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Psychiatric Problems and Trauma Exposure in Non-detained Delinquent and Non-delinquent Adolescents

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Abstract

Objective—This study examined the prevalence of and associations between specific psychiatric disorders, substance use problems, and trauma exposure in a sample of delinquent and non-delinquent adolescents.

Method—A nationally representative sample of adolescents (*n* = 3,614; mean age = 14.5 years, SD = 1.7; 51% male; 71% White, non-Hispanic, 13.3% African American, non-Hispanic, 10.7% Hispanic) was interviewed via telephone about engagement in delinquent acts and their experience of posttraumatic stress disorder, major depressive episode, substance use, interpersonal violence, and other forms of trauma exposure.

Results—Delinquent adolescents were more likely than non-delinquent adolescents to experience trauma; they were also more likely to report past-year posttraumatic stress disorder, major depressive episode, alcohol abuse, and non-experimental drug use. After accounting for the effects of demographics and trauma exposure, delinquency was associated with increased likelihood of posttraumatic stress disorder and problematic substance use in both genders and increased likelihood of major depressive episode in girls.

Conclusions—Findings highlight substantial overlap among delinquency, trauma exposure, posttraumatic stress disorder, and major depressive episode in adolescents and the need for interventions that address these varied clinical problems. Future work should examine the factors underlying the development of these relations over time.

Keywords

adolescents; delinquency; psychiatric problems; substance use; trauma

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Delinquent adolescents are at risk for mental health and substance use problems (Colins et al., 2010; Teplin et al., 2006). To understand the clinical needs of this population, researchers have examined the prevalence of psychiatric disorders (i.e., affective, anxiety, disruptive behavior, substance abuse) in samples of detained youth (Teplin et al., 2006). Prevalence estimates derived from these samples are influenced by methodological inconsistencies, and few studies have drawn estimates from large samples of delinquent teens, calling into question the generalizability of observed estimates and precluding opportunities to examine moderators of clinical outcomes. Also, existing studies have often focused on either all female or all male samples (e.g., Colins et al., 2010). Hence, conclusions about gender differences in the prevalence of psychiatric problems are often based on descriptive comparisons across studies rather than direct comparisons within a single sample. This tendency to focus on either boys or girls is problematic given ongoing controversy regarding gender differences in the nature and development of delinquency in adolescence (Zahn, 2010).

Recognizing these limitations, Teplin et al. (2006) investigated the prevalence of mental health and substance use problems among a large sample of detained adolescents. Roughly two-thirds of the sample met criteria for a *DSM-III-R* diagnosis other than conduct disorder; specifically, 13% of boys and 22% of girls met criteria for a major depressive episode (MDE) and approximately 21% of boys and 31% of girls met criteria for an anxiety disorder in the six-months preceding the assessment. These findings illustrate the importance of assessing for psychiatric problems beyond disruptive behavior disorders in delinquent teens and examining gender differences in the prevalence of these problems.

Although Teplin et al. (2006) addressed several methodological concerns from previous studies, the project was not without limitations. First, the sample was drawn from a single, urban, juvenile detention facility. This approach facilitated recruitment of a large, demographically diverse group of adolescents; however, it is unclear whether the observed prevalence estimates generalize to delinquent teens in other parts of the country. A related limitation, common in this field, was the focus on detained delinquent youth, thus preventing generalization of findings to a broader delinquent population. This issue is important given that most adolescents who engage in delinquent behavior never come to the attention of authorities (Snyder & Sickmund, 2006). Thus, prevalence estimates of psychiatric problems in the general population of delinquent teens remain unclear, signaling the need to examine estimates in a non-detained, nationally representative sample. Such information would have relevance for public and private sector practitioners who serve delinquent adolescents in community-based settings.

Questions also remain about whether the links between delinquency and psychiatric problems can be accounted for by shared associations with other experiences. For instance, delinquent teens are at increased risk for exposure to traumatic events (Lansford et al., 2007; Zinzow et al., 2009). Trauma exposure has been reliably linked to psychiatric problems such as substance use, posttraumatic stress disorder (PTSD), and depression (Becker-Blease, Turner, & Finkelhor, 2010; Lansford, Dodge, Pettit, & Bates, 2010; Zinzow et al., 2009). The elevated risk for psychiatric problems observed among delinquent teens might be attributable to increased rates of trauma exposure rather than to delinquency. Alternatively,

aspects of delinquency status might confer greater risk for psychiatric problems even after accounting for trauma exposure. Another possibility is that trauma exposure moderates the relation between delinquency and clinical outcomes. Few studies have been able to address these questions directly, partly due to inconsistent assessment of trauma exposure among delinquent teens and the absence of adequate comparison groups of non-delinquent teens to reference when evaluating the level of risk associated with delinquency.

Current Study

The first aim of this study was to determine the prevalence of PTSD, depression, and substance use in a nationally representative community sample of non-detained delinquent adolescents and their non-delinquent peers. We expected to replicate findings showing that delinquent adolescents endorse higher rates of clinical problems than non-delinquent adolescents (Teplin et al., 2006).

The second aim was to examine whether delinquency status remained a significant correlate of clinical problems when trauma exposure was also considered. Consistent with evidence that clinical problems are more common among individuals exposed to interpersonal violence compared to other traumatic stressors (Copeland, Keeler, Angold, & Costello, 2007; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993), we considered violent and non-violent trauma types separately in the analyses. We predicted stronger associations between violence exposure and clinical outcomes than for other traumatic events (e.g., motor vehicle accidents, natural disasters). It was also predicted that delinquency would be positively associated with higher rates of substance use after accounting for trauma exposure, based on research supporting a common externalizing spectrum that includes substance use and delinquent acts (Krueger, Markon, Patrick, Benning, & Kramer, 2007). We also tested whether trauma exposure moderated associations between delinquency and clinical problems. Whereas significant main effects for both trauma exposure and delinquency were predicted for each clinical outcome, specific interactions were not hypothesized for these exploratory interaction analyses. Finally, we tested whether gender moderated the relation between delinquency and clinical outcomes. In line with prior research (e.g., Cole et al., 2002), we expected girls to report higher prevalence of depression, with delinquent girls demonstrating the highest levels of depression relative to delinquent boys and non-delinquent peers (Teplin et al., 2006, Zahn, 2010). No other specific gender × delinquency interactions were predicted.

Method

Data for this study come from the 2005 National Survey of Adolescents-Replication (NSA-R). The NSA-R was a nationwide standardized telephone interview of households with adolescents aged 12–17 years. The survey gathered prevalence data on specific emotional and behavioral problems and exposure to trauma among youth in the U.S. The methodological procedures have been reported in detail elsewhere (Wolitzky-Taylor et al., 2010). Briefly, sample selection and computer-assisted telephone interviewing was conducted by SRBI, a survey research firm. A multistage, stratified, area probability, random digit dial procedure was used to generate the initial probability samples. Once it was

determined that a household had at least one youth in the targeted age range, screening and introductory interviews were conducted with a caregiver. If multiple adolescents lived in the home, one was randomly selected for the interview. Verbal consent was obtained from a legal guardian before interviewing the adolescent; all youth gave verbal assent. Adolescents were offered $10 to complete the interview. Institutional Review Board approval was obtained prior to data collection.

Participants

During recruitment, 6,694 households were contacted that resulted in both a completed parent interview and identification of at least one eligible adolescent. Of these, 18.9% of parents refused adolescent participation. In an additional 2.8% of cases, the parent consented, but the adolescent refused to be interviewed; in another 1.8% of cases, the adolescent interview was initiated but not completed. Finally, in 22.5% of cases, parents consented and completed interviews, but the identified adolescent was unreachable or unavailable at any of our callbacks. The remaining 3,614 cases resulted in completed parent and adolescent interviews. This included 2,459 adolescents in the national cross section and an oversample of 1,155 urban-dwelling adolescents. Because adolescents were over-sampled in urban areas, a weighting variable was created to restore the distribution of cases back to their true proportion, based on 2005 U.S. Census estimates.

The current study used data from 3,423 participants who provided complete demographic and psychopathology information. Participants averaged 14.5 years of age (*SD* = 1.7); 51% were male. The ethnic and racial breakdown of the sample was 71.0% White, non-Hispanic, 13.3% African American, non-Hispanic, 2.5% Native American, non-Hispanic, 2.6% Asian American, non-Hispanic, and 10.7% Hispanic. Caregiver-reported annual household income for the sample was 12.8% <$20,000; 32.4% $20,001–$50,000; 21.6% $50,000–75,000; 33.2% >$75,000.

Measures

Delinquent behavior—Past year delinquency was assessed with a modified version of the well-validated scale developed for the National Youth Survey (Elliot, Huizinga, & Ageton, 1985). Nine questions assessed serious delinquent behavior over the preceding year, including beating up or physically attacking someone else; selling drugs; invading a home with intent to steal; stealing a motor vehicle; using force to obtain money or objects; attacking someone with a weapon; attacking someone with intent to kill or seriously injure; being arrested; and being sent to jail or juvenile detention. Individuals were classified as delinquent if they endorsed one or more of these items.

A higher proportion of boys (15.5%) than girls (8.8%) endorsed at least one delinquent act in the past year, $\chi^2(1) = 41.48$, $p < .001$. However, similar patterns of delinquent acts were observed across genders. For both boys and girls, the “beat up/physically attacked someone” item was the most frequently endorsed, followed by a history of arrest and selling drugs; no items were exclusively endorsed by either gender.

PTSD—PTSD was assessed using the NSA-R PTSD module (Resnick et al., 1993). This structured interview assesses each of the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV; American Psychiatric Association, 2000) symptom criteria for PTSD over the past year. None of the items are anchored to a specific traumatic event. Therefore, symptoms can relate to a broad range of trauma types. Research on this measure has provided support for reliability and concurrent validity (Kilpatrick et al., 1989; Resnick et al., 1993).

Major depressive episode (MDE)—MDE was assessed using the NSA-R Depression module. This structured diagnostic interview assesses for the presence of each of the DSM-IV symptom criteria for MDE over the preceding year. Psychometric data support the internal consistency (Kilpatrick et al., 2003) and convergent validity (Boscarino, Adams, & Galea, 2006) of the scale.

Alcohol abuse—Past-year alcohol abuse was assessed using structured NSA-R questions corresponding to the DSM-IV symptom criteria for the disorder. Research on the NSA-R Alcohol Abuse module has provided solid evidence of reliability and associations in expected directions with relevant constructs, including interpersonal victimization, psychiatric problems, and familial drug use (Hanson et al., 2008; Kilpatrick et al., 2003).

Drug use—The criterion for non-experimental drug use was use of drugs (other than alcohol) non-medically on four or more occasions in the past year, consistent with the psychometrically supported approach used elsewhere (Hanson et al., 2008; Kilpatrick et al., 2003). The assessment of drug use targeted a range of substances, including tranquilizers, sedatives, amphetamines, opioids, steroids, marijuana, cocaine, hallucinogens, inhalants, and club drugs (MDMA, GHB, Ketamine, Rohyponol).

Sexual assault—Lifetime history of sexual assault was measured using five questions targeting experiences of forced vaginal or anal penetration by a penis; vaginal or anal penetration by an object or finger; oral-genital contact; touching of the respondents' breasts or genitalia; or respondent's touching of another person's genitalia.

Physical assault—Five physical assault items assessed whether the adolescent had ever been attacked with a gun or knife; threatened with a gun or knife, although the weapon was not actually used; attacked without a weapon, but with perceived intent to kill or seriously injure; beaten with something like a stick or club resulting in serious injury; or beaten with fists resulting in serious injury.

Witnessed parental violence—Five items were used to measure lifetime exposure to severe forms of parental violence, including punching or hitting; beating up; choking; hitting with object; or threatening with a weapon.

Witnessed community violence—Lifetime exposure to community violence was measured using four questions asking whether the adolescents had ever seen someone in their school, neighborhood, or community get shot, cut, or stabbed; mugged, robbed, or

sexually assaulted; threatened with a weapon; or beaten up so badly they needed medical attention.

Other traumatic events—Other potentially traumatic event exposure was assessed by specific questions regarding motor vehicle accidents, other accidents, fires, natural disasters, and being bitten by a dog. Specific wording of questions and details of this methodology are available in prior publications (e.g., Kilpatrick et al., 2003).

Data Analysis

Prevalence estimates were calculated for delinquent and non-delinquent adolescents for past-year PTSD, MDE, alcohol abuse, and drug use, and lifetime exposure to violence and other potentially traumatic events. Chi-square analyses tested for differences between delinquent and non-delinquent adolescents in the rates of these outcomes.

Next, a series of hierarchical logistic regression analyses were performed with PTSD, MDE, alcohol abuse, and drug use as dependent variables.[1] Gender was entered in Step 1 of each regression to test whether boys and girls differed on each outcome. Preliminary analyses indicated that youth age, ethnicity, and household income were significantly correlated with the delinquency, violence, PTSD, and MDE variables (ps < .01). Therefore, these demographic variables were also entered in Step 1 of each regression. Exposure to violence and other traumatic events were entered in Step 2 to examine the unique explanatory contribution of trauma exposure when demographics were considered. A composite violence exposure variable representing whether participants experienced any measured form of violence was computed for this analysis. Delinquency status was entered in Step 3 to test the primary question of whether delinquency accounted for a significant proportion of the variance in clinical outcomes when other risk factors (demographics, trauma exposure) were included in the model. Finally, in Step 4, three interaction terms were entered to test whether gender, violence exposure, or exposure to other traumatic events moderated the associations between delinquency and clinical outcomes.

Results

Prevalence Estimates: Delinquent vs. Non-Delinquent Adolescents

Prevalence estimates for the psychiatric and trauma exposure variables are presented for delinquent and non-delinquent adolescents in Table 1; correlations among the variables are presented in Table 2. As predicted, delinquent adolescents endorsed higher rates of PTSD ($\chi^2 = 50.96$, $p < .001$), MDE ($\chi^2 = 77.20$, $p < .001$), alcohol abuse ($\chi^2 = 294.32$, $p < .001$), and drug use ($\chi^2 = 236.00$, $p < .001$) than non-delinquent adolescents. A significantly higher proportion of delinquent adolescents endorsed lifetime exposure to interpersonal violence (any violence exposure: $\chi^2 = 267.41$, $p < .001$) and other potentially traumatic experiences ($\chi^2 = 75.85$, $p < .001$).

[1]For regression analyses in which PTSD was the dependent variable, only adolescents who endorsed a history of trauma exposure (i.e., exposure to violence, other traumatic events, or both) were included.

Delinquency, Gender, Trauma Exposure, and Clinical Outcomes

Results from the hierarchical logistic regression analyses are presented in Table 3. In the final model, variables significantly associated with PTSD were older age, female gender, exposure to violence, exposure to other traumatic events, and delinquency. No significant interactions between delinquency and gender, violence exposure, or other trauma exposure were observed.

Variables significantly associated with MDE were older age, female gender, violence exposure, and exposure to other traumatic events. Although delinquency was significantly associated with MDE after accounting for demographics and trauma exposure, the association was no longer significant when the interaction terms were entered in Step 4. A significant gender × delinquency interaction was observed. Post-hoc analyses indicated that the effect of delinquency on MDE was stronger for girls (B = 1.62, *SE* = .18, OR = 5.04, $p < .001$) than for boys (B = .96, *SE* = .21, OR = 2.61, $p < .001$). Consistent with our predictions, delinquent girls endorsed higher rates of depression than delinquent boys, non-delinquent boys, and non-delinquent girls (Table 1).

Variables significantly associated with alcohol abuse were older age, female gender, lower household income, violence exposure, and delinquency. A significant violence exposure × delinquency interaction was observed. Post-hoc analyses indicated that the effect of delinquency on alcohol abuse was stronger for non-violence exposed (B = 2.48, *SD* = .39, OR = 11.90, $p < .001$) relative to violence-exposed (B = 1.67, *SE* = .16, OR = 5.31, $p < .001$) adolescents.

Variables significantly associated with non-experimental drug use were older age, minority race/ethnicity, violence exposure, and delinquency. No significant interactions between delinquency and gender, violence exposure, or other trauma exposure were observed.

Discussion

In light of reliable findings of high rates of psychiatric problems among detained delinquent youth (Colins et al., 2010; Teplin et al., 2006), the first aim of this study was to obtain prevalence estimates of PTSD, MDE, alcohol abuse, and drug use, and exposure to violence and other forms of trauma, in a nationally representative sample of non-detained delinquent and non-delinquent adolescents. Consistent with previous studies, delinquent adolescents were significantly more likely to experience PTSD, MDE, substance use problems, and traumatic events than non-delinquent adolescents, supporting the status of this group as an extremely high-risk population. Further, as expected, exposure to interpersonal violence was associated with higher rates of psychiatric problems compared to non-violent traumatic events.

Delinquency was associated with significantly higher rates of PTSD, alcohol abuse, and non-experimental drug use, beyond the influence of demographic characteristics, victimization, and other trauma exposure. The strongest associations were for non-experimental drug use and alcohol abuse, where delinquency was associated with a greater than eleven-fold increase in the odds of meeting criteria for the latter. These findings are

consistent with literature positing that delinquent, impulsive, and risky behaviors—including substance use—fall on a common externalizing spectrum (Krueger et al., 2007). Although engagement in substance use during adolescence represents an illegal (i.e., delinquent) and potentially dangerous act, a majority of adolescents engage in some degree of alcohol use or drug experimentation (Brown et al., 2009). Notably, by focusing on abuse and illicit drug use, the substance use outcomes reported here go beyond age-typical behavior and reflect high-risk, clinically relevant targets for prevention and intervention.

A significant violence exposure × delinquency interaction was observed for the alcohol abuse outcome, whereby delinquency was more strongly associated with alcohol abuse among non-violence exposed relative to violence exposed adolescents. This finding is somewhat surprising and possibly a consequence of the low base rate of alcohol abuse (1%) in the non-violence exposed, non-delinquent group (see Figure 1). Nevertheless, the pattern illustrated in Figure 1 indicates that delinquent adolescents are at elevated risk for alcohol abuse regardless of violence exposure status. The highest rate of alcohol abuse was observed among delinquent teens exposed to violence (26.7%) followed by delinquent teens not exposed to violence (13.9%). This suggests that alcohol abuse prevention efforts should center on both violence and delinquency prevention.

Finally, a significant gender × delinquency interaction was observed for depression, whereby delinquency was associated with a higher risk for MDE in girls than in boys. The higher overall prevalence of MDE in girls observed here is consistent with prior research indicating that girls report disproportionate increases in depression in adolescence relative to boys (Cole et al., 2002). It may be that certain shared vulnerability factors for both depression and delinquency, such as problems with interpersonal stress or emotion dysregulation, amplify risk for depression in delinquent, adolescent girls (Hankin & Abramson, 2001; Nolen-Hoeksema & Watkins, 2011). Future work should assess the role of these transdiagnostic risk factors in the development of depression in delinquent girls. Of note, the rates of MDE endorsed by female delinquent adolescents in this study were higher than those observed in other studies. Here, nearly half (44.9%) of delinquent girls reported an MDE; this is roughly double the percentage of detained delinquent girls who endorsed an MDE in the Teplin et al. (2006) study (21.6%). This discrepancy was only observed for girls; estimates were similar for boys (12.3% vs. 13.0%). One explanation for this difference is that the present study considered rates of MDE over a one-year period, whereas Teplin et al. (2006) considered six-month rates. The finding that delinquent female adolescents demonstrate especially high rates of depression is concerning given that depression in girls is a particularly strong risk factor for later delinquency, even after controlling for prior delinquency (Kofler et al., 2011). This suggests that delinquent female adolescents should be screened and treated for symptoms of depression not only to alleviate problems with mood but also to prevent future problems with delinquency.

The results should be viewed in the context of some methodological limitations. First, the study relied on adolescent self-report interviews, and results may have differed if other informants were used (De Los Reyes & Kazdin, 2005). Second, despite the strengths of the sample (i.e., large, nationally representative, non-detained), the cross-sectional design precludes statements about causality. Future work should employ longitudinal designs to

evaluate the direction of the observed associations. Third, other risk factors have been linked to the psychiatric problems measured here besides victimization, trauma exposure, and demographic characteristics. Measuring additional moderators and mediators, such as contextual factors (neighborhood safety, parental monitoring) and intra-individual variables (distress tolerance, personality), will inform the development of more comprehensive models. Fourth, the study had a moderately high refusal rate, yet the refusal rate was similar to or lower than those reported in other studies (Cole et al., 2002). Fifth, although the current study addresses a gap in the literature by reporting on prevalence of clinical problems in a large, non-detained sample of delinquent adolescents, the timeframe for clinical problems measured in this study (past year) differs from some other studies (e.g., past 6 months, Teplin et al., 2006), limiting conclusions about how specific results generalize across studies. Finally, the use of telephone surveys excluded youth who resided in households without a telephone. Fortunately, data indicate that only 7.3% of U.S. children lived in households without a landline phone in the first half of 2005 (Blumberg & Luke, 2007), which was the year of initial recruitment. Despite these limitations, the findings provide evidence for elevated rates of trauma exposure, PTSD, MDE, and substance use among non-detained delinquent teens.

Implications for Research, Policy, and Practice

In light of the current findings, the well-established recommendations for routine mental health screening and treatment for youth in detention centers (Teplin et al., 2006) are equally important for delinquent youth being served in community-based settings. Future research should continue to examine the development of the observed relations between delinquency and psychiatric problems. Additional efforts should focus on developing cost-effective strategies for identifying, assessing, and facilitating access to treatment services for delinquent adolescents in the community.

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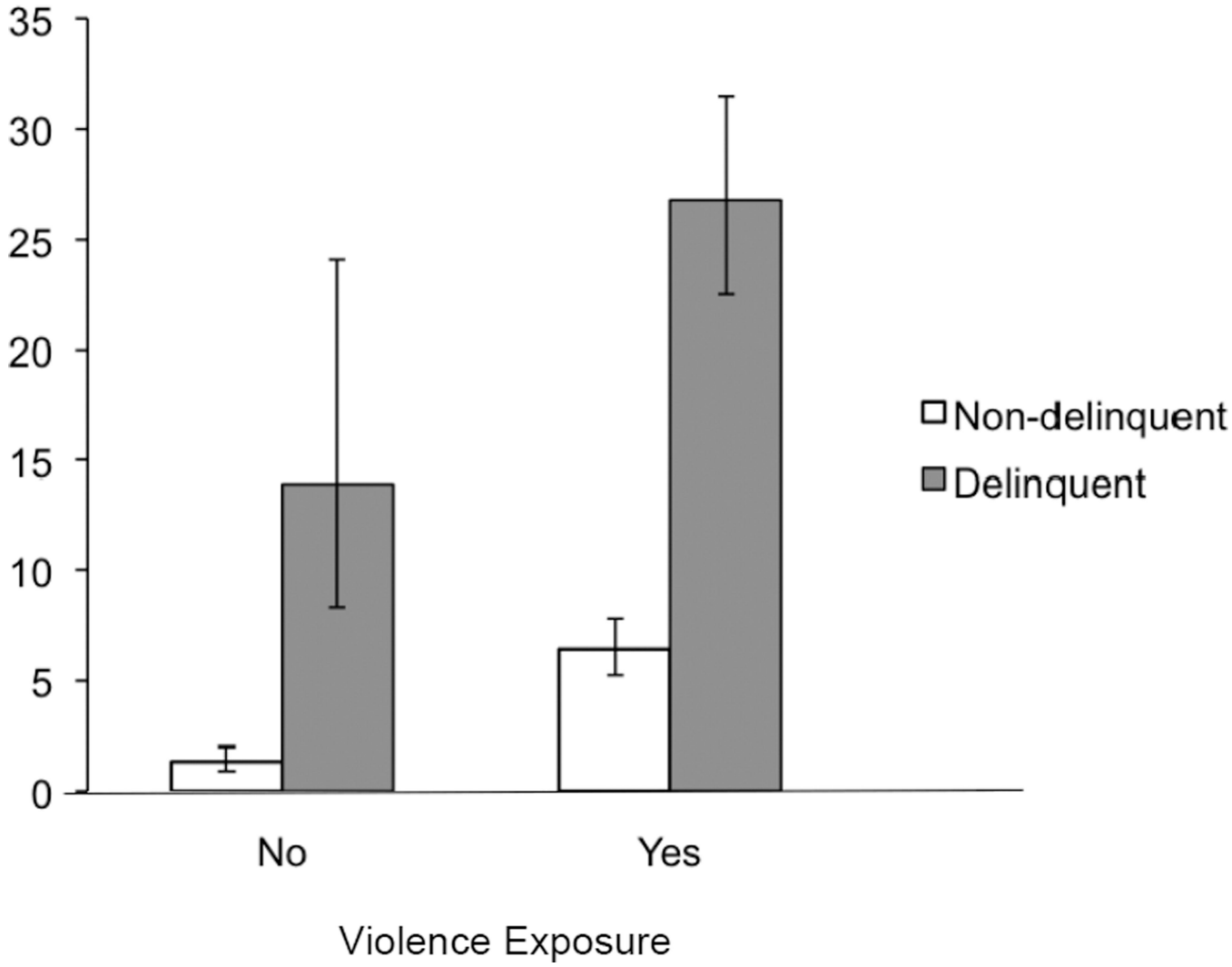

Figure 1.

Prevalence estimates for alcohol abuse among delinquent and non-delinquent adolescents by violence exposure status with 95% confidence intervals.

Table 1

Prevalence of Past-Year PTSD, Past-Year MDE, Past-Year Substance Use, and Lifetime Exposure to Traumatic Events by Delinquency Status and Gender

	Delinquent						Non-delinquent					
	Overall (n = 419)		Boys (n = 273)		Girls (n = 146)		Overall (n = 3004)		Boys (n = 1483)		Girls (n = 1521)	
Outcome	**%**	**CI (95%)**	**%**	**CI (95%)**	**%***	**CI (95%)**	**%**	**CI (95%)**	**%**	**CI (95%)**	**%**	**CI (95%)**
PTSD	14.0	[10.7, 17.3]	9.2	[5.8, 12.6]	22.8	[16.0, 29.6]	5.1	[4.3, 5.8]	2.8	[2.0, 3.6]	7.2	[5.9, 8.5]
MDE	23.4	[19.4, 27.4]	12.3	[8.5, 16.2]	44.9	[36.8, 53.0]	9.7	[8.7, 10.8]	5.2	[4.1, 6.3]	13.8	[12.1, 15.5]
Alcohol abuse	24.9	[20.8, 29.0]	24.8	[19.7, 29.8]	25.7	[18.6, 32.8]	3.6	[3.0, 4.3]	2.5	[1.8, 3.3]	4.6	[3.5, 5.6]
Drug use	33.6	[29.1, 38.0]	33.5	[28.0, 39.0]	34.2	[26.5, 41.9]	5.1	[4.3, 5.9]	4.6	[3.5, 5.6]	5.5	[4.4–6.6]
Violence exposure	82.3	[78.6, 85.9]	82.9	[78.6, 87.3]	82.7	[76.7, 88.8]	43.9	[42.2, 45.6]	44.1	[41.6, 46.6]	43.7	[41.2, 46.1]
Witnessed CV	72.5	[68.2, 76.7]	74.9	[69.9, 80.0]	69.8	[62.5–77.2]	32.8	[31.1, 34.4]	33.8	[31.4–36.1]	32.3	[29.9–34.6]
Witnessed DV	19.3	[15.5, 23.0]	18.0	[13.6, 22.5]	23.2	[16.4–29.9]	7.5	[6.5, 8.4]	6.0	[4.8–7.2]	9.0	[7.6–10.4]
Sexual assault	14.0	[10.7, 17.3]	8.6	[5.3, 11.8]	25.7	[18.6–32.7]	6.4	[5.6, 7.3]	2.9	[2.0–3.7]	10.1	[8.6–11.6]
Physical assault	43.8	[39.1, 48.5]	46.9	[41.1, 52.7]	39.5	[31.7–47.4]	11.6	[10.5, 12.8]	13.8	[12.1–15.6]	9.6	[8.1–11.0]
Physical abuse	30.9	[26.5, 35.3]	30.6	[25.2, 35.9]	34.5	[26.9, 42.2]	9.5	[8.5, 10.5]	8.5	[7.1, 9.9]	10.5	[9.0, 12.0]
Other TE	71.7	[67.4, 76.0]	70.4	[65.1, 75.7]	75.2	[68.3, 82.2]	50.2	[48.4, 51.9]	50.9	[48.4, 53.4]	49.0	[46.6, 51.5]

Note. PTSD = posttraumatic stress disorder; MDE = major depressive episode; CV = community violence; DV = domestic violence; TE = traumatic event. Values with non-overlapping confidence intervals are significantly different from each other ($p < .05$; Cumming & Finch, 2005).

Table 2

Correlations (phi coefficient) between outcome variables, trauma exposure, and delinquency: Full sample (n = 3,424).

	1	2	3	4	5	6	7
1. PTSD	--						
2. MDE	.49***	--					
3. Alcohol abuse	.13***	.15***	--				
4. Drug use	.16***	.18***	.44***	--			
5. Violence exposure	.17***	.23***	.18***	.24***	--		
6. Other TE	.10***	.12***	.10***	.12***	.28***	--	
7. Delinquency	.12***	.15***	.29***	.34***	.26***	.15***	--

Note. PTSD = posttraumatic stress disorder; MDE = major depressive episode; TE = traumatic event.

*** $p < .001$.

Table 3

Hierarchical logistic regression results for risk factors for PTSD, MDE, alcohol abuse, and drug use

	Step					Final model				
Risk factor	***B***	***SE***	***W***	***OR***	***CI (95%)***	***B***	***SE***	***W***	***OR***	***CI (95%)***
				PTSD (n = 2,487)						
Step1										
Age	.22	.05	18.33	1.24***	[1.13, 1.37]	.15	.05	8.01	1.16**	[1.05, 1.29]
Gender	.89	.17	27.15	2.43***	[1.74, 3.40]	.99	.21	21.42	2.68***	[1.77, 4.08]
Race/ethnicity	.13	.18	.49	1.14	[.80, 1.62]	.28	.19	2.25	1.32	[.92, 1.91]
Household income	−.02	.08	.06	.98	[.84, 1.15]	−.07	.08	.71	.93	[.80, 1.10]
Step 2										
Violence exposure	1.69	.28	37.00	5.40***	[3.14, 9.30]	1.78	.32	30.48	5.94***	[3.16, 11.18]
Other TE	.70	.20	11.72	2.01**	[1.35, 3.00]	.67	.24	8.05	1.96**	[1.23, 3.11]
Step 3										
Delinquency status	.84	.19	19.44	2.31***	[1.59, 3.35]	2.08	.81	6.54	8.00*	[1.63, 39.40]
Step 4										
Gender × Delinquency						.19	.38	.26	1.21	[.58, 2.54]
Violence × Delinquency						−1.31	.65	4.14	.27	[.08, .95]
Other TE × Delinquency						−.17	.48	.12	.85	[.33, 2.18]
				MDE (n = 3,423)						
Step 1										
Age	.24	.03	48.88	1.27***	[1.19, 1.36]	.13	.04	12.80	1.14***	[1.06, 1.23]
Gender	.99	.12	66.46	2.68***	[2.11, 3.40]	1.01	.14	49.28	2.73***	[2.06, 3.62]
Race/ethnicity	−.10	.13	.67	.90	[.71, 1.15]	.09	.13	.47	1.10	[.85, 1.42]
Household income	.12	.06	4.82	1.13*	[1.01, 1.26]	.05	.06	.65	1.05	[.94, 1.17]
Step 2										
Violence exposure	1.55	.15	112.33	4.73***	[3.55, 6.30]	1.50	.16	92.27	4.47***	[3.29, 6.07]
Other TE	.46	.13	13.27	1.59***	[1.24, 2.04]	.32	.14	5.31	1.38*	[1.05, 1.81]
Step 3										

	Step					Final model				
Risk factor	***B***	***SE***	***W***	***OR***	***CI (95%)***	***B***	***SE***	***W***	***OR***	***CI (95%)***
Delinquency status	.66	.15	19.55	1.95***	[1.45, 2.62]	.05	.59	.01	1.05	[.33, 3.31]
Step 4										
Gender × Delinquency						.69	.30	5.22	2.00*	[1.10, 3.61]
Violence × Delinquency						−.26	.50	.26	.77	[.29, 2.07]
Other TE × Delinquency						.60	.38	2.54	1.82	[.87, 3.80]
Alcohol Abuse (n = 3,423)										
Step 1										
Age	.54	.05	99.69	1.71***	[1.54, 1.90]	.44	.06	56.25	1.50***	[1.38, 1.74]
Gender	.06	.15	.15	1.06	[.78, 1.43]	.57	.22	6.96	1.77**	[1.16, 2.71]
Race/ethnicity	−.08	.17	.20	.93	[.66, 1.30]	.17	.18	.82	1.18	[.82, 1.69]
Household income	−.05	.08	.47	.95	[.82, 1.10]	−.17	.08	4.45	.85*	[.72, .99]
Step 2										
Violence exposure	1.50	.21	49.85	4.48***	[2.95, 6.79]	1.44	.26	29.82	4.21***	[2.51, 7.04]
Other TE	.66	.18	13.66	1.93***	[1.36, 2.73]	.33	.22	2.21	1.39	[.90, 2.16]
Step 3										
Delinquency status	1.73	.18	98.64	5.66***	[4.02, 7.97]	2.45	.53	21.63	11.64***	[4.14, 32.74]
Step 4										
Gender × Delinquency						−.49	.34	2.07	.61	[.31, 1.20]
Violence × Delinquency						−1.03	.47	4.77	.36*	[.14, .90]
Other TE × Delinquency						.53	.40	1.80	1.71	[.78, 3.73]
Non-experimental drug use (n = 3,423)										
Step 1										
Age	.56	.05	145.32	1.74***	[1.59, 1.91]	.47	.05	81.12	1.60***	[1.44, 1.77]
Gender	−.21	.13	2.52	.81	[.63, 1.05]	.17	.19	.84	1.19	[.83, 1.70]
Race/ethnicity	.12	.15	.62	1.13	[.84, 1.52]	.47	.17	7.80	1.60**	[1.15, 2.22]
Household income	.08	.06	1.45	1.08	[.95, 1.22]	−.04	.07	.37	.96	[.83, 1.10]
Step 2										

	Step					Final model				
Risk factor	***B***	***SE***	***W***	***OR***	***CI (95%)***	***B***	***SE***	***W***	***OR***	***CI (95%)***
Violence exposure	1.84	.20	87.66	6.28***	[4.28, 9.23]	1.59	.24	45.04	4.92***	[3.09, 7.84]
Other TE	.61	.15	16.31	1.85***	[1.37, 2.49]	.33	.20	2.88	1.39	[.95, 2.04]
Step 3										
Delinquency status	2.00	.16	162.94	7.37***	[5.42, 10.01]	2.15	.49	19.25	8.59***	[3.29, 22.44]
Step 4										
Gender × Delinquency						−.16	.31	.29	.85	[47, 1.20]
Violence × Delinquency						−.41	.46	.79	.67	[.27, 1.63]
Other TE × Delinquency						.37	.34	1.18	1.45	[.74, 2.84]

Note. PTSD = posttraumatic stress disorder; MDE = major depressive episode, TE = traumatic events.

* $p < .05$;

** $p < .01$;

*** $p < .001$.