the past month. Items correspond to the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (*DSM–IV*) symptom for criterion B (intrusion), C (avoidance), and D (hyper-arousal). Twenty-two items assessed PTSD symptoms, and associated features (i.e., fear of recurrence and guilt). Subscale scores for criterion B, C, and D and a total PTSD score were calculated. This measure's robust psychometric properties and relevance to *DSM-IV* PTSD criteria have been described previously (e.g., Steinberg et al., 2004). Cronbach alpha for this study sample was 0.70, demonstrating acceptable internal consistency.

Child Behavior Checklist (CBCL) 6–18

The CBCL is a widely used 113-item questionnaire (Achenbach & Rescorla, 2001) that yields scores for Total Behavioral Problems based on two broadband scales (Internalizing and Externalizing Behavioral Problems). Parents or adult caregivers responded to each of the items using a 3-point scale that ranged from 0 (Not True) to 3 (Very True or Often True). The CBCL has consistently demonstrated strong psychometric properties (Achenbach & Rescorla, 2001). Cronbach alphas for the current study sample were 0.89 (internalizing problems) and 0.97 (externalizing problems) demonstrating good or excellent internal consistency, respectively.

Functional Impairment Indicators

At baseline, a 3-point scale was used to rate the degree of functional impairment and severity of 14 problems reported by youth and their caregivers in the past 30 days. The current study examined four high risk behaviors, alcohol/substance use, suicidality, self-injurious behaviors, and academic problems/truancy. To remain consistent with previous analyses on the CDS and avoid skewness, each of these four indicators were dichotomized into 1 (the youth and/or caregiver reported the behavior as *somewhat/sometimes a problem [1]* or *very much/often a problem [2]*) or 0 (both the youth and caregiver reported the behavior as *not a problem*).

Clinical Evaluation

Items from the clinical evaluation form, completed by assessors based on their interview(s) and review of records for each youth were used to supplement information on both suicidality and alcohol/substance abuse. If not indicated by the youth or caregiver's response to CDS questionnaires, these were considered present if the assessor obtained information indicating that suicidality or alcohol/substance abuse were either probable or definite. Clinical evaluation data were unavailable for self-injurious behaviors and academic problems/truancy.

Data Analysis

First, descriptive statistics were calculated as means or percentages for sample demographics using SAS 9.4. Next, the latent class analysis (LCA) was conducted with Mplus 8.3 software to select the appropriate number of classes based on TEs. Because the number of classes was unknown, variables were entered into the LCA beginning with one class; additional classes were added incrementally until the model was no longer well defined (i.e., a unique solution could not be determined with maximum likelihood methods). Resulting models ranged from one to eight classes and were tested for the best fit to the data using four criteria. 1) The Bayesian Information Criterion (BIC) is a quantitative index of model fit utilizing both the likelihood and number of model parameters, where lower values indicate more favorable fit (Schwarz, 1978). 2) Lo–Mendell–Rubin adjusted likelihood ratio test (LRT; Lo et al., 2001)

provides between-model comparisons; failure to reject the null hypothesis indicates the model with one additional class does not statistically improve fit over the current model. 3) The Bayes Factor (BF) quantifies the extent to which the data favor the current model over the model with one more class by approximating the ratio of the probability of obtaining the sample data, assuming the current model is true, over the probability of obtaining the data assuming one additional class. 4) The Correct Model Probability (cmP) for a model is an approximation of the probability of a model being correct relative to all the models attempted.

In addition to model fit criteria, meaningfulness and interpretability of TE patterns within modeled classes were considered in selecting the final class solution. LCA were run with the auxiliary command to employ the 3-step method independently for all the sample characteristics (Vermunt, 2010). This approach (a) summarized covariates and class assignments in a multidimensional frequency table, (b) applied matrix multiplication to reweight the frequency counts by the inverse of the matrix of classification errors, and (c) conducted multinomial logistic regressions with the reweighted frequency table to compare classes to one another. The results provided estimates of the association between class membership with each of the sample demographics and measures to determine which factors were significantly different between the classes while adjusting for misclassification bias. Lastly, to ensure consistent findings between the final analytical sample (n=677) and a subset that had complete, non-missing data on all measures (n=385), comparisons were made on the distribution of descriptive statistics, LCA patterns, and significant factors associated with class membership.

Results

LCA Classes

The best fitting model based on model metric values and interpretability yielded 3-classes with distinct TE patterns. The 3-class solution had a posterior probability of 0.878 and the highest entropy value (0.783) for a weighted posterior probability among the models. Because

entropy levels suggested a high-level of uncertainty, four additional model fit criteria for BIC, LRT, BF, cmP were considered as well as the interpretability (i.e., theory-informed) to select the 3-class model. Standard metrics, such as CAIC, AWE, BLRT (see Table 2 for definitions), were also reported. Table 3 and Figure 1 shows the frequency of endorsement of each TE for each class. The classes were differentiated not only by the type of TE that were endorsed most often, but also by the average number of TEs experienced in each group. The largest class was a **mixed trauma exposure/loss group** (MTE/L). This group represented 55.1% of the sample and had an estimated mean exposure of 3.0 trauma types. This group had a relatively high likelihood of exposure to traumatic loss/separation/bereavement (62.5%); otherwise, this group was not distinguished by particularly high likelihood of exposure to any other specific TE type(s).

The remaining two groups displayed distinct patterns of high levels of TE exposure. The second largest group was the **maltreatment-polyvictimized group** (M-PV) and was estimated at 29.3% of the sample. This group's members had been exposed on average to 5.7 types of TEs, almost double the average number of TEs reported for the MTE/L group. Members of the M-PV group were more likely than the MTE/L group to have experienced emotional abuse (89.5%), domestic violence (78.0%), an impaired caregiver (77.1%), and physical abuse (75.6%). In addition, neglect (58.4%) and sexual abuse (39.5%) were also prevalent for the M-PV group.

The third group was a **maltreatment plus extreme violence polyvictimized group** (M+E-PV), estimated at 15.7% of the sample with a mean of 9.3 types of TEs, three times the number reported by the MTE/L group and 50% more than reported by the M-PV group. Similar to the M-PV group, the M+E-PV group reported high rates of maltreatment: emotional abuse (89.8%), domestic violence (79.0%), impaired caregiving (82.9%), physical abuse (66.1%), and neglect (47.2%). In addition, M+E-PV members were more likely than the other two classes to report both intra-familial/caregiver victimization and extra-familial violent victimization: traumatic loss/separation/bereavement (80.1%), physical assault (74.1%), community violence

(75.1%), school violence (56.5%), extreme interpersonal violence (50.3%), and sexual assault (47.0%). Although not as prevalent, both traumatic accidents (46.7%) and illnesses (23.0%), and exposure to political violence (21.5%) were more prevalent in the M+E-PV group than in the other classes.

Covariates and Clinical Symptoms Across Groups

Estimates from the multinomial logistic regressions showed which covariates and clinical symptoms were significantly associated with class membership (See Tables 1, 4, and 5).

Demographic Characteristics

Females were significantly more likely to be in the **M+E-PV group** than the **MTE/L group**. Being classified as White (non-Hispanic/Latino) was associated with membership in the **M-PV group,** while being Black (non-Hispanic/Latino) was associated with membership in the **MTE/L group.** Hispanic/Latino youth were significantly more likely to be in the **MTE/L** or **M+E-PV groups** than the **M-PV group**. Those living at home with parents were significantly overrepresented in the **MTE/L group**. Youth living in foster care were more likely to be in the **M-PV** or **M+E-PV groups** than the **MTE/L group**. Similarly, youth in residential care facilities were more likely to be in the **M-PV** or **M+E-PV groups,** but were also significantly more likely to be in the **M+E-PV group** than in the **M-PV group.** Complete results are presented in Table 1.

Functional Impairment Indicators

Three of the four functional impairment indicators examined were statistically significant and associated with class membership as shown in Table 4. Alcohol/Substance use was associated with membership in the **M+E-PV group**. Youth demonstrating suicidality were significantly more likely to be in the **M-PV** or **M+E-PV groups** than the **MTE/L group**. Self-injurious behavior was associated with a significantly higher chance of being in the **M-PV group** than the **MTE/L group.** Complete results are presented in Table 4.

UCLA PTSD-RI Scores

Total UCLA PTSD-RI scores in the clinical range were associated with membership in the **M+E-PV group**. With regard to PTSD subscales, clinical scores on the hyper-arousal subscale were associated with membership in the **M+E-PV group** only compared to the **MTE/L group.** The average overall UCLA PTSD-RI severity score for the **M+E-PV group** (*M*=31.5, *SE*=1.57) was statistically higher than both the **MTE/L group** (*M*=23.9, *SE*=0.86) and the **M-PV group** (*M*=26.6, *SE*=1.18). Complete results are presented in Table 5.

CBCL Scores

Youth with scores in the clinical range on the CBCL Total Scale were significantly more likely to be in the **M-PV group** or **M+E-PV groups** than the **MTE/L group**. Scores in the clinical range on the internalizing, withdrawn/depressed, and thought problem subscales were more likely for youth in the **M+E-PV group** than those in the **MTE/L group**. On the other hand, youth in the **MTE/L group** were more likely to score in the clinical range for externalizing, anxious/depressed, and aggressive behaviors compared to the **M-PV group.** In addition, clinically significant scores on the rule-breaking behavior subscale were more likely for members in the **M+E-PV group** compared to members in either of the other two classes. Finally, clinically significant social problems were more likely for youth in the **M-PV group** as compared to youth in the other two groups. Complete results are presented in Table 5.

Discussion

The current study used a person-centered statistical approach (i.e., latent class analysis) to examine polyvictimization patterns among justice-involved adolescents who were also referred for trauma-specific mental health services. Specifically, this study delineated latent classes of youth based on TE patterns and examined differences across classes on psychosocial outcomes and demographic characteristics. Three classes or subgroups were identified: 1) Mixed Trauma Exposure/Loss Group (MTE/L Group; 55.1%), 2) Maltreatment Polyvictimized Group (M-PV Group; 29.3%), and 3) Maltreatment Plus Extreme Violence Polyvictimized Group (M+E-PV

Group; 15.7%). These findings replicate prior studies identifying substantial polyvictimization among justice-involved youth (e.g., Charak et al., 2019; Ford et al., 2013).

Although differential patterns of TEs were found among identified subgroups, most youth (67%) had experienced traumatic loss and separation (e.g., death of family/friends due to violence; separation from a caregiver). Lower rates have been found in other studies focused on justice-involved youth, in general (e.g., about 60%, Charak et al., 2019; about 35%, Ford et al., 2013), as well as studies of the NCTSN CDS sample of trauma-exposed, clinic-referred adolescents (Adams et al., 2016). This finding suggests that youth involvement with both the justice and mental health systems may be linked with considerable exposure to traumatic loss and separation, and underscores the importance of assessing this often overlooked TE (Kaplow & Layne, 2014). Results also suggest that in clinic-referred, justice-involved samples, maltreatment and impaired caregivers may be highly prevalent for almost half of the youth. In particular, maltreatment was more prevalent among polyvictims in this sample than has been found with general justice-involved youth samples (Charak et al., 2019; Ford et al., 2013). Further, the polyvictims in this sample had two distinct patterns of TEs, with one subgroup (about one-third) of the polyvictims having the added burden of exposure to multiple and often extreme forms of interpersonal violence across multiple settings (home, school, and community).

Polyvictimization and Clinical Symptoms

Both polyvictim subgroups' members were at higher risk than other youth for internalizing and externalizing problems, as well as problems that often undermine safety and lead to intensive psychiatric treatment (i.e., suicidality, self-injury, and thought problems). However, clinically-significant problems with anxiety/depression, aggressive behavior, self-injurious behavior, and social relationships were particularly characteristic of the polyvictims who were *not* exposed to the additional adversity of violence across environments, and was less evident (especially in the social domain) for polyvictims who had experienced extreme violence

across multiple environments. On the other hand, this latter subgroup of extreme polyvictims had a greater risk for substance use problems in addition to clinically significant posttraumatic stress symptoms. These extreme polyvictims were also more likely to engage in rule-breaking (delinquent) behavior, which increases their risk for deeper, more chronic justice system involvement (e.g., Colman et al., 2009). Results suggest that distinct mental health needs are seen among polyvictimized youth presenting with anxiety/depression, aggression, self-injurious behavior, and interpersonal problems as compared to those who are more prone to rule-breaking and substance abuse, and such differences should guide targeted treatment planning for clinic-referred polyvictimized youth involved with the juvenile justice system. For instance, extreme polyvictimized youth may benefit from intensive services aimed at promoting adaptive coping strategies for hyperarousal, which can increase their sense of safety and decrease substance abuse and risky behavior. Alternatively, interventions that focus on strengthening peer and family relationships, and reducing isolation, conflict, and anxiety/depression, may support maltreatment polyvictimized youth in developing social supports and adaptive coping skills, and decreasing risk for self-injurious behaviors.

In addition to addressing the prevalent problems of PTSD for polyvictimized youth, there is a need for services to identify and prevent or mitigate the risk of suicidality and self-harm. Such high-risk behaviors were reported by between 20-40% of the polyvictims, particularly those who had experienced maltreatment and impaired caregivers. These findings are consistent with other studies of adolescents which suggest that maltreatment and intra-familial factors (e.g., impaired caregiver) are associated with severe impairments (e.g., Armiento et al., 2016). Indeed, elevated levels of externalizing and affect-related internalizing problems, including dysphoria and hypervigilance, can interfere with attention and executive and social functioning. In turn, such difficulties may predispose youth to reactive aggression and may put youth at risk for extreme forms of avoidance (i.e., suicidality, self-harm, substance use; e.g., Cha et al., 2018;

Tang et al., 2013). Although self-concept was not assessed in this study, it is not uncommon for maltreated youth to see themselves as broken or damaged (Herman, 1997). Given that reactive aggression and negative self-concept are linked with deleterious psychological functioning (e.g., Claes et al., 2010), increased knowledge is needed about the role of these difficulties in the relationship between TEs and psychosocial outcomes to guide prevention and treatment efforts.

For school problems, a ceiling effect was observed where approximately three-fourths of all youth were experiencing such difficulties regardless of specific trauma history. Although trauma exposure and posttraumatic stress symptoms may contribute to these problems, other social determinants of health and/or constraints to effective school implementation in residential settings may be contributing to observed problems in academic performance and behaviors in the school setting. For example, such problems may be influenced by poverty, discrimination, under-funded schools, scarcity of prosocial extra-curricular activities, unavailability/loss of caregivers, mentors, or supportive prosocial peers (e.g., Logan-Greene et al., 2016). More knowledge about potential barriers to success in the school setting for clinic-referred, juvenile justice-involved youth is needed to disentangle these complex relationships between trauma exposure, adversities, and multiple public service system involvement.

Polyvictimization and Demographic Characteristics

Exploratory examination of demographic characteristics highlighted that girls were more likely than boys to be in the extreme polyvictimization class, similar to findings with general samples of justice-involved youth (Charak et al., 2019; Ford et al., 2013). Given that justice-involved girls report particularly high rates of sexual abuse and assault, which have been linked with increased risky behaviors (e.g., running away; substance use; delinquency), girls may be at greater risk for extreme violence exposure and justice involvement (e.g., Kerig, 2018). In addition to female gender, older age was linked with extreme polyvictimization, which was expected as number of TEs has been found to increase with age or years during which TEs may

occur (e.g., Charak et al., 2019). Further, Hispanic/Latino youth were over-represented while Black youth were under-represented in the extreme polyvictimization class. These differences may be related to the higher rate of Hispanic/Latino youth living in more restrictive settings (i.e., residential care and correctional placements), which tend to serve youth who are experiencing more severe psychosocial impairment and have higher rates of victimization than youth in less restrictive settings. Of note, the current clinic-referred sample included twice as many White youth as compared to Black youth, though Black youth tend to be the majority in most juvenile justice populations (e.g., OJJDP Statistical Briefing Book, 2020). This difference may represent a disparity in access to mental health services by Black youth generally and those involved in the juvenile justice system specifically. Increasing access to trauma-informed mental health services for justice-involved youth of color is imperative, and especially given that the rates and impact of polyvictimization for these youth may be compounded by racial stress, such as that caused by discrimination and structural inequities inherent in the justice system (e.g., Saleem et al., 2020).

Finally, as compared to other clinic-referred, justice-involved youth in the current sample, polyvictims were more likely to have an out-of-home or higher-level of care placement, consistent with their particularly severe behavioral and emotional problems (Ford et al., 2009). Youth exposed to maltreatment and impaired caregivers were likely to be in foster or kinship care, as compared to other clinic-referred, justice-involved youth, which indicates the importance of coordinating mental health treatment and juvenile justice services with child welfare services. Those polyvictimized youth also exposed to extreme violence across multiple settings were at least twice as likely to be in residential or correctional facilities, which highlights the cumulative impact of pervasive trauma on functional impairment. Findings support an urgency to reduce risk of violence exposure in homes, schools, and communities. Reduction of such risks and also enhancing trauma-informed approaches in services and general processes within residential

facilities could support youth in recovering from mental health problems and returning safely to or remaining with their families and communities.

Limitations and Strengths

Although study findings align with and extend prior research, caution should be exercised when comparing the current sample to other samples given differences in the number and types of TEs assessed, definition of polyvictimization, and characteristics of the population (e.g., age range; justice-involved youth irrespective of their exposure to trauma or referral for mental health services). First, study design limitations warrant caution in generalizing study results to other justice-involved youth, particularly those without a trauma history. Although the NCTSN CDS includes a large sample of geographically diverse, trauma-exposed, clinic-referred youth, it is not a nationally representative sample and was collected more than 10 years ago. Moreover, when identifying youth for juvenile justice involvement, youth were asked about recent (in the past 30 days) and more intensive (e.g., detention center) involvement, which may have led to the exclusion of youth with less intensive involvement and/or prior involvement outside of the 30-day period assessed. Further, given the current clinic-referred sample included twice as many White youth as compared to Black youth, this disparity limits conclusions about polyvictimization patterns among justice-involved youth of different racial/ethnic backgrounds. Other limitations include the cross-sectional study design and retrospective data, which preclude conclusions about causal relationships between trauma history and symptoms or functional impairments. In addition, only the caregiver-report version of the Child Behavior Checklist (CBCL) was used, which limits the scope regarding accuracy of capturing child internalizing and externalizing symptoms. Despite these limitations, major strengths of this study include the focus on a large, ethnically diverse, clinical sample of justice-involved youth from multiple states who had experienced a range of TEs. Much of the existing empirical evidence focuses on justice-involved or clinic-referred youth separately and is specific to one state. The current study also

includes a more comprehensive assessment of TEs (i.e., multiple informants), a broader definition of justice-involved youth (i.e., in detention facilities as well as the community), and additional psychosocial outcomes (i.e., self-injurious behaviors; school problems).

Implications for Research, Practice, and Policy

The current study provides insights on polyvictimization patterns and co-occurring risk factors among clinic-referred, justice-involved youth that can support effective trauma-informed assessment and treatment. High rates of polyvictimization and related severe and complex behavioral, emotional, and interpersonal problems necessitate individualized attention in the care and rehabilitation of all polyvictimized youth. Comprehensive trauma-informed assessment is an important initial step in identifying specific strengths and needs for these youth that can guide individualized early intervention efforts. High rates of traumatic loss and separation among this clinic-referred, justice-involved population highlights the need for including these TEs in trauma screens and promoting availability of interventions for traumatic grief. For youth exposed to maltreatment, there must be careful coordination with child welfare services in order to decrease the need for and maximize the benefits of out-of-home placements and to identify and assist youth who are experiencing severe anxiety/depression, hyperarousal, and suicidality or self-harm. When extreme violence exposure across multiple settings compounds the effects of maltreatment, youth appear at heightened risk of suicidality, substance abuse, and placement in secure juvenile justice facilities. Therefore, services that are trauma-informed, designed to prevent further violence exposure and to promote safety across settings, and to enhance hope and self-efficacy are of particular importance for the subgroup of extreme polyvictims among clinic-referred, justice-involved youth. Such services have the potential to minimize the long-term impact of chronic exposure to trauma, including improving in psychosocial outcomes, preventing re-traumatization, and reducing extensive long-term costs related to high service utilization (e.g., persistent reoffending; Branson et al., 2017). Research can support development of targeted

interventions by identifying factors that may differentially increase risk for negative psychosocial outcomes among certain subgroups, such as girls (e.g., harsher treatment due to gender nonconforming aggressive behavior) and racial/ethnic minorities (e.g., impact of discrimination and structural inequities). Taken together, trauma-exposed youth with involvement in both the juvenile justice and mental health systems have distinct and multiple service needs, which highlights the importance of cross-system coordination of individualized, trauma-informed, culturally-responsive, comprehensive services.

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Table 1

Demographics by LCA Class

	Class/Group			
	1 Mixed Trauma Exposure/ Loss (MTE/L) 55.1%	2 Maltreatment Polyvictimized (M-PV) 29.3%	3 Maltreatment/ Extreme Violence Polyvictimized (M+E-PV) 15.7%	Total N=677
Age, M (SD)**	15.4 (0.08)[3]	15.5 (0.15)[3]	16.0 (0.14)[1,2]	15.5 (1.4)
Female**	47.9%[3]	55.1%	68.3%[1]	53.2%
Race/Ethnicity**				
White	31.9%[2,3]	58.7%[1,3]	34.6%[1,2]	40.2%
Black	29.4%[2,3]	14.6%[1]	8.6%[1]	21.9%
Hispanic/Latino	32.4%[2]	22.3%[1,3]	43.6%[2]	31.2%
Other	6.3%	4.4%[3]	13.1%[2]	6.8%
Living Situation**				
Parent(s)	69.8%[2,3]	36.3%[1,3]	34.3%[1,2]	54.0%
Other Relatives	6.9%[2]	12.4%[1]	6.5%	8.5%
Foster care	2.3%[2,3]	16.4%[1]	6.4%[1]	7.1%
Res. Care Facility	11.0%[2,3]	20.2%[1,3]	42.0%[1,2]	18.6%
Correctional Facility	3.5%[3]	4.5%	7.4%[1]	4.4%
Other	6.5%[2]	10.3%[1]	3.3%	7.2%
Public Insurance				
Yes	61.87%	74.63%	73.27%	67.36%
Number of Trauma Types, M (SD)**	3.0 (0.08)[2,3]	5.7 (0.13)[1,3]	9.3 (0.18)[1,2]	4.8 (2.8)

Notes. Percentages show class endorsement of that characteristic and are based on model adjusting for uncertainty of class membership. *indicates significant relationship with class membership at the 0.05 level. **indicates significant relationship with class membership at the 0.01 level. Significant associations show odds/chances of being assigned membership to one group versus another. Numeric superscripts indicate statistically significant comparisons, e.g. superscript [2] indicates significant difference between current class and class 2. Res. Care Facility = Residential Care Facility; M= Mean; SD = standard deviation

Table 2

Model Fit Indices for Exploratory Latent Class Analysis

Model	*LL*	# of Para-meters	BIC	CAIC	AWE	LRT	cmP	BF	BLRT	Entropy
1-Class	-5936.63	17	11984.06	12001.06	12145.86	<0.001	0.00	<.10	---	---
2-Class	-5574.09	35	11376.3	11411.3	11709.42	0.005	0.00	<.10	<.01	0.777
3-Class	-5463.97	53	**11273.38**	**11325.38**	**11777.82**	**0.083**	**0.92**	**>10**	<.01	**0.783**
4-Class	-5407.73	71	11278.22	11349.22	11953.97	0.321	0.08	>10	<.01	0.769
5-Class	-5370.58	89	11321.23	1140.23	12168.30	0.060	0.00	>10	<.01	0.731
6-Class	-5341.84	107	11381.07	11488.07	12399.46	0.562	0.00	>10	<.01	0.741
7-Class	-5321.05	125	11456.8	11581.80	12646.51	0.411	0.00	>10	<.01	0.761
8-Class	-5301.02	143	11534.06	11677/06	12895.09	-	0.00	>10	<.01	0.771
9-Class	Not well-identified									

Note. LL indicates the log-likelihood, BIC is the Bayesian Information Criterion, CAIC is the consistent Akaike information criterion; AWE is the approximate weight of evidence; LRT is the p-value from the Lo–Mendell–Rubin adjusted likelihood ratio comparing the K class model to the K+1 class model; cmP indicates the correct model probability; BF is the Bayes factor comparing the K class model to the K+1; BLRT is the bootstrap Likehood Ratio Test; Entropy indicates the randomness or uncertainty in the model.

Table 3

Prevalence of Trauma Types by Class

Trauma Type	Class/Group			
	1 Mixed Trauma Exposure/ Loss (MTE/L) 55.1%	2 Maltreatment Polyvictimized (M-PV) 29.3%	3 Maltreatment/ Extreme Violence Polyvictimized (M+E-PV) 15.7%	Total N=677
Sexual maltreatment/abuse**	11.4%[2,3]	39.5%[1,3]	36.2%[1,2]	23.5%
Sexual assault/rape**	16.3%[2,3]	25.0%[1,3]	47.0%[1,2]	23.6%
Physical maltreatment/abuse**	10.0%[2,3]	75.6%[1]	66.1%[1]	38.0%
Physical assault*	13.9%[2,3]	16.4%[1,3]	74.1%[1,2]	24.1%
Emotional abuse/ Psychological Maltreatment*	17.0%[2]	89.5%[1]	89.8%	49.6%
Neglect **	9.2%[2,3]	58.4%[1,3]	47.2%[1,2]	29.5%
Domestic Violence**	30.0%[2,3]	78.0%[1]	79.0%[1]	51.7%
Illness/Medical*	11.2%[2,3]	6.0%[1,3]	23.0%[1,2]	11.5%
Serious Injury/Accident*	18.5%[2,3]	8.3%[1]	46.7%[1]	19.9%
Natural Disaster	5.9%[3]	3.4%	18.1%[1]	7.1%
Kidnapping	2.1%[3]	2.8%	15.9%[1]	4.4%
Traumatic Loss or Bereavement**	62.5%[2,3]	50.9%[1,3]	80.1%[1,2]	61.9%
Impaired Caregiver**	30.1%[2,3]	77.1%[1]	82.9%[1]	52.1%
Extreme Interpersonal Violence	8.3%[3]	2.9%	50.3%[1]	13.3%
Community Violence*	27.8%[2,3]	24.1%[1,3]	75.1%[1,2]	34.1%
School Violence	22.2%[3]	7.8%[3]	56.5%[1,2]	23.3%
War/Terrorism/Political Violence/Forced Displacement	3.7%[3]	3.8%	21.5%[1]	6.5%

Notes. Percentages show class endorsement of that characteristic and are based on model adjusting for uncertainty of class membership. *indicates significant relationship with class membership at 0.05 level. **indicates significant relationship with class membership at 0.01 level. Significant associations show odds/chances of being assigned membership to one group versus another. Numeric superscripts indicate statically significant comparisons, e.g. superscript [2] indicates significant difference between current class and class 2.

Table 4

Functional Impairment for Youth with Recent Juvenile Justice System Involvement by Class Membership

Impairment	Class/Group			
	1 Mixed Trauma Exposure/ Loss (MTE/L) 55.1%	2 Maltreatment Polyvictimized (M-PV) 29.3%	3 Maltreatment/ Extreme Violence Polyvictimized (M+E-PV) 15.7%	Total N=677
Alcohol/Substance Use**	48.0%[3]	43.8%[3]	75.7%[1,2]	51.1%
Academic Problems/Missed School	77.0%	77.7%	73.8%	76.7%
Suicidality**	20.5%[2,3]	31.8%[1]	39.0%[1]	26.9%
Self Injurious Behavior**	11.5%[2]	22.5%[1]	19.1%	16.0%

Notes. Percentages show class endorsement of that characteristic and are based on model adjusting for uncertainty of class membership. *indicates significant relationship with class membership at 0.05 level. **indicates significant relationship with class membership at 0.01 level. Significant associations show odds/chances of being assigned membership to one group versus another. Numeric superscripts indicate statically significant comparisons, e.g. superscript [2] indicates significant difference between current class and class 2.

Table 5

Percent in the Clinical Range for CBCL and PTSD-RI Subscales by Class

Subscales	Class/Group			
	1 Mixed Trauma Exposure/ Loss (MTE/L) 55.1%	2 Maltreatment Polyvictimized (M-PV) 29.3%	3 Maltreatment/ Extreme Violence Polyvictimized (M+E-PV) 15.7%	Total N=471
CBCL Internalizing (N=471)*	38.1%[3]	54.7%	58.7%[1]	23.9%
Internalizing subscales				
Anxious/Depressed**	22.3%[2]	54.5%[1]	40.9%	35.7%
Withdrawn/Depressed*	21.6%[3]	38.9%	47.9%[1]	31.1%
Somatic Complaints	26.8%	46.6%	48.3%	36.5%
CBCL Externalizing (N=471)	58.9%[2]	76.6%[1]	74.4%	66.2%
Externalizing subscales				
Rule-Breaking Behavior*	31.2%[3]	38.5%[3]	53.4%[1,2]	36.3%
Aggressive Behaviors**	27.5%[2]	48.1%[1]	37.0%	34.8%
Other subscales				
Social Problems*	24.6%[2]	46.5%[3]	25.0%[2]	31.8%
Thought Problems**	21.2%[3]	42.4%	40.9%[1]	30.8%
Attention Problems	30.3%	47.1%	40.7%	37.2%
Total Problems (N=471)**	54.1%[2,3]	73.2%[1]	71.3%[1]	62.0%
PTSD-RI Subscales (N=573)				
Re-experiencing/Intrusion	65.3%	76.9%	80.3%	408 (71.2%)
Avoidance	47.3%	57.5%	60.7%	301 (52.5%)
Hyperarousal*	74.1%[3]	83.2%	94.7%[1]	460 (80.3%)
Total PTSD-RI (N=573)**	19.0%[3]	23.2%[3]	40.3% [1,2]	23.9%

Notes. Percentages show class endorsement of that characteristic and are based on model adjusting for uncertainty of class membership. *indicates significant relationship with class membership at 0.05 level. **indicates significant relationship with class membership at 0.01 level. Significant associations show odds/chances of being assigned membership to one group versus another. Numeric superscripts indicate statically significant comparisons, e.g. superscript [2] indicates significant difference between current class and class 2. CBCL = Child Behavior Checklist; PTSD-RI = UCLA PTSD-Reaction Index

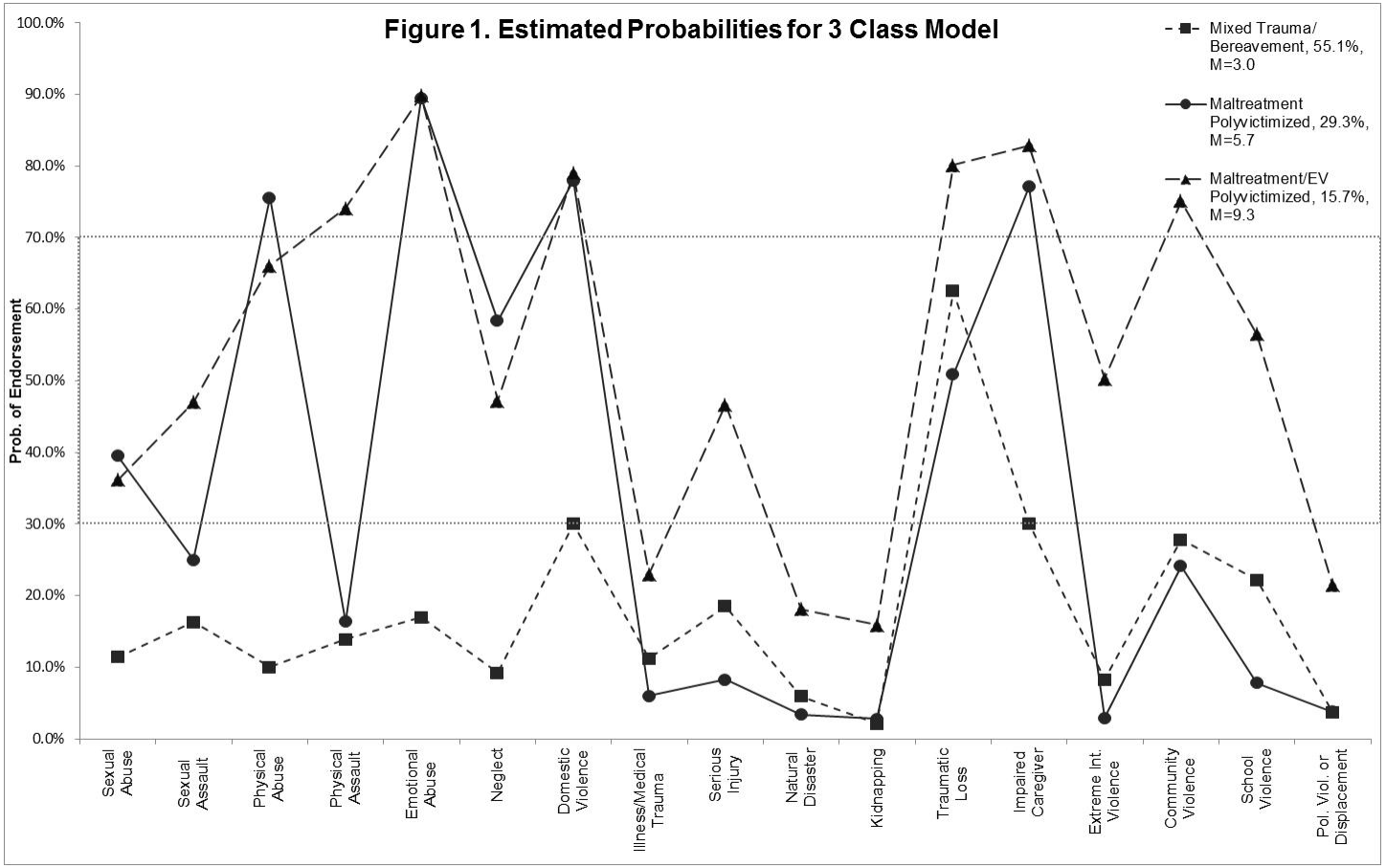
Figure 1. Estimated Probabilities for 3 Class Model
Prob. of Endorsement
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Mixed Trauma/ Bereavement, 55.1%, M=3.0
Maltreatment Polyvictimized, 29.3%, M=5.7
Maltreatment/EV Polyvictimized, 15.7%, M=9.3
Sexual Abuse
Sexual Assault
Physical Abuse
Physical Assault
Emotional Abuse
Neglect
Domestic Violence
Illness/Medical Trauma
Serious Injury
Natural Disaster
Kidnapping
Traumatic Loss
Impaired Caregiver
Extreme Int. Violence
Community Violence
School Violence
Pol. Viol. or Displacement