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Original article

Poly-Victimization and Risk of Posttraumatic, Depressive, and Substance Use Disorders and Involvement in Delinquency in a National Sample of Adolescents

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Abstract

Purpose: Adolescents exposed to multiple forms of psychological trauma (''poly-victimization,'' Finkelhor et al. Child Abuse Negl 2007;31:7–26) may be at high risk for psychiatric and behavioral problems. This study empirically identifies trauma profiles in a national sample of adolescents to ascertain correlates of poly-victimization.

Methods: Latent Class analyses and logistic regression analyses were used with data from the National Survey of Adolescents to identify trauma profiles and each profile's risk of posttraumatic stress disorder, major depressive disorder, substance use disorders, and delinquency involvement and deviant peer group relationships. Poly-victimization classes were also compared to classes with trauma exposure of lesser complexity.

Results: Six mutually exclusive trauma profiles (latent classes) were identified. Four classes were characterized by high likelihood of poly-victimization, including abuse victims (8%), physical assault victims (9%), and community violence victims (15.5%). Poly-victimization class members, especially abuse and assault victims, were more likely than do youth traumatized by witnessing violence or exposure to disaster/accident trauma to have psychiatric diagnosis and (independent of psychiatric diagnoses or demographics) to be involved in delinquency with delinquent peers.

Conclusions: Poly-victimization is prevalent among adolescents and places youth at high risk for psychiatric impairment and for delinquency. Moreover, poly-victimized youths' risk of delinquency cannot be fully accounted for by posttraumatic stress disorder, depression, or substance use problems, suggesting that adolescent healthcare providers should consider poly-victimization as a risk for behavioral and legal problems even when PTSD, depression, or addiction symptoms are not clinically significant.

Keywords: Adolescence; Victimization; Posttraumatic stress disorder; Abuse; Assault; Depression; Substance use disorders; Delinquency

As many as two in three adolescents report have been exposed to psychological trauma [1], which may include victimization (i.e., exposure to or witnessing of abuse or domestic or community violence [2–5]), as well as severe injuries [4, 5], unexpected or untimely loss [6], and life threatening disasters [7]. Trauma exposed adolescents are at risk for posttraumatic stress disorder (PTSD), major depressive disorder (MDD), and substance use disorders (SUD) [8]. Among adolescents, PTSD, MDD, and SUD are highly comorbid. Not only recent traumatization but also prior childhood experiences of traumatic stressors such as abuse and domestic violence may put adolescents at risk for PTSD [1, 5, 8], MDD [5, 8, 9] and suicide risk [10–12], and SUD [5, 8, 10].

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When children experience multiple forms of victimization, which Finkelhor et al. have described as ''poly-victimization'' [13], they are particularly at risk for severe sequelae, including psychological distress [13–15], psychiatric disorders [16], and delinquency [17]. Poly-victimized children also have been found to be more likely than other children to not only be re-victimized [18], but also to experience other forms of childhood adversity than victimization, e.g., traumatic accidents or losses and family break-up [19]. The adverse effects of poly-victimization in childhood on adolescent psychosocial functioning may be due to biological dysregulation [20], altered cognitive information processing, schemas and expectations [21], clustering of behavior problems [22], peer group influences [23], engagement in violent behavior (often secondary to alcohol [24, 25] and or drug (e.g., marijuana [26]) use, or combinations of these factors [13].

However, poly-victimization has not been studied specifically with adolescents. Finkelhor et al. surveyed both preadolescents and adolescents [13, 14]. Characteristics specific to adolescence [27, 28] may increase risk (e.g., HPA axis reactivity, increased substance use) or be protective (e.g., corticolimbic maturation). Therefore, latent class analyses (LCA) were conducted with data from a representative sample of United States adolescents to replicate and extend prior poly-victimization research. The aim was to identify subgroups with distinct victimization histories [29] and to determine whether poly-victimization conferred unique risk for internalizing and externalizing psychiatric disorders or involvement in delinquency or with delinquent peers. Delinquent behavior was assessed in rather than conduct disorder in order to identify a range of conduct problems [30].

Method

Procedure

Data were acquired from the National Survey of Adolescents (NSA) [30], an IRB-approved computer assisted telephone interview. Provisions were made for adolescent confidentiality and for mandated reporting and clinical follow-up when physical or sexual assault were disclosed [31, 32].

Sample

The NSA [30, 32] is a cross-sectional household probability sample of adolescents aged 12–17 years that was representative of the 1995 United States population. Of 5,367 households identified, more than 90% (n = 4,836) of selected parents participated, and adolescents from 75% of eligible households (95% of those providing parental consent) completed the phone interview (final n = 4,023). Urban locations were oversampled. Participants were 51.5% male and 48.5% female, 70% non-Hispanic White, 15% African American, 8% Hispanic/Latino, 7% Native American, Asian American, or other ethnicities. Data are reported from nontraumatized participants (n = 672) but only participants endorsing traumatic exposure (n = 3,351) were included in the LCA.

Instrument

Demographics. Family and youth demographic characteristics were obtained in the NSA interview using questions from the United States Census bureau for age, gender, and race.

Delinquency. Interview items assessed delinquency (i.e., stealing more than $100, stealing a motor vehicle, break-in, gang fights, use of force to obtain money, possessions or sexual relations, perpetrated physical attack) and friends' delinquency (i.e., property damage, marijuana use, petty theft, theft of more than $50, physical threat or attack, alcohol use, break-in, encouraged law breaking, intoxication, hard drug use, distributed alcohol to minors, sexual coercion). Sores were constructed for personal and friends' involvement in delinquency, each as a count variable.

Psychiatric disorders. Interview questions in the NSA assessed each criterion item from the *DSM-IV* for MDD and SUD, with each diagnosis reliably coded as present or absent in the NSA database [30, 32].

Trauma exposure and PTSD. Exposure to potentially traumatic events was assessed with 24 behaviorally specific items [30] for sexual or physical assault or abuse victimization, witnessing violence, and direct exposure to disaster, serious accident, or threat of or actual serious injury (Figure 1). PTSD symptoms were assessed as ''recent'' (in the past 6 months) and ''lifetime'' (ever in the past) with items from the Diagnostic Interview Schedule, a validated epidemiological survey. Functional impairment at school, at work, or with family/friends was required for a PTSD diagnosis.

Statistical analyses

An exploratory LCA was conducted using maximum likelihood estimation with robust standard errors to assess empirically-based subgroups (i.e., classes) of respondents, based on endorsement of the trauma exposure items. Missing data were estimated using maximum likelihood procedures for categorical outcome variables. Next, MDD and SUD (drug abuse and alcohol abuse separately) prevalence estimates were compared for each LCA trauma class versus respondents reporting no trauma history, in multinomial regression analyses conducted first on an unadjusted univariate basis and then adjusted for age, gender, and ethnicity. Parallel multinomial regression analyses were conducted comparing the LCA trauma classes on MDD, SUD, and PTSD prevalence estimates. Education was not included in analyses due to collinearity ($r = .91$) with age. All other variables in the regression analyses showed no evidence of multicollinearity.

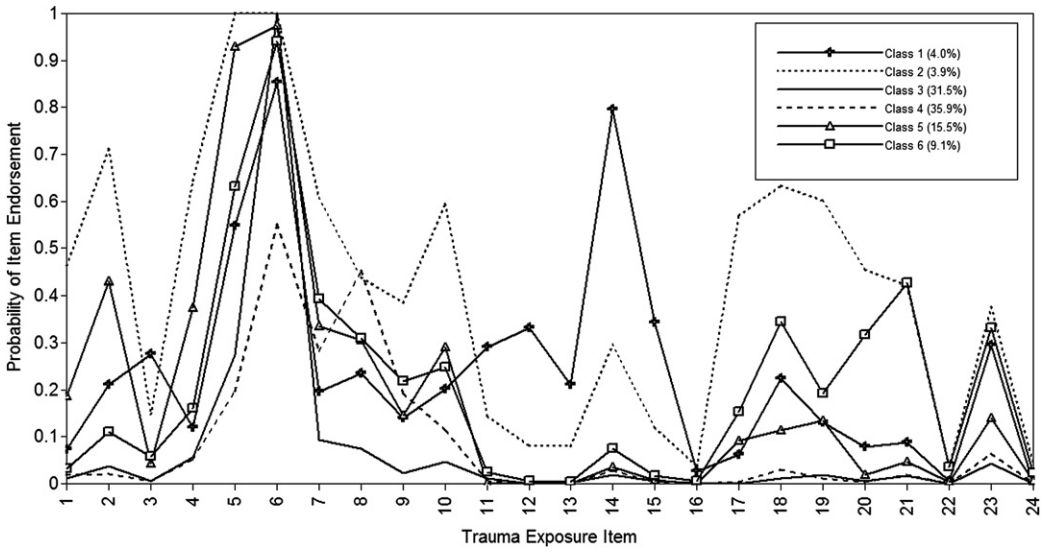

Figure 1. Latent classes of adolescents identified based on self-reported exposure to psychological trauma: witnessing someone: 1, shot; 2, cut or stabbed; 3, sexually assaulted; 4, mugged or robbed; 5, threatened with a weapon; 6, physically assaulted; Personal exposure to: 7, serious accident; 8, natural disaster; 9, serious injury; and 10, incident involving fear of death. Unwanted sexual activity involving: 11, perpetrator's penile penetration; 12, digital or object penetration; 13, oral sex; or 14, molestation; 15, victim's forced touching of perpetrator's sexual organs; and 16, victim's forced penetration of perpetrator. Personal exposure to: 17, attack with a weapon; 18, attack without a weapon; 19, threat with a weapon; 20, physical assault with object; 21, physical assault with fists; 22, spanking requiring medical care; 23, physical assault leaving marks; and 24, being physically burned.

Finally, a poly-victimization variable was constructed by combining latent classes endorsing multiple types of victimization. A multivariate logistic regression analysis adjusted for demographics was conducted comparing poly-victimized youth versus other traumatized youth on PTSD, MDD, and SUD prevalence. Parallel regression analyses were conducted to test of whether poly-victimization contributes to delinquency risk over and above the effects of demographics and PTSD, MDD, and SUD. The delinquency variable showed evidence of substantial skewness and kurtosis (86% zero values); therefore, zero-inflated negative binomial regression was used for the analyses of delinquency, and negative binomial regression was used for the analyses of friends' delinquency [33].

Results

Latent class analysis of trauma history profiles

The Lo-Mendell-Rubin adjusted likelihood ratio test [34] was used to compare each model with K classes against a model with K – 1 classes [35]. Results showed no significant information was added after a six-class solution, Lo-Mendell-Rubin $2LL_{diff}(20) = 188.60$, $p = .002$. A six-class solution fit the data, Pearson $\chi^2(16{,}776{,}838) = 11{,}863.15$, $p > .05$, Entropy = .68. Class membership prediction ranged from .72 (Class 3) to .87 (Class 1). Each class had a distinct trauma history profile (Figure 1), including four different ''poly-victimization'' classes: Class 1 = Sexual Abuse/Assault Poly-victimization (notably items 3, 11–15), 4% prevalence; Class 2 = Physical Abuse/Assault Poly-victimization (notably items 1, 2, 4–6, 17–20, 23), 4% prevalence; Class 3 = Assault Witness, 31.5% prevalence; Class 4 = Accident/Disaster Victim, 36% prevalence; Class 5 = Community Violence Poly-victimization, 15.5% prevalence; Class 6 = Assault Poly-victimization, 9% prevalence.

Trauma exposed latent class subgroups versus nontrauma exposed adolescents

Inspection of the prevalence estimates in Table 1, compared with respondents reporting no traumatic events, indicates that MDD and alcohol abuse occurrence and comorbidity prevalence estimates were two to three times higher for the Assault Witness and Accident/Disaster classes and five to 30 times higher for the poly-victimization classes. Drug abuse was nonexistent among the no trauma cohort, compared with 1.5% prevalence among trauma-exposed youth—notably including 7%–11% among the sexual and physical abuse poly-victimization subgroups. Comorbid MDD + SUD was almost nonexistent among the no trauma cohort (one case), compared with 3.6% prevalence among trauma-exposed youth—again, notably including 14%–17% among the sexual and physical abuse poly-victimization subgroups.

Poly-victimized latent classes versus assault witnesses and accident/disaster victims

Each poly-victimization subgroup was more likely to have PTSD and MDD and/or SUD comorbidity than did the assault witness or accident/disaster trauma subgroups (Table 1). Community violence survivors were at intermediate risk: two to eight times less likely than other poly-victimization

Table 1
Prevalence estimates from the National Survey of Adolescents by type of trauma history and trauma profile (latent class)

Diagnostic prevalence	No trauma (n = 672)	Any trauma history (n = 3,351)	Sexual abuse poly-victimization (n = 124)	Physical abuse poly-victimization (n = 128)	Witness to violent trauma (n = 1,256)	Traumatic disaster or accident (n = 1,070)	Community violence poly-victimization (n = 514)	Assault poly-victimization (n = 259)
Disorders								
PTSD	NA	9.8% (329)	31.5% (39)	34.7% (43)	5.2% (65)	4.7% (50)	14.0% (72)	23.2% (60)
MDD	5.2% (35)	21.3% (715)	56.5% (70)	48.4% (60)	14.7% (185)	14.3% (153)	28.6% (147)	38.6% (100)
Alcohol abuse	.7% (5)	7.0% (236)	15% (19)	26.6% (34)	3.7% (47)	3.7% (40)	12.3% (63)	12.7% (33)
Drug abuse	0% (0)	1.5% (49)	7.3% (9)	10.9% (14)	.2% (3)	.5% (5)	2.3% (12)	2.3% (6)
Comorbidity								
PTSD + MDD	NA	7.4% (249)	27.4% (34)	25.0% (32)	3.3% (42)	3.6% (39)	9.7% (50)	20.1% (52)
PTSD + SUD	NA	1.7% (56)	8.1% (10)	12.5% (16)	.2% (3)	.5% (5)	1.6% (8)	5.4% (14)
MDD + 4SUD	.1% (1)	3.6% (122)	13.7% (17)	17.2% (22)	1.4% (18)	1.2% (13)	.6% (3)	7.7% (20)
PTSD + MDD + SUD	NA	1.4% (46)	6.5% (8)	8.6% (11)	.2% (3)	.5% (5)	1.2% (6)	5.0% (13)

PTSD = posttraumatic stress disorder; MDD = major depressive disorder; SUD = Alcohol Abuse or Drug Abuse; NA = not applicable, trauma history is required for a PTSD diagnosis.
Percentages are based on dividing the prevalence rate by the column's sample size.

cohorts to have PTSD diagnoses with or without MDD or SUD comorbidity, but two to eight times more likely than assault witnesses or disaster/accident victims to have such diagnoses.

In multinomial logistic regression analyses, the Assault Witness class was the reference category (Table 2). Due to missing data on predictor variables, univariate analyses did not include up to 57 participants per analysis, and the multivariate analysis was missing 62 participants (1.9%). In univariate analyses, age and gender each contributed 3.2% variance (Nagelkerke's R^2) to LCA status, race or ethnicity contributed 3.4%, PTSD 6.8%, depression 7.3%, alcohol abuse 4.0%, and drug abuse 2.5%. The multivariate predictor model had a similar pattern of results, accounting for 21% total variance (Table 2). Poly-victimization subgroups were older and more likely to be female, non-white (except for the assault poly-victim group), and diagnosed with PTSD, MDD, and SUD, than the Assault Witness class members. Accident/Disaster survivors were comparable to Assault Witnesses on gender distribution and the likelihood of each diagnosis, differing only in being older and more likely to be white than the Assault Witness class members.

In the multivariate logistic regression analysis for poly-victimization status, demographics and diagnoses accounted for 13% of the variance, $\chi^2(7) = 516.35$, $p < .001$, with male gender, older age, minority race, PTSD, major depressive episode, alcohol abuse, and drug abuse each associated with poly-victimization in the final model (Table 3). In the personal delinquency analysis, demographics, $\chi^2(3, n = 3289) = 28.78$, $p < .001$, MDD and SUDs, $\chi^2_{diff}(4, n = 3,289) = 52.44$, $p < .001$, and poly-victimization (5.8%), $\chi^2_{diff}(1, n = 3,289) = 40.90$, $p < .001$, accounted for significant variance. In the final model, male gender, alcohol abuse, drug abuse, and most strongly poly-victimization, were associated with extent of personal involvement in delinquency—PTSD was not. In the friends' delinquency analysis, demographics, $\chi^2(3, n = 3,289) = 428.53$, $p < .001$, MDD and SUDs, $\chi^2_{diff}(4, n = 3,289) = 348.66$, $p < .001$, and poly-victimization, $\chi^2_{diff}(1, n = 3,289) = 178.38$, $p < .001$, contributed significantly. In the final model, older age, male gender, PTSD, MDD, alcohol abuse, drug abuse, and again most strongly poly-victimization, were associated with the extent of friends' delinquency.

Discussion

Mutually exclusive subgroups of adolescents were identified based on distinctive latent class profiles of victimization, with approximately one-third reporting histories consistent with poly-victimization. Adolescents in the poly-victimization subgroups not only were more likely than nontraumatized adolescents to meet criteria for psychiatric disorders, but had double the risk of depression, triple the risk of PTSD, three to five times increased risk of SUDs, and five to eight times increased risk of comorbid disorders compared

Table 2
Univariate and multivariate associations of trauma latent class membership with demographic characteristics and PTSD, major depression and substance use disorder diagnoses

Latent class	Variable	Univariate OR (95% CI)	Multivariate OR (95% CI)
Sexual abuse/assault	Age	1.15[a] (1.03–1.29)	1.02 (.90–1.16)
Poly-victimization	Gender	5.04[b] (3.08–8.23)	3.57[b] (2.15–5.95)
	Race	.66[a] (.44–.95)	.60[a] (.40–.90)
	PTSD	8.41[b] (5.34–13.24)	3.13[b] (1.86–5.26)
	MDD	7.51[b] (5.09–11.06)	3.70[b] (2.35–5.82)
	Alcohol	4.66[b] (2.64–8.22)	3.04[b] (1.64–5.67)
	Drug	32.69[b] (8.73–122.43)	3.43[b] (3.43–54.89)
Physical abuse/assault	Age	1.50[b] (1.32–1.70)	1.32[b] (1.15–1.52)
Poly-victimization	Gender	.60[c] (.41–.87)	.42[b] (.27–.63)
	Race	.41[b] (.28–.59)	.30[b] (.20–.45)
	PTSD	9.27[b] (5.95–14.45)	5.58[b] (3.29–9.45)
	MDD	5.11[b] (3.49–7.47)	2.61[b] (1.64–4.16)
	Alcohol	9.30[b] (5.71–15.17)	5.84[b] (3.40–10.03)
	Drug	51.29[b] (14.53–181.12)	16.17[b] (4.27–61.20)
Accident/disaster trauma	Age	.94[a] (.89–.98)	.93[a] (.88–.98)
	Gender	.96 (.82–1.14)	1.00 (.85–1.19)
	Race	1.26[a] (1.04–1.53)	1.28[c] (1.05–1.55)
	PTSD	.90 (.62–1.31)	.96 (.64–1.45)
	MDD	.97 (.77–1.22)	.99 (.77–1.27)
	Alcohol	1.00 (.65–1.54)	1.10 (.71–1.71)
	Drug	1.96 (.47–8.22)	2.08 (.49–8.77)
Community violence	Age	1.19[b] (1.12–1.27)	1.14[b] (1.06–1.22)
Poly-victimization	Gender	.60[b] (.48–.74)	.50[b] (.40–.62)
	Race	.44[b] (.35–.55)	.39[b] (.31–.48)
	PTSD	2.99[b] (2.10–4.25)	2.24[b] (1.50–3.33)
	MDD	2.32v (1.81–2.97)	1.89[b] (1.42- 2.51)
	Alcohol	3.59[b] (2.43–5.32)	2.96[b] (1.95–4.49)
	Drug	9.98[b] (2.81–35.53)	5.36[a] (1.46–19.67)
Physical assault	Age	1.05 (.97–1.14)	.97 (.89–1.06)
Poly-victimization	Gender	.70[a] (.54–.92)	.55[b] (.41–.73)
	Race	.83 (.62–1.12)	.76 (.56–1.03)
	PTSD	5.53[b] (3.77–8.09)	3.64[b] (2.35–5.64)
	MDD	3.64[b] (2.71–4.89)	2.55[b] (1.80–3.61)
	Alcohol	3.76[b] (2.35–5.99)	3.22[b] (1.96–5.30)
	Drug	9.91[c] (2.46–39.87)	4.53[a] (1.09–18.93)

PTSD = posttraumatic stress disorder; MDD = major depressive disorder; alcohol = alcohol abuse; drug = drug abuse; OR = odds ratio.

All tests use Class 3 (Assault witness) as the reference for comparison. Gender was coded 1 = male, 2 = female. Race was coded 1 = white (not Hispanic) ethnicity, 0 = racial/ethnic minority. Diagnosis variables were coded 1 = present, 0 = absent.

[a] $p < .05$.
[b] $p < .001$.
[c] $p < .01$.

with adolescents who had trauma histories who were not poly-victimized. Poly-victimized adolescents also reported more delinquent acts by self and peers than other trauma-exposed youth, controlling for age, gender, ethnicity, and psychiatric morbidity. Poly-victimization thus is a distinct threat to adolescents' health and development.

These findings replicate those Finkelhor et al. with a different trauma history interview and an older cohort, yielding comparable prevalence estimates of poly-victimized youth (i.e., 8% in the sexual or physical abuse cohorts versus 7% ''high'' poly-victims; 32% overall vs. 22% in the Developmental Victimization Survey [13]). The higher prevalence estimate of all poly-victimized youth in the present study is consistent with Finkelhor et al.'s finding that poly-victimized children were 2–4 years older on average than other children within their 2–17 year old sample, but also may be due to definitional or methodological differences. Finkelhor et al. used the number of discrete types of victimization to define low (four or more types) or high (seven or more types) poly-victimization deductively, whereas this study inductively defined distinct subgroups with no a priori assumptions. The LCA classes provide a conservative replication of the poly-victimization construct, but may not yield poly-victimization subgroups with uniform degrees of victimization due to variability in trauma history within each latent class. Consistent with this view, the community violence subgroup members were less likely than other poly-victimization cohorts to endorse several trauma categories and to meet criteria for PTSD, MDD, and SUDs. It is possible that finer grained analyses of trauma profiles in the community

Table 3
Association of demographics and disorders with Poly-victimization, and of demographics, disorders, and poly-victimization with severity of own and friends' delinquency involvement

Poly-victimization status	R^2 change	Final model OR (95% CI)
Step 1—demographics	.042	
Step 2—demographics and disorders	.085	
Age		1.13[a] (1.07–1.19)
Gender		.61[a] (.51–.72)
White race		.42[a] (.35–.50)
PTSD		3.12[a] (2.36–4.13)
Major depression		2.34[a] (1.90–2.87)
Alcohol abuse		3.20[a] (2.36–4.33)
Drug abuse		5.03[a] (2.23–11.37)
Personal delinquency	**R^2 change**	**Final model IRR (95% CI)**
Step 1—demographics	.086	
Step 2—demographics and disorders	.135	
Step 3—demographics, disorders, poly-victimization	.058	
Age		1.01 (.94–1.10)
Gender		.51[a] (.40–.66)
White race		.83 (.66–1.03)
PTSD		1.21 (.94–1.55)
Major depression		.99 (.78–1.26)
Alcohol abuse		1.37[b] (1.07–1.76)
Drug abuse		2.18[a] (1.57–3.02)
Poly-victimization		2.74[a] (1.93–3.89)
Friends' delinquency	**R^2 change**	**Final model IRR (95% CI)**
Step 1—demographics	.123	
Step 2—demographics and disorders	.089	
Step 3—demographics, disorders, poly-victimization	.042	
Age		1.20[a] (1.18–1.23)
Gender		.92[b] (.87–.98)
White race		1.02 (.96–1.09)
PTSD		1.22[a] (1.11–1.35)
Major depression		1.38[a] (1.28–1.49)
Alcohol abuse		1.42[a] (1.28–1.58)
Drug abuse		1.37[c] (1.11–1.70)
Poly-victimization		1.57[a] (1.47–1.68)

OR = odds ratio; IRR = incident rate ratio (percent change in outcome variable given a one unit increase in the predictor variable); CI = confidence interval.
[a] $p < .001$.
[b] $p < .05$.
[c] $p < .01$.

violence class might yield subgroups with less extensive victimization who were not truly poly-victimized. Yet, the severe morbidity associated with community violence [36] suggests it may contribute to poly-victimization.

A novel finding was that poly-victimization was the association of poly-victimization with delinquency [17], was independent of the effects of PTSD, MDD, and SUDs, and extended to affiliating with delinquent peers [37]. Delinquent youth often have extensive trauma histories and mental and behavioral health morbidity [10]. Poly-victimization may place these youth at particular risk. Of note, PTSD was not associated with the extent of personal involvement in delinquency. Thus, it may not be traumatic stress symptoms involved in PTSD that lead to or are associated with delinquent behavior, but instead broader forms of dysregulation (e.g., depression, substance abuse) that may be the sequelae of poly-victimization. The well documented elevated prevalence of PTSD among delinquent youth [10, 38] may therefore reflect the effects of poly-victimization rather than that of the relatively more common exposures to traumatic accidents, injuries, or witnessed violence which place youth at risk for PTSD per se.

Although the focus of the study and the strongest empirical findings of morbidity and risk were related to poly-victimization, the elevated prevalence estimates for MDD and SUDs among the youths exposed to accident/disaster or who witnessed traumatic violence, compared with non-trauma exposed youths, further suggests that these more common types of traumatic exposure are sufficient to place adolescents at risk for not only PTSD but for a range of affective and behavioral problems.

The small subgroup of youths who were most likely to have experienced sexual abuse or assault was not more likely generally (and in some cases were slightly less likely) than

the physical abuse or assault and physical assault poly-victimization cohorts to meet criteria for PTSD, MDD, or SUDs. While sexual trauma clearly has severely detrimental effects on children and adolescents [39], its (documented) prevalence is much lower than that of exposure severe physical violence, and victims tend primarily to be female. Thus, sexual abuse-related poly-victimization may appear to be related primarily to internalizing disorders (e.g., PTSD, MDD) rather than externalizing problems (e.g., SUDs), but this may be an artifact of its relative rare detection and differential gender responses to victimization [39]. This also may be an artifact of a ceiling effect in relation to physical victimization—sexual abuse or assault trauma victims often also reported physical abuse or assault [8], so the apparent stronger relationship of physical abuse or assault poly-victimization to SUD risk may conceal the true strength of the relationship between sexual abuse/assault and SUD risk.

Limitations of the present study include the use of cross-sectional retrospective self-report data, the restriction of psychiatric diagnoses to those assessed by the NSA, notably not including anxiety, externalizing, and other Axis I or II disorders that have been found to be associated with exposure to traumatic stressors and poly-victimization, and an absence of measures of a fuller range of psychosocial, educational, or work functioning or problems, as well as emerging personality disorders (e.g., Axis II psychopathology such as antisocial or borderline personality disorders). Also, other potentially important risk factors for victimization such as parental education, SES, and child protective services involvement were not assessed in the source survey.

It is also important to note that youth within each latent class did not have identical histories of exposure to the types of victimization and other potentially traumatic events assessed by the survey. Therefore some who were described as poly-victims may not have experienced the ''pattern of ongoing and multiple victimizations'' (14, p. 150) that Finkelhor et al. have established as the criterion for poly-victimization. Also, some who were placed in the assault witness and accident or disaster victim subgroups reported victimization histories and may have experienced poly-victimization. However, this heterogeneity should have decreased the between subgroup differences on diagnostic and delinquency outcomes, thus providing a conservative test of the hypothesis that poly-victimization results in adverse outcomes. Youth in the ''poly-victimization'' subgroups definitely were likely to have experienced multiple types of victimization based on the LCA profiles, and thus study findings also provide a partial independent replication of Finkelhor et al. poly-victimization studies with a different classification protocol. Finally, because the identity of perpetrator(s) was not assessed, it is unclear whether the differential risks of diagnoses, comorbidity, and delinquency that were found to for the latent class subgroups were due to poly-victimization or to the separate or combined contributions of familial versus non-familial maltreatment or to other forms of victimization (e.g., physical or sexual assault).

Conclusion

Despite these limitations, the study's representative sample of adolescents and validated structured interview measures provide a basis for generalizing the findings to a wide range of adolescents and types of traumatic stressor exposure and to three well-documented and clinically significant health problems associated with victimization among adolescents (PTSD, depression, substance use problems)—as well as to involvement in (or association with peers involved in) juvenile delinquency. The apparent dose-response relationship between less and more severe forms of victimization (i.e., no trauma, nonvictimization trauma, community violence poly-victimization, and sexual or physical assault and abuse poly-victimization) with psychiatric and behavioral problems suggests that a subset of adolescents who have encountered more increasingly severe poly-victimization warrant particular attention by healthcare providers.

Poly-victimization may involve, or place children and adolescents at risk for, a variety of associated types of adversity and psychological trauma, including neglect and loss of key caregiving relationships, physical abuse, domestic violence, and traumatic injuries. These potentially complex forms of chronic exposure to traumatic stressors and related adversities have been shown to be associated with particularly adverse psychiatric and psychosocial outcomes not only in childhood and adulthood but also in adolescence. In addition to the single diagnoses of PTSD, MDD, and SUDs, the poly-victimized adolescents in this study were at substantial risk for complex comorbid combinations of these disorders. Thus, no single diagnosis, even when four *DSM-IV* Axis I diagnoses were considered, appeared sufficient to characterize poly-victimized adolescents. Careful application of existing diagnoses may be adequate to describe and guide treatment for severely poly-victimized adolescents. Diagnoses not included in the present study such as Oppositional Defiant Disorder or Conduct Disorder may address the behavioral problems of many of these adolescents, given the finding that these youths are likely to have substantial involvement in delinquency and delinquent peer groups. However, those diagnoses do not address the often severe internalizing problems (e.g., dysphoria, anxiety, traumatic stress) that are associated with poly-victimization [14].

The increased risk and severity of internalizing as well as externalizing problems among the poly-victimized adolescents in this sample suggest that psychiatric assessment and diagnosis, and psychotherapeutic services, must address a range of mental and behavioral health problems that go well beyond any single psychiatric diagnosis. The use of multiple comorbid diagnoses with behaviorally troubled adolescents can lead to extremely complex treatment and psychosocial and legal rehabilitation plans. Complex traumatic stress disorders resulting from poly-victimization also may involve a wider range of symptoms (e.g., dissociation, self-harm) than those which healthcare providers—even those with subspecialty training in child and adolescent

psychiatry or allied disciplines—are trained to and experienced in treating [40]. Therefore, clinical research is needed to determine if a multiple comorbidity approach has sufficient clinical utility to adequately provide for effective healthcare for these youths—or whether alternative formulations of complex traumatic stress disorders are needed to address the health care needs of poly-victimized adolescents [40].

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