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Patterns of Multiple Victimization Among Maltreated Children in Navy Families

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The current study examined the cumulative risk associated with children's exposure to multiple types of parent-inflicted victimization. The sample was comprised of 195 children who were 7 to 17 years old (64.1% female and 48.2% non-White) at the time of referral to the United States Navy's Family Advocacy Program due to allegations of sexual abuse, physical abuse, or parental intimate partner violence. We conducted an exploratory latent class analysis to identify distinct subgroups of children based on lifetime victimization. We hypothesized that at least 2 classes or subgroups would be identified, with 1 characterized by greater victimization and poorer outcomes. Results indicated that 3 classes of children best fit the data: (a) high victimization across all 3 categories, (b) high rates of physical abuse and witnessing intimate partner violence, and (c) high rates of physical abuse only. Findings indicated that the high victimization class was at greatest risk for alcohol and substance use, delinquent behavior, and meeting criteria for posttraumatic stress disorder (PTSD) and/or depression 1 year later (odds ratio = 4.53). These findings highlight the serious mental health needs of a small but significantly high-risk portion of multiply victimized children entering the child welfare system.

Roughly half of all referrals to child protective services pertain to child physical abuse (CPA) or child sexual abuse (CSA) or witnessing intimate partner violence (IPV; Miller, Green, Fettes, & Aarons, 2011). Prior to the triggering event, a high percentage of these youth have already accumulated numerous maltreatment reports (Drake, Jonson-Reid, Way, & Chung, 2003), have been repeatedly abused without the knowledge of child protective services, and exposed to less salient and often overlooked forms of psychological maltreatment (Edwards, Holden, Felitti, & Anda, 2003). The triggering event rarely, if ever, wholly captures the extent of a child's maltreatment history. Many of these youth enter the system having already endured tremendous life challenges, and consequently present with significant clinical needs.

A growing body of literature highlights the cumulative risk for deleterious outcomes conferred by youths' exposure to multiple types/categories of victimization (Briere & Spinazzola, 2005; Cloitre et al., 2009; Crusto et al., 2010; Felitti et al., 1998; McGee, Wolfe, & Olson, 2001; Saunders, 2003; Turner, Finkelhor, & Ormrod, 2010). Specifically, a robust dose-response relationship between adversity and impairment has been observed, with more categories of adversity corresponding to more severe impairment and a broader spectrum of symptoms (Anda et al., 2006; Cloitre et al., 2009; Ford, Wasser, & Connor, 2011). Using data from the National Survey of Adolescents (NSA; Kilpatrick, Ruggiero, Acierno, Saunders, Resnick, & Best, 2003), Ford, Elhai, Connor, and Frueh (2010) used exploratory latent class analyses to identify distinct victimization profiles. Those characterized by multiple victimization types were more likely to have posttraumatic stress disorder (PTSD), depression, or a substance use disorder compared to other profiles.

The current study aimed to add to this knowledge base by examining profiles of caregiver-inflicted victimization in a sample of 195 children and adolescents from Navy families referred to the Navy's Family Advocacy Program due to allegations of CPA, CSA, or IPV. We conducted an exploratory latent class analysis on 26 types of parent-inflicted victimization each falling in one of three broader categories of maltreatment: CPA, CSA, or IPV. The severity of victimization within the three categories ranged from low to high. We expected

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to find at least two subgroups of youth differentiated by the number of parent-inflicted victimization types endorsed, with a high-victimization class characterized by more severe types of victimization.

We also examined potential differences across classes on demographic characteristics, past allegations of abuse and neglect, and several domains related to healthy functioning and resilience, including perceived parent–child relationship quality and social support from nonparents. Consistent with previous literature, we hypothesized that those with multiple victimization types (a high-victimization class) would tend to be older and have a more extensive history with child-protective services relative to classes with fewer victimization experiences (a low-victimization class). In addition, we hypothesized a dose-response relation between reports of victimization and indicators of poorer adjustment. Lastly, we examined the predictive utility of membership in the high-victimization versus low-victimization classes in determining a diagnosis of PTSD and/or depression 1 year postentry into the Family Advocacy Program system, with age, gender, and allegation type included as covariates. We hypothesized that class membership would predict diagnostic status better than using allegation type alone.

Method

Participants and Procedure

Participants enrolled in the Navy Family Study were from a sample of 530 families referred to the U.S. Navy's Family Advocacy Program in 1998 to 2001 due to allegations of parent-inflicted CSA, CPA, or IPV (Banyard, Williams, Saunders, & Fitzgerald, 2008; Nugent et al., 2009). Only families comprised of two romantically involved adults and at least one child who had lived together for at least 6 months prior to the Family Advocacy Program referral were eligible. Children were alleged victims in cases of CSA and CPA. In families with multiple children exposed to the alleged abuse, the oldest child victim who resided in the family participated. At least one parent in each family was active as a Navy service member at the time of referral and stationed at one of 12 naval bases across the United States. Families referred to the Family Advocacy Program due to CPA and IPV were high in volume and were randomly selected for participation into the study, whereas all families referred for CSA (18.5%) were eligible. Of the 530 families included in the study, 245 (46.23%) had children who were too young to complete the standardized measures administered at baseline (i.e., <7 years old); for six families, the children were unavailable at baseline. Completed interviews and assessments were obtained from 70% ($n = 195$) of eligible children. Child participants ranged from 7 to 17 years old at the time of the first interview (baseline; mean [M] = 12.16 years, standard deviation [SD] = 3.11), and nearly two thirds were girls (64.1%). Approximately one third self-identified as African American (29.7%), 51.8% as European American, 2.6% as Hispanic/Latino, 3.6% as Filipino, 2.1% as Asian (non-Filipino), 1.0% as Native American, 8.7% as multiracial, and 0.5% unreported. At baseline, 72% of parents were married, 2% cohabiting, 2% divorced, and 24% separated. Age of nonoffending parents ranged from 21 to 53 years ($M = 34.43$ years, $SD = 5.47$), and offending parents from 21 to 49 years ($M = 33.91$ years, $SD = 5.48$). Over four fifths of nonoffending parents (81.5%) were women. All male parents and 92% of female parents had at least a high school degree. Personal income ranged from less than $10,000 to greater than $60,000 (median range = $10,000–$19,999).

Families provided written consent to participate in the study. Interviews were conducted in safe and private locations. Interviewers were trained to administer the data collection instruments, to be sensitive to signs of participant distress, to follow our child-in-danger protocol, and to take steps to initiate actions as needed for any youth in immediate danger of serious harm. Interviewers conducted baseline, in-person assessments in family homes (66%), at a private research office (27%), or at another mutually convenient location (7%). Baseline assessment occurred within 2 to 6 weeks following the Family Advocacy Program referral, and follow-up interviews were impacted by deployment of Navy service members resulting in follow-ups at 9- to 12-, 18- to 24-, and 36- to 40-months postreferral. The current study examined data from baseline and the 9- to 12-month (i.e., 1 year) follow-up. At follow-up, 80.5% of the baseline sample was retained. All procedures were approved by institutional review boards at the University of New Hampshire, Wellesley College, and the Medical University of South Carolina.

Measures

Trauma exposure, psychopathology, and risk behavior was assessed with an iteration of a semistructured interview used in the NSA (Kilpatrick et al., 2003) was used to assess exposure to victimization and criteria for PTSD and major depressive disorder (MDD) according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000). For each victimization type, children were asked to describe incident characteristics including frequency, duration, and perpetrator identity. PTSD symptoms were assessed using the NSA PTSD module, for which concurrent and predictive validity has been demonstrated (Kilpatrick et al., 2003). Internal consistency for the PTSD and depression items that are included in the current sample were good with Cronbach's $\alpha = .91$ and .79, respectively. Lifetime and past-year tobacco, alcohol, and marijuana use, as well as delinquent behavior were assessed with standard yes/no questions. Delinquent behavior was considered present if youths endorsed having exhibited at least one of the following behaviors in the past year: physically attacked someone; sold drugs; broken into a house, apartment, vehicle, and tried to steal something; used force to get money or things from people; attacked someone with a weapon and/or with the intention of seriously injuring or killing someone; been arrested; or been sent to jail

Table 1
Parent-Inflicted Victimization Indicators

Sexual abuse	Physical abuse	Intimate partner violence
Perpetrator—other touching	Verbal threatening	Verbal threatening
Forced touching of perpetrator	Spanking with open hand	Slapping
Perpetrator touching child	Slapping head or face	Punching or kicking
Perpetrator's mouth on genitals	Pushing or shoving	Beating
Digital or object penetration	Spanking with an object	Choking
Penile penetration	Hitting that leaves marks	Hitting with an object
	Beating or kicking	Threatening with a weapon
	Choking	Using a weapon
	Burning or scalding	
	Locking or tying up	
	Threatening with a weapon	
	Using a weapon	

or juvenile detention. These items were selected based on a modified version of the scale used by Elliott, Huizinga, and Ageton (1985) in the National Youth Survey.

Perceived parent behaviors were assessed with the Parent Perception Inventory (PPI; Hazzard, Christensen, & Margolin, 1983), an 18-item instrument designed to assess children's perception of positive and negative parent behaviors. Each item is scored on a 5-point Likert scale (1 = *never*, 2 = *a little,* 3 = *sometimes,* 4 = *pretty much,* 5 = *a lot*). Higher scores reflect more positive perceptions of parental behavior. The PPI has evidenced good convergent validity and internal consistency (Hazzard et al., 1983). Internal consistency in the current sample was acceptable for female and male parent perceptions (Cronbach's $\alpha = .61$ and .74, respectively).

The Social Support Scale for Children: People in My Life Questionnaire. The Social Support Scale for Children: People in My Life (Harter, 1985) is a self-report measure designed to assess children's perceptions of significant others as being supportive. The instrument contains four subscales representing four sources of social support: parents, teachers, classmates, and close friends. Children are instructed to choose one of two statements that is best reflective of themselves and then to indicate how characteristic the chosen statement is (i.e., really true of me vs. sort of true of me.) Internal consistency reliabilities have ranged from .72 to .88 in samples of children in grades 3–8 (Harter, 1985). Internal consistency in the current sample was good (Cronbach's $\alpha = .84$).

Data Analysis

Exploratory latent class analysis was conducted with MPlus (Muthén & Muthén, 2007) using maximum likelihood estimation with robust standard errors to determine the number of underlying latent classes best corresponding to the observed violence exposure and diagnostic data. Model fit indices of various class solutions were examined and compared in an incremental manner. The sample-size adjusted Bayesian information criterion (aBIC), which applies a penalty for an increased number of parameters, has shown superior performance in an extensive simulation study compared to alternative fit indices (Muthén & Muthén, 2007). In addition, The Lo-Mendell-Rubin adjusted likelihood ratio test (LMR; Lo, Mendell, & Rubin, 2001) provides empirical support for comparing a model with K classes against a model with $K - 1$ classes (Nyland, Asparouhov, & Muthén, 2007). Thus, the aBIC and LMR were used to determine the best class solution.

Victimization indicators included 26 dichotomous variables (see Table 1) pertaining to CSA (6), CPA (12), and witnessing IPV (8). Results of the latent class analysis informed further analyses examining potential differences in demographic characteristics, PTSD and depression status, dimensions of anxiety, and risk behaviors among classes. In comparing classes, chi-square goodness-of-fit tests, one-way analyses of variance (ANOVAs), and multivariate analyses of variance (MANOVAs) were employed. If a MANOVA was significant, subsequent one-way ANOVAs were conducted to evaluate potential group differences on the individual measures. For significant ANOVAs, pairwise post hoc comparisons were conducted using Hochberg's (1988) modified step-up Bonferroni procedure. Partial η^2 values are reported to demonstrate the effect sizes in ANOVA models, where .02 represents a small effect, .13 a medium effect, and .26 a large effect (Cohen, 1988). Finally, a binary logistic regression analysis was conducted to determine the predictive utility of class membership in determining diagnostic status 1 year after the Family Advocacy Program referral with age, gender, and allegation type entered simultaneously as covariates.

Results

An exploratory latent class analysis was conducted on the 26 indicators of victimization. Fit indices are presented in Table 2

Table 2
Exploratory Latent Class Analysis: Models with 1–4 Class Solutions

Class	Log likelihood	aBIC	Entropy	LMR	*p* value
1-Class	−2010.70	4071.91	na	na	na
2-Class	−1780.52	3664.19	0.85	456.88	.001
3-Class	−1695.79	3547.36	0.93	168.02	.004
4-Class	−1651.63	35111.66	0.91	87.66	.081

Note. aBIC = adjusted Bayesian information criterion; LMR = Lo-Mendell-Rubin adjusted likelihood ratio test and associated *p*-value; entropy = overall proportion of correct class classification.

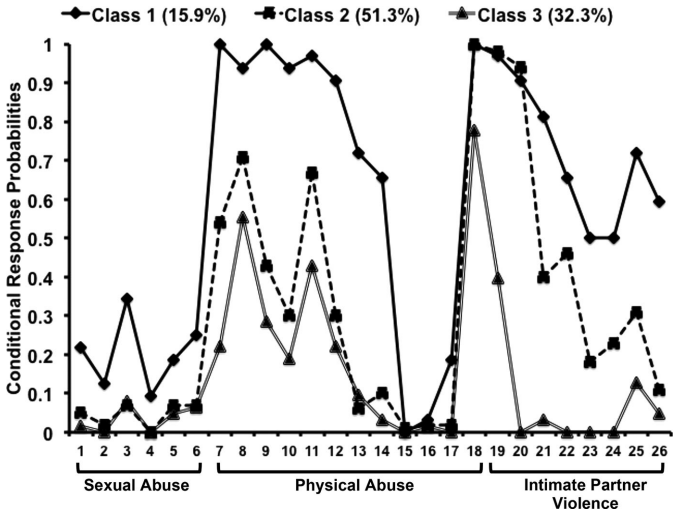

Figure 1. Exploratory latent class analysis: A 3-class solution with victimization and diagnostic indicators. Sexual abuse: 1, perpetrator—other touching; 2, forced touching of perpetrator; 3, perpetrator touching child; 4, perpetrator's mouth on genitals; 5, digital or object penetration; 6, penile penetration. Physical abuse: 7, verbal threatening; 8, spanking with open hand; 9, slapping head or face; 10, pushing or shoving; 11, spanking with an object; 12, hitting that leaves marks; 13, beating or kicking; 14, choking; 15, burning or scalding; 16, locking or tying up; 17, threatening with a weapon; 18, using of a weapon. Intimate partner violence: 19, verbal threatening; 20, slapping; 21, punching or kicking; 22, beating; 23, choking; 24, hitting with an object; 25, threatened with a weapon; 26, using a weapon.

for models with 1–4 class solutions. A 3-class solution best fit the data. Class I was comprised of 31 participants, and Classes II and III had 100 and 63 participants, respectively. Indicators and conditional response probabilities are displayed in Figure 1.

Class Characteristics

Child gender did not significantly differ across classes, $\chi^2 = 5.06$, $p = .079$. Class I contained more children referred to the Family Advocacy Program due to CSA or CPA (90.6%) than Classes II (58%) and III (73%), $\chi^2 = 13.92$, $p = .008$. A one-way ANOVA indicated significant differences in child age across classes such that children in Class I were significantly older ($M = 14.16$, $SD = 2.77$) than children in Classes II ($M = 12.32$, $SD = 2.91$) and III ($M = 10.9$, $SD = 3.03$), $F(2, 192) = 13.36$, $p < .001$, $\eta_p^2 = .12$. Hochberg post hoc tests provided statistical support for the Class I versus Class II and Class II versus Class III comparisons. Because age significantly differed among classes, it was used as a covariate in later analyses. There were no significant differences found for self-reported race, annual household income, or age of offending and nonoffending parent, all *p*s > .1. Comparing classes on gender of offending parent indicated a higher percentage of male offenders for Class I (96.9%), followed by Class II (85.0%), and Class III (68.3%), $\chi^2 = 13.18$, $p = .001$.

Class I (39.3%), Class II (30.5%), and Class III (32.6%) had comparable rates of past referral to the Family Advocacy Program ($\chi^2 = 0.73$, $p > .1$). Comparing classes on prior removals from the home revealed significant class differences such that Class I (62.1%) had a higher rate of prior removal than Class II (39.0%) and Class III (33.3%, $\chi^2 = 6.48$, $p = .039$.

Patterns of Victimization

Class I tended to report the highest number of victimization incidents across all maltreatment domains. In particular, 34.38% of Class I reported being sexually molested by the perpetrator and 25% being genitally penetrated compared to under 10% in Classes II and III. Over 60% of Class I reported being choked, beaten or kicked, bruised, hit in the head, and hit with an object. Rates of reported sexual and physical abuse were comparable between Classes II and III, with Class II reporting slightly more physical abuse items. Witnessing intimate partner violence was highest in Class I, followed by Classes II and III. Classes were most dissimilar on indicators that were more severe.

Comparisons Across Classes

Diagnostic data are presented in Table 3. Rates of lifetime and current PTSD in Class I were more than 5 times higher than those in Classes II and III. Rates of lifetime and current depression in Class I were at least 2 times higher than those in Classes II and III.

Chi-square goodness-of-fit analyses indicated significant differences in the proportion of children who used tobacco, alcohol, and marijuana in the past year and who committed at least one delinquent act (see Table 3). The majority of children in Class I reported using tobacco and alcohol in the past year, and half reported using marijuana. In addition, Class I committed 3 times the amount of delinquent acts in the past year committed by children in Classes II and III.

Results from the MANOVAs are presented in Table 4. Children in Class I reported lower PPI scores than children in Classes II and III, indicating that Class I children had more negative views of their parents. In addition, Class II reported significantly lower paternal scores than Class III. Similarly, children in Class I reported having significantly less parental and teacher support on the PPLQ relative to children in Classes

Table 3
Diagnostic Status and Past-Year Tobacco, Alcohol, Marijuana Use and Delinquent Behavior

	Class I ($n = 32$)	Class II ($n = 100$)	Class III ($n = 63$)	
Variable	%	%	%	χ^2
Diagnostic status				
Lifetime PTSD	59.4	11.0	4.8	50.14
Current PTSD	53.1	10.0	4.8	42.70
Lifetime depression	71.9	31.0	12.7	34.33
Current depression	53.1	20.0	7.9	25.93
Current PTSD and/or depression	71.9	22.0	9.5	44.55
Lifetime PTSD and/or depression	75.0	31.0	14.3	35.79
Past-year tobacco, alcohol, marijuana use and delinquent behavior				
Tobacco	65.6	35.0	19.7	19.42
Alcohol	84.4	47.0	28.6	25.34
Marijuana	50.0	12.0	6.4	31.41
Delinquent behavior	31.3	9.0	3.2	18.08

Note. All degrees of freedom = 2 and all $p < .001$. PTSD = posttraumatic stress disorder.

II and III. There were no significant differences in perceived support from classmates or close friends.

Predicting Diagnostic Status at 1-Year Follow-Up

Table 5 presents results from a binary logistic regression analysis in which age, gender, reason for the Family Advocacy Program report (physical abuse vs. sexual abuse vs. witnessing intimate partner violence), and Class type (Class I vs. Classes II and III) were entered as predictors with PTSD and depression status (PTSD and/or depression vs. no PTSD or depression) at 1-year follow-up as the dependent variable. Results indicated that older age and membership in the high victimization class (Class I vs. Classes II and III) significantly and positively predicted having a diagnosis of PTSD and/or depression at the 1-year follow-up, controlling for the other variables. Gender and reason for the Family Advocacy Program report did not significantly predict diagnostic status.

Discussion

As anticipated, exposure to multiple types of parent-inflicted victimization was very high at baseline, with an average of eight discrete types endorsed across the sample. Over 80% of our sample met criteria for polyvictimization as defined by Finkelhor, Ormrod, and Turner (2007). At baseline, about a quarter of the sample met criteria for current PTSD and/or depression, whereas approximately one third met criteria for a lifetime diagnosis of one or both of these disorders. Moreover, more than a third of the sample smoked cigarettes in the past year, about half drank alcohol, a sixth used marijuana, and a tenth committed at least one delinquent act.

Table 4
Multivariate Analyses of variance Comparing Groups on Perceived Parental Behavior and Social Support

	Class I ($n = 31$)		Class II ($n = 93$)		Class III ($n = 59$)			
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	η_p^2
Maternal behavior[a]	13.77	11.32	20.73	12.06	18.61	12.37	3.10*	.03
Paternal behavior[a–c]	− 1.71	12.25	11.71	12.06	17.73	12.95	14.97***	.14
Parental support[a]	16.00	4.43	19.05	3.89	18.91	4.64	5.14**	.05
Classmate support	18.13	3.18	18.00	3.71	18.34	3.89	0.38	.00
Teacher support[a]	16.81	4.45	18.68	3.30	19.05	3.71	2.70	.03
Close friend support	19.29	3.81	18.87	4.52	19.28	4.67	0.38	.00

Note. Age is a covariate. Between-subject Pillai's trace: $F(4, 358) = 8.35$, $p < .001$.

[a]Class I significantly differs from Class II per post hoc tests. [b]Class I significantly differs from III per post hoc tests. [c]Class II significantly differs from Class III per post hoc tests.

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 5
Baseline Predictors of PTSD or Depression at 1-Year Follow-Up

Variable	*B*	*SE*	Wald's χ^2	*df*	*OR*
Constant	− 3.41	1.00	11.67***	1	0.03
Sex	<0.01	<0.01	0.21	1	1.0
Age	0.15	0.08	4.06*	1	1.16
Dummy 1:	− 0.56	0.56	0.98	1	0.57
Allegation type:					
(1 = intimate partner violence, 0 = physical or sexual abuse)					
Dummy 2:	0.21	0.53	0.16	1	1.23
Allegation type:					
(1 = sexual abuse, 0 = intimate partner violence or physical abuse)					
Class membership (1 = Class I, 0 = Class II or III)	1.52	0.54	7.98**	1	4.55
Model fit			χ^2	*df*	
Likelihood ratio test			24.15***	5	
Hosmer & Lemeshow			14.05	8	

Note. Cox and Snell $R^2 = .143$. Nagelkerke $R^2 = .218$. The 19.5% of the original sample that did not contribute follow-up data were comparable to follow-up sample in age, sex, race, class, diagnostic status, and perceived parent and social support, *p*s > .10. PTSD = posttraumatic stress disorder; *SE* = standard error; *df* = degrees of freedom.

*$p < .05$. **$p < .01$. ***$p < .001$.

Results from the latent class analysis identified three unique classes. Class I was characterized by high rates of all victimization types assessed. Class II demonstrated high endorsement of items in the CPA and witnessing IPV categories, but not CSA, and Class III endorsed high rates of mainly CPA. Less severe forms of victimization (e.g., verbal disputes, spanking) were more comparable across groups. Mean age was highest in Class I, followed by Classes II and III, with age decreasing by about 2 years from Class I to II and II to III; this is consistent with Finkelhor et al. (2007) and likely stems from older youths having more years of possible exposure to violence. Youths in Class I were also more likely than youths in other classes to have experienced a prior removal from the home due to abuse and/or neglect. Also, a greater percentage of perpetrators from Class I were male, followed by Classes II and III. Child gender was not significantly different among classes.

At baseline, rates of PTSD and depression also varied across classes. Class I had the highest rates of PTSD and depression, which were at least 5 and 2 times greater, respectively, than those in the other classes. Rates of PTSD in the high victimization class were at the high end of those reported in a number of studies of children receiving child protective services (i.e., 26%–67%; Carpenter & Stacks, 2009; Famularo, Fenton, Kinscherff, & Augustyn, 1996; Grasso et al., 2009; Kolko et al., 2010; Linning & Kearney, 2004; Ruggiero, McLeer, & Dixon, 2000) and with estimates much higher than those of normal populations.

At baseline, children in Class I were significantly more likely to report past-year engagement in risky behaviors including tobacco, alcohol, and marijuana use, as well as committing one or more delinquent acts as compared to children in the other classes. Class II also showed somewhat higher rates of these behaviors relative to Class III. This is in accord with studies showing more problems with drug and alcohol use (Cornelius et al., 2010; Danielson et al., 2009), juvenile delinquency (Ford, Hartman, Hawke, & Chapman, 2008), high utilization of intensive mental health services (Koltek, Wilkes, & Atkinson, 1998), and adult conduct problems (Steadman, Osher, Robbins, Case, & Samuels, 2009) in multiply victimized youth with trauma-related psychopathology. These findings emphasize the need for comprehensive assessment of alcohol and substance use and related problems among multiply victimized children entering the child welfare system to allow for early intervention. Perceived positive and negative parental behaviors were lowest and highest, respectively, in Class I compared to Classes II and III, and particularly lower for paternal support. This is likely due to the fact that for more than two thirds of the sample, fathers were the identified perpetrators in the index report to FAP. The lack of perceived positive parental behavior and high negative behavior may reflect the severity and/or pervasiveness of the victimization imposed by the perpetrating parent. Alternatively, this finding may reflect the importance of positive parental behavior in minimizing risk of exposure to multiple types of trauma, an important area for future study.

Although perceived classmate and close friend support did not significantly differ across classes, teacher support was perceived as significantly lower in Class I compared to Classes II and III. Given that children in Class I were older and tended to engage in more risky behaviors, it may stem from having reputations for misbehavior. However, these are children with clinically significant problems with PTSD and depression who may benefit most from teacher support. It is also possible that a lack of support from significant others may have increased risk of developing trauma-related psychopathology (Brewin,

Andrews, & Valentine, 2000; Charuvastra & Cloitre, 2008). Either way, these findings suggest the importance of bolstering support networks for children who have experienced multiple types of maltreatment and trauma exposure. Although it is common for schools to respond to a high profile disaster or tragedy by bolstering support services for students, less is done to proactively support students involved with child-protective services and who may be struggling with toxic relationships at home and in the community.

Finally, we demonstrated the predictive utility of class membership in determining which youths met criteria for PTSD and/or depression at follow up. This finding highlights the importance of obtaining a comprehensive history of victimization when children first enter the child-welfare system. Victimization patterns can be a useful predictor of outcome, which in turn can inform the intervention plan. It is notable that one reason for the Family Advocacy Program referral, a categorization that is frequently used to classify youth for different treatment protocols, was not predictive of 1-year adjustment. It is also important to note that even for this sample of Navy families (families that some may assume have benefits stemming from the presence of two parents, one of whom is gainfully employed) there is significant exposure to multiple traumas. These data highlight the importance of thoroughly assessing a client's full history of victimization, rather than solely relying on information relevant to the referral.

For several reasons, this was a unique sample that may not generalize to typical child-welfare populations. At the time of recruitment, at least one parent was employed and all families had housing and access to health care. At least one parent had a minimum of a high school education. In addition, each child resided in a two-parent household. These differences suggest a higher functioning sample with greater access to resources compared to typical child-welfare samples. If true, our findings suggest that despite several advantages, these children have not escaped the problems of multiple victimization. If different at all, the multiple victimization and associated problems observed in the high victimization class may be conservative measures of what exists in child-welfare populations.

In closing, it is important to address two specific limitations. First, victimization indicators were derived from child self-report. It is possible that incorporating parent report or information from an alternative source would have revealed different findings. Second, except for the index event, most of the victimization experiences were assessed many months or years later, raising questions about validity. Third, because the current sample ranged from 7 to 17 years, data may not generalize to younger children.

Despite limitations, this study provides important information about a particularly high-risk subtype of the child-welfare population, one comprised of youths who have experienced a significant number of victimization types and who are more likely to develop psychopathology and face other negative outcomes. Although the current study and the empirical approach used to identify this high-risk pattern of exposures helps to quantify risk in a research context, additional work is needed to determine the most effective and efficient way to assess multiple victimization in clinical settings so that children are readily identified and can receive effective treatment interventions.

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C., Perry, B. D., . . . Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neuroscience*, *256*, 174–186. doi:10.1007/s00406-005-0624-4

Banyard, V. L., Williams, L. M., Saunders, B. E., & Fitzgerald, M. M. (2008). The complexity of trauma types in the lives of women in families referred for family violence: Multiple mediators of mental health. *American Journal of Orthopsychiatry*, *78*, 394–404. doi:10.1037/a0014314

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting & Clinical Psychology*, *68*, 748–766. doi:10.1037/0022-006X.68.5.748

Briere, J., & Spinazzola, J. (2005). Phenomenology and psychological assessment of complex posttraumatic stress. *Journal of Traumatic Stress*, *18*, 401–412. doi:10.1002/jts.20048

Carpenter, G. L., & Stacks, A. M. (2009). Developmental effects of exposure to intimate partner violence in early childhood: A review of the literature. *Children and Youth Services Review*, *31*, 831–839. doi:10.1016/j.childyouth.2009.03.005

Charuvastra, A., & Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annual Review of Psychology*, *59*, 301–328. doi:10.1146/annurev.psych.58.110405.085650

Cloitre, M., Stolbach, B. C., Herman, J. L., van der Kolk, B., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, *22*, 399–408. doi:10.1002/jts.20444

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cornelius, J. R., Kirisci, L., Reynolds, M., Clark, D. B., Hayes, J., & Tarter, R. (2010). PTSD contributes to teen and young adult cannabis use disorders. *Addictive Behaviors*, *35*, 91–94. doi:10.1016/j.addbeh.2009.09.007

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. doi:10.1002/jts.20590

Danielson, C. K., Amstadter, A. B., Dangelmaier, R. E., Resnick, H. S., Saunders, B. E., & Kilpatrick, D. G. (2009). Trauma-related risk factors for substance abuse among male versus female young adults. *Addictive Behaviors*, *34*, 395–399. doi:10.1016/j.addbeh.2008.11.009

Drake, B., Jonson-Reid, M., Way, I., & Chung, S. (2003). Substantiation and recidivism. *Child Maltreatment*, *8*, 248–260. doi:10.1177/1077559503258930

Edwards, V., Holden, G. W., Felitti, V. J., & Anda, R. F. (2003). Relationship between multiple forms of childhood maltreatment and adult mental health in community respondents: Results from the Adverse Childhood Experiences Study. *American Journal of Psychiatry*, *160*, 1453–1460. doi:10.1176/appi.ajp.160.8.1453

Elliott, D., Huizinga, D., & Ageton, S. S. (1985). *Explaining delinquency and drug abuse*. Thousand Oaks, CA: Sage.

Famularo, R., Fenton, T., Kinscherff, R., & Augustyn, M. (1996). Psychiatric comorbidity in childhood posttraumatic stress disorder. *Child Abuse & Neglect*, *20*, 953–961. doi:10.1016/0145-2134(96)00084-1

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., ... Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *American Journal of Preventive Medicine*, *14*, 245–258. doi:10.1016/S0749-3797(98)00017-8

Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007). Polyvictimization and trauma in a national longitudinal cohort. *Development and Psychopathology*, *19*, 149–166. doi:10.1017/S0954579407070083

Ford, J. D., Elhai, J. D., Connor, D. F., & Frueh, B. C. (2010). Poly-victimization and risk of posttraumatic, depressive, and substance use disorders and involvement in delinquency in a national sample of adolescents. *Journal of Adolescent Health*, *46*, 545–552. doi:10.1016/j.jadohealth.2009.11.212

Ford, J. D., Hartman, K., Hawke, J., & Chapman, J. F. (2008). Traumatic victimization, posttraumatic stress disorder, suicidal ideation, and substance abuse risk among juvenile justice-involved youth. *Journal of Child & Adolescent Trauma*, *1*, 75–92.

Ford, J. D., Wasser, T., & Connor, D. F. (2011). Identifying and determining the symptom severity associated with polyvictimization among psychiatrically impaired children in the outpatient setting. *Child Maltreatment*, *16*, 216–226. doi:10.1177/1077559511406109

Grasso, D., Boonsiri, J., Lipschitz, D., Guyer, A. E., Houshyar, S., Douglas-Palumberi, H., ... Kaufman, J. (2009). Posttraumatic stress disorder: The missed diagnosis. *Child Welfare*, *88*, 157–176.

Harter, S. (1985). *Manual for the Social Support Scale for Children*. Denver, CO: University of Denver.

Hazzard, A., Christensen, A., & Margolin, G. (1983). Children's perceptions of parental behaviors. *Journal of Abnormal Psychology*, *11*, 49–60. doi:10.1007/BF00912177

Hochberg, Y. (1988). A sharper Bonferroni procedure for multiple tests of significance. *Biometrika*, *75*, 800–802. doi:10.1093/biomet/75.4.800

Kilpatrick, D. G., Ruggiero, K. J., Acierno, R., Saunders, B. E., Resnick, H. S., & Best, C. L. (2003). Violence and risk of PTSD, major depression, substance abuse/dependence, and comorbidity: Results from the national survey of adolescents. *Journal of Consulting and Clinical Psychology*, *71*, 692–700. doi:10.1037/0022-006X.71.4.692

Kolko, D. J., Hurlburt, M. S., Jinjin Zhang, Barth, R. P., Leslie, L. K., & Burns, B. J. (2010). Posttraumatic stress symptoms in children and adolescents referred for child welfare investigation. *Child Maltreatment*, *15*, 48–63. doi:10.1177/1077559509337892

Koltek, M., Wilkes, T. C. R., & Atkinson, M. (1998). The prevalence of posttraumatic stress disorder in an adolescent inpatient unit. *Canadian Journal of Psychiatry*, *43*(1), 64–68.

Linning, L. M., & Kearney, C. A. (2004). Post-traumatic stress disorder in maltreated youth: A study of diagnostic comorbidity and child factors. *Journal of Interpersonal Violence*, *19*, 1087–1101. doi:10.1177/0886260504269097

Lo, Y., Mendell, N., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika*, *88*, 767–778. doi:10.1093/biomet/88.3.767

McGee, R., Wolfe, D., & Olson, J. (2001). Multiple maltreatment, attribution of blame, and adjustment among adolescents. *Development and Psychopathology*, *13*, 827–846. PMID: 11771910 [PubMed - indexed for MEDLINE]

Miller, E. A., Green, A. E., Fettes, D. L., & Aarons, G. A. (2011). Prevalence of maltreatment among youths in public sectors of care. *Child Maltreatment*, *16*, 196–204. doi:10.1177/1077559511415091

Muthén, L. K., & Muthén, B. O. (2007). *MPlus user's guide* (5th ed.). Los Angeles, CA: Author.

Nugent, N. R., Saunders, B. E., Williams, L. M., Hanson, R., Smith, D. W., & Fitzgerald, M. M. (2009). Posttraumatic stress symptom trajectories in children living in families reported for family violence. *Journal of Traumatic Stress*, *22*, 460–466. doi:10.1002/jts.20440

Nyland, 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*, *14*, 535–569. doi:10.1080/10705510701575396

Ruggiero, K., McLeer, S. V., & Dixon, J. F. (2000). Sexual abuse characteristics associated with survivor psychopathology. *Child Abuse & Neglect*, *24*, 951–964. doi:10.1016/S0145-2134(00)00144-7

Saunders, B. E. (2003). Understanding children exposed to violence: Toward an integration of overlapping fields. *Journal of Interpersonal Violence*, *18*, 356–376. doi:10.1177/0886260502250840

Steadman, H. J., Osher, F. C., Robbins, P. C., Case, B., & Samuels, S. (2009). Prevalence of serious mental illness among jail inmates. *Psychiatric Services*, *60*, 761–765. doi:10.1176/appi.ps.60.6.761

Turner, H. A., Finkelhor, D., & Ormrod, R. (2010). Poly-victimization in a national sample of children and youth. *American Journal of Preventive Medicine*, *38*, 323–330. doi:10.1016/j.amepre.2009.11.012