

**RESEARCH ARTICLE**

# The effects of traumatic experiences on academic relationships and expectations in justice-involved children

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**Funding information**

National Institute on Drug Abuse, Grant/Award  
Number: T32DA035167

**Abstract**

Positive school experiences are an important predictor of long-term health and well-being. Developing positive relationships with school personnel and positive academic expectations set the foundation for success. Positive relationships and expectations can be a powerful protective factor or intervention to redirect troubled children toward a more positive path. Unfortunately, children who experience trauma are more prone to academic underachievement and negative school experiences. This link is especially evident and troubling for children—also called justice-involved children (JIC)—in the juvenile justice system. JIC are exposed to more traumatic experiences and have a higher prevalence of academic failure than other children. Despite evidence showing that (1) trauma is harmful to achievement in the general population, (2) JIC have a higher prevalence of trauma, and (3) JIC have a higher prevalence of academic underachievement and failure, only a few studies have examined traumatic experiences and achievement in JIC. The Childhood Trauma Model (CTM) submits that childhood trauma is central to understanding adolescent outcomes. CTM hypothesizes that (H-1) JIC who experience trauma will have more academic risk factors than those who do not, and (H-2) JIC who experience multiple types of trauma will have higher academic risks than those who experience a single type of trauma. The current study tests (1) whether 10 different types of traumatic experiences are individually associated with increased risks for fewer positive adult relationships and lower expectations of graduating from high school among JIC, and (2) whether experiencing multiple types of trauma has a larger impact than experiencing a single type of trauma.

**KEYWORDS**

domestic violence, juvenile delinquency, minorities, offending

School experiences are central to understanding patterns of adolescent health and behavior, especially for justice-involved children (JIC). JIC with positive school experiences tend to fare better, whereas negative experiences are linked to recidivism and other issues (Katsiyannis, Ryan, Zhang, & Spann, 2008; Lockwood, Nally, Ho, & Knutson, 2012). According to the Childhood Trauma Model (CTM), school experiences are influenced by the quality of an individual's childhood. Traumatic childhood experiences (e.g., physical abuse, parent separation, etc.) can negatively impact a child's capacity to form positive relationships and develop prosocial academic expectations. Empirical studies have linked trauma to academic problems (Boden, Horwood, & Fergusson, 2007; Holt, Finkelhor, & Kantor, 2007; Leiter & Johnsen, 1994; Nikulina, Widom, & Czaja, 2011; Stone & Zibulsky, 2015). The most prevalent forms of trauma include emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect, parent separation, witnessing domestic violence, household substance abuse, household mental illness, and household member incarceration (Felitti, Anda, Nordenberg, & Williamson, 1998). Oftentimes, JIC experience multiple types of trauma, called cumulative trauma. Cumulative trauma is associated with toxic stress in which a child's brain and body produce an overload of stress hormones—including cortisol and adrenaline—that harm the function and structure of the brain (Karr-Morse & Wiley, 2012; Nakazawa, 2016). Research has linked cumulative trauma to academic underachievement and failure in the general population (Schwartz, Lansford, Dodge, Pettit, & Bates, 2013), but the cumulative effects of trauma on academic relationships and expectations in JIC have not yet been explored.

## 1 | MECHANISMS

Traumatic experiences impact a child's relationships and expectations through triggering neurophysiological and social adaptations that are associated with (1) cognitive deficits, learning; (2) emotional and behavioral disorders; (3) unhealthy coping mechanisms; and (4) deviant identifications/associations and unhealthy relationships.

Trauma corrupts the biological and social systems that children need to succeed in school. Neurobiological, epigenetic, and biosocial studies have shown that traumatic experiences and conditions in childhood can diminish comprehension, memory, trust, language abilities, and the ability to self-regulate (Cole et al., 2005; De Bellis & Zisk, 2014).

Traumatic distress among children can manifest as emotional and behavioral disorders that are detrimental to achievement. The traumatized brain activates the survival centers and deemphasizes the learning centers (Perry, 2000). Neurophysiological responses to victimization-related childhood trauma (e.g., abuse and neglect) include the hyperarousal continuum (fight, flight, freeze) and the disassociation continuum (Perry, Pollard, Blakley, Baker, & Vigilante, 1995; Schwartz & Perry, 1994). Fight or flight responses include aggression or defiance toward adults and authority figures, which leads to disciplinary actions that disrupt learning and damage relevant relationships with school personnel (Noltmeyer, Ward, & McLoughlin, 2015; Perry & Morris, 2014).

Freezing responses include cognitive and physical unresponsiveness that are associated with students falling behind their peers academically, performing poorly on standardized assessments, and/or appearing defiant or disrespectful toward teachers, which also leads to confrontations and disciplinary actions (Perry et al., 1995). Dissociative responses include confusion, distraction, and/or memory suppression that are associated with underperforming, disengaging, and appearing apathetic or defiant (Schwartz & Perry, 1994).

Trauma is linked to unhealthy coping mechanisms and the onset of substance abuse disorders. Much evidence has linked substance abuse to academic problems (Henry, Knight, & Thornberry, 2012). Although mechanisms may vary by drug type, there are three main ways in which substance abuse is negatively correlated with achievement: the negative effects of substance abuse on cognitive functioning, the tendency for substance abusers to associate with deviant peers, and the tendency for substance abusers to engage in antisocial behaviors and adopt attitudes that undermine academic success (The National Center on Addiction and Substance Abuse, 2001). Unfortunately, many of these children's behaviors are treated as a policing matter rather than a matter of mental health, and they become victims of the school-to-prison pipeline.

Traumatic childhood experiences are also associated with emotional and social deficits that prevent children from forming healthy social interactions (Cole et al., 2005; Holt, Buckley, & Whelan, 2008) and promote deviant associations.

**TABLE 1** Descriptive statistics

Variables	Items/Range	Percent	Mean (SD)
Positive adult relationships ( <i>n</i> = 2,274)	3+	7	
	2	14	
	1	39	
	0	40	
High school graduation expectations ( <i>n</i> = 2,217)	Very likely	42	
	Uncertain	49	
	Unlikely	9	
Individual trauma items ( <i>n</i> = 2,558)			
Emotional abuse	Yes	36	
Physical abuse	Yes	26	
Sexual abuse	Yes	13	
Emotional neglect	Yes	28	
Physical neglect	Yes	13	
Domestic violence	Yes	77	
Household substance use	Yes	21	
Household mental illness	Yes	7	
Parent separation	Yes	90	
Household incarceration	Yes	40	
Cumulative trauma ( <i>n</i> = 2,558)			
Trauma index in 2007	0–10		3.14 (1.75)

Traumatized children can develop disdain and/or distrust toward adults or anyone perceived to be associated with their traumatic experience (Schwartz & Perry, 1994), which negatively affects interpersonal interactions with school personnel and authority figures (Cole et al., 2005). Children may also model the antisocial behavior associated with the traumatizing condition or seek security through associating with deviant peers, which can negatively impact achievement (Cole et al., 2005).

## 2 | THE CURRENT STUDY

Although much research has linked early trauma to mental health and deviance, there is a deficit of research on trauma and academic outcomes among JIC. The current study examines the individual and cumulative effects of trauma on academic relationships and expectations among JIC while considering key alternative explanations. These include prior sociodemographic predictors, mental health, conduct, and achievement (Perfect, Turley, Carlson, Yohanna, & St Gilles, 2016; Siennick & Staff, 2008). In subsequent sections, the data and methodology are described, and then the results are presented. Last, the conclusion delves into interpretations and recommendations.

## 3 | METHOD

### 3.1 | Participants

Youth typically enter the Florida Department of Juvenile Justice (FLDJJ) system through receiving an official sanction (equivalent to an arrest). During the intake process, trained FLDJJ data collectors administer the Positive Achievement

**TABLE 2** Bivariate analysis of individual trauma items and positive adult relationships at school

Fewer Positive Adult Relationships at School						
Individual Trauma	Item	3+	2	1	0	$\chi^2$
Emotional abuse	No	7	16	42	36	(3) 35.88***
	Yes	6	10	36	48	
Physical abuse	No	7	14	40	40	(3) 2.13
	Yes	5	15	39	41	
Sexual abuse	No	7	14	40	40	(3) 2.47
	Yes	5	16	39	40	
Emotional neglect	No	7	16	42	35	(3) 68.62***
	Yes	5	10	32	53	
Physical neglect	No	7	14	39	40	(3) .85
	Yes	7	14	41	38	
Domestic violence	No	10	17	43	31	(3) 30.18***
	Yes	6	13	39	43	
House substance use	No	7	14	40	39	(3) 4.48
	Yes	6	12	38	44	
House mental illness	No	7	14	40	39	(3) 5.24
	Yes	4	12	38	47	
Parent separation	No	7	11	41	42	(3) 1.97
	Yes	7	14	39	40	
House incarceration	No	7	15	40	38	(3) 7.32
	Yes	6	12	39	43	

$n = 2,274$ ; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Data displayed as row percent.

Change Tool (PACT) assessment via in-depth interviews, and code the data using the FLDJJ coding software. Typically, FLDJJ requires youth to complete a follow-up PACT assessment, although procedures may vary based on the capacity of the particular entity and nature of the offense. The sample was drawn from the entire population of juveniles in FLDJJ from 2004 to 2014. FLDJJ selected all juveniles who (1) received one or more official referrals for delinquency (equivalent to an adult arrest) before the age of 16, (2) completed the (PACT) full assessment once in both 2007 and 2008, and (3) reached the age of 18 by the year 2016. A cohort of 2,687 12- to 16-year-old juveniles met the selection criteria. There was 5% attrition at the follow-up year, resulting in a total of 2,558 juveniles. All data were self-reported by youth. Roughly 17.5% were females and 82.5% were males. Nearly 58% of subjects were non-Latino/a Black or African-American, 31% were non-Latino/a White, 10% Latino/a, and less than 1% was another race. The mean age in 2007 was 14.

The outcome measures were two academic risk factors: fewer positive adult relationships and low expectations of graduating from high school. The JIC's amount of positive adult relationships (PARs) at school was operationalized via a four-category ordinal variable (0 = 0, 1 = 1, 2 = 2, and 3 = 3 or more) and their expectations of high school graduation (Exp.) were operationalized via a three-category ordinal variable (0 = *unlikely*, 1 = *uncertain*, and 2 = *likely*). The two dependent variables were reverse-coded so that higher values represent higher academic risks to align with the hypotheses of the theoretical model. There was 11% (284) missing data on PAR ( $n = 2,274$ ) and 13% (341) missing data on Exp. ( $n = 2,217$ ).

This study examines the effect of 10 types of childhood trauma: emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect, parent separation, witnessing domestic violence, household substance abuse, household mental illness, and household member incarceration (for details see Baglivio et al., 2014). For each trauma type,

**TABLE 3** Bivariate analysis of individual trauma items and high school graduation expectations

High School Graduation Expectations					
Individual Trauma	Item	Likely	Uncertain	Unlikely	X <sup>2</sup>
Emotional abuse	No	47	45	8	(3) 50.20***
	Yes	32	55	12	
Physical abuse	No	42	49	9	(3) 1.30
	Yes	42	47	10	
Sexual abuse	No	42	49	9	(3) 1.77
	Yes	45	45	10	
Emotional neglect	No	45	47	8	(3) 17.88***
	Yes	36	53	12	
Physical neglect	No	42	49	9	(3) 5.40
	Yes	40	46	13	
Domestic violence	No	55	41	5	(3) 50.74***
	Yes	38	51	11	
House substance abuse	No	44	47	9	(3) 10.62**
	Yes	36	55	10	
House mental illness	No	43	48	9	(3) 10.74**
	Yes	31	55	14	
Parent separation	No	46	48	6	(3) 3.14
	Yes	42	49	10	
House incarceration	No	46	47	8	(3) 19.01***
	Yes	37	52	11	

$n = 2,217$ ; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Data displayed as row percent.

**TABLE 4** Ordinal logistic regression model predicting positive adult relationships at school

Fewer Positive Adult Relationships at School			
Individual Trauma	M1: Bivariate OR (SE)	M2: Controlled OR (SE)	M3: Full OR (SE)
Emotional abuse	1.58 (.13)***	1.45 (.12)***	Ns
Physical abuse	ns	ns	Ns
Sexual abuse	ns	ns	Ns
Emotional neglect	2.04 (.18)***	1.98 (.18)***	1.92 (.18)***
Physical neglect	ns	ns	.76 (.09)*
Domestic violence	1.65 (.15)***	1.54 (.16)***	1.34 (.16)*
House substance use	1.22 (.12)*	ns	ns
House mental illness	1.29 (.21)*	ns	ns
Parent separation	ns	ns	ns
House incarceration	1.23 (.10)*	ns	ns

$n = 2,274$ ; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . OR = odds ratios, SE = standard errors, ns = not significant. Dependent variables are reverse coded. Models 1 and 2 represents 10 bivariate models. Model 3 adjusts for race/ethnicity, gender, age, mental health, school suspensions, substance abuse, community violence, GPA, and enrollment status. Model 3 is a single model adjusting for all 10 trauma types and all control variables. BIC selected Model 2; thus, these data are presented in-text.

**TABLE 5** Ordinal logistic regression model predicting high school graduation expectations

Low High School Graduation Expectations			
	M4: Bivariate	M5: Controlled	M6: Full
Individual Trauma	OR (SE)	OR (SE)	OR (SE)
Emotional abuse	1.84 (.16)***	1.58 (.14)***	1.30 (.13) <sup>†</sup>
Physical abuse	Ns	ns	ns
Sexual abuse	Ns	ns	ns
Emotional neglect	1.47 (.13)***	1.32 (.12)**	ns
Physical neglect	ns	ns	ns
Domestic violence	2.02 (.20)***	1.75 (.20)***	1.49 (.20)**
House substance use	1.32 (.13)**	1.24 (.13) <sup>†</sup>	ns
House mental illness	1.69 (.27)**	1.73 (.29)**	1.52 (.26) <sup>†</sup>
Parent separation	ns	ns	ns
House incarceration	1.44 (.12)***	1.27 (.11)**	ns

$n = 2,217$ ; <sup>†</sup> $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . OR = odds ratios, SE = standard errors, ns = not significant. Dependent variables are reverse coded. Models 4 and 5 represents 10 bivariate models. Model 5 adjusts for race/ethnicity, gender, age, mental health, school suspensions, substance abuse, community violence, GPA, and enrollment status. Model 6 is a single model adjusting for all trauma types and all control variables. BIC selected Model 5, thus these data are presented in-text.

response options were dichotomized (0 = *no, this did not occur*, 1 = *yes, this experience occurred*). Each trauma occurred sometime between birth and the full PACT assessment in 2007. To measure the effect of cumulative trauma, the 10 dichotomous trauma measures were summed to create an additive index ranging from 0, *zero types of trauma*, to 10, *10 different types of trauma*. It is adopted from the original Adverse Childhood Experiences score (Felitti et al., 1998), which has been used in recent studies of trauma among youth in FLDJJ.

### 3.2 | Analytical procedures

I conducted univariate and bivariate analysis to describe the data and ran ordinal logistic regression models to predict the correlations between trauma at baseline (year 2007) and outcomes at follow-up (year 2008). The study used a stepwise modeling approach: first, a bivariate model; second, a model that included control variables (controlled model); and third, a full model that also controlled for each trauma type. This approach was needed to assess any changes in the relationship after considering alternative explanations of academic outcomes (prior sociodemographic predictors, mental health, conduct, and achievement). The third step is needed to observe changes once also controlling for the effects of other types of trauma. The Bayesian information criterion (BIC) test will be used to select the best fitted multivariate model to be interpreted in the Results and Discussion sections. To examine cumulative effects, the trauma index was treated as a numerical variable as well as a categorical variable to show the effects of a specific trauma score compared to the base score of “1” (too few cases to estimate comparisons for JIC with no trauma).

The full models adjusted for race (four-item nominal converted to multiple dummy variables using STATA 13 “i” command: 0 = *White*, 1 = *Black*, 2 = *Latino/a*, 3 = *other*); gender (binary: 0 = *male*, 1 = *female*); age (5-item interval: 12–16); mental health (three-item categorical: 0 = *no mental health issues*, 1 = *diagnoses*, 2 = *medication prescribed*); school suspensions (five-item ordinal: 0 = *zero*, 1 = *one*, 2 = *two or three*, 3 = *four or five*, 4 = *six or seven*, 5 = *more than seven*); substance abuse (binary: 0 = *none*, 1 = *yes, currently using substances*); community violence (binary: 0 = *no*, 1 = *witnessed violence in the community*); and enrollment status (three-item categorical: 0 = *dropped out*, 1 = *currently enrolled*, and 2 = *graduated*). Listwise deletion was used to manage missing cases on outcome variables. Missingness on control

**TABLE 6** Ordinal logistic regression model predicting the effects of cumulative trauma on positive adult relationships (PARs) at school and high school graduation expectations (low exp.)

Cumulative Trauma	M7: PAR		M8: Low Exp.	
	OR	SE	OR	SE
Trauma index	1.13***	.03	1.16***	.03
Controls				
Race (ref = White)				
Black	1.02	.10	1.30**	.13
Latino/a	1.06	.16	1.23	.20
Female	.73**	.08	.72***	.09
Age	.94	.04	1.01	.05
Mental health (ref = no)				
Diagnosis	.86	.12	1.06	.16
Prescription	.81	.11	.96	.15
Suspensions	1.05 <sup>†</sup>	.02	1.11***	.03
Substance abuse	.91	.08	1.01	.09
Community violence	1.08	.09	1.05	.09
GPA '07 (ref = above 3.0)				
2.1–3.0	.76	.14	2.25***	.48
1.0–2.0	.99	.18	3.33***	.70
Below 1.0	1.22	.23	5.88***	1.29
Enrollment (ref = dropout)				
Enrolled	.79	.20	.49	.29
Graduated	.44	.35	–	–
N	2,274		2,217	
Chi-square	(18) 86***		(17) 224***	

<sup>†</sup> $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . OR = odds ratios, SE = standard errors. Dependent variables are reverse coded. Model adjusts for all control variables.

variables “substance abuse” (missing = 60) and “GPA in 2007” (missing = 120) was treated as a categorical item to preserve these data.

## 4 | RESULTS

Roughly 97% of the sample reported at least one traumatic childhood experience and the average cumulative trauma score was 3.14 ( $SD = 1.75$ ). Approximately 40% had no positive relationships with adults at school, and 9% considered graduating from high school to be unlikely. See Table 1 for descriptive statistics and Tables 2 and 3 for bivariate analyses.

Table 4 shows the effects of each trauma item on the number of positive adult relationships at school. The BIC test preferred the controlled models; therefore, they are interpreted herein. Experiencing emotional abuse (pseudo  $R^2 = .02$ ,  $X^2(18) = 80$ ,  $p < .001$ ; OR = 1.45,  $p = .000$ ) emotional neglect (pseudo  $R^2 = .02$ ,  $X^2(18) = 116$ ,  $p < .001$ ; OR = 1.98,  $p = .000$ ), and domestic violence (pseudo  $R^2 = .01$ ,  $X^2(18) = 76$ ,  $p < .001$ ; OR = 1.54,  $p = .000$ ) significantly predicted fewer positive adult relationships at school while adjusting for race, gender, age, mental health, disciplinary record, substance use, community violence, achievement, and enrollment status at baseline. The chances of reporting fewer positive adult relations were 45% higher for JIC who were emotionally abused, 98% higher for those who were emotionally neglected, and 54% higher for those who experienced domestic violence.

**TABLE 7** Ordinal logistic regression model predicting the effects of cumulative trauma on positive adult relationships (PARs) at school and high school graduation expectations

Cumulative Trauma	M9: Less PAR		M10: Low Exp.	
	OR	SE	OR	SE
Trauma index				
(ref = 1)				
2	1.34*	.19	1.68**	.27
3	1.40*	.21	1.88***	.30
4	1.64**	.24	2.13***	.34
5	1.66**	.26	2.23***	.39
6	1.78**	.34	2.57***	.54
7	2.29***	.54	2.87***	.71
8	2.47*	.86	2.68**	.98
9	4.37*	3.15	10.38**	8.84
10			7.05	9.92
<i>n</i>	2,274		2,217	
Chi-square	(27) 91***		(26) 233***	

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . OR = odds ratios, SE = standard errors. Dependent variables are reverse coded. Model adjusts for race/ethnicity, gender, age, mental health, school suspensions, substance abuse, community violence, GPA, and enrollment status. Too few cases with a trauma score of 10 to estimate M9.

Table 5 shows the effects of each trauma item on high school graduation expectations. Experiencing emotional abuse (pseudo  $R^2 = .05$ ,  $X^2(17) = 217$ ,  $p < .001$ ; OR = 1.58,  $p = .000$ ), emotional neglect (pseudo  $R^2 = .05$ ,  $X^2(17) = 200$ ,  $p < .001$ ; OR = 1.32,  $p = .003$ ), domestic violence (pseudo  $R^2 = .05$ ,  $X^2(17) = 216$ ,  $p < .001$ ; OR = 1.75,  $p = .000$ ), household substance use disorder (pseudo  $R^2 = .05$ ,  $X^2(17) = 196$ ,  $p < .001$ ; OR = 1.24,  $p = .038$ ), household mental illness (pseudo  $R^2 = .05$ ,  $X^2(17) = 202$ ,  $p < .001$ ; OR = 1.73,  $p = .001$ ), and household member incarceration (pseudo  $R^2 = .05$ ,  $X^2(17) = 200$ ,  $p < .001$ ; OR = 1.27,  $p = .005$ ) significantly predicted graduation expectations. The chances of having lower expectations of graduating were 58% higher for emotional abuse, 32% higher for emotional neglect, 75% higher for domestic violence, 24% higher for household substance use disorder, 73% higher for household mental illness, and 27% higher for household member incarceration.

The models in Table 6 show the cumulative effects of trauma on the likelihood of fewer positive adult relationships (pseudo  $R^2 = .02$ ,  $X^2(18) = 85$ ,  $p < .001$ ) and low graduation expectations (pseudo  $R^2 = .05$ ,  $X^2(17) = 224$ ,  $p < .001$ ), respectively. As expected, higher values on the trauma index were associated with fewer positive adult relationships (OR = 1.13,  $p = .000$ ) and lower expectations of graduating from high school (OR = 1.16,  $p = .000$ ). For a 1-unit increase in the trauma index, there was a 13% increased chance of fewer adult relationships and a 16% increased chance of low expectations of graduating. Table 7 shows the effects of specific trauma scores compared to a score of 1. A trauma score of 4 predicted a 64% increased chance of fewer positive adult relationships (OR = 1.64,  $p = .001$ ), and a 113% increased chance of low graduation expectations (OR = 2.13,  $p = .000$ ).

## 5 | DISCUSSION

The findings suggest that traumatic experiences may hinder JIC's ability to form positive academic relationships and expectations, and the toxicity of specific types of trauma may depend on the outcome. For instance, emotional neglect was more toxic to relationships with school personnel, while domestic violence was more toxic to graduation expectations. Also, as hypothesized, experiencing multiple types of trauma, on average, was significantly (1.34 to 10

times) more toxic to relationships with school personnel and graduation expectations than experiencing a single type of trauma. This evidence supports CTM (Johnson, 2017) and other scholarship-proposing, trauma-based models of adverse outcomes (Perfect et al., 2016). These findings suggest that schools must prioritize fostering positive relationships and high academic expectations among traumatized children.

This study was the first to longitudinally test the individual and cumulative effects of trauma on academic outcomes in JIC, filling a noticeable gap in the literature while also advancing CTM. However, the study had some limitations. The exact time the traumatic event occurred is not specified. The trauma could have already affected youth before intake, yielding underestimated effects. Also, there is no data on event frequency and severity, which are important for understanding trauma effects. Comprehensive trauma-screening instruments that correct these shortcomings can advance the current science and improve the effectiveness of interventions. To prevent issues caused by trauma exposure, ideally stakeholders must address the circumstances that breed traumatic experiences in the first place. In addition, trans-institutional and multidisciplinary coalitions equipped with trauma-informed interventions are needed. School-based programs that effectively build coping and social skills are essential for JIC. Last, children's mental health must be interpreted as a social justice and childcare issue, rather than a criminal justice issue. Schools must get back to calling counselors before the cops.

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**How to cite this article:** Johnson ME. The effects of traumatic experiences on academic relationships and expectations in justice-involved children. *Psychol Schs.* 2018;55:240–249. <https://doi.org/10.1002/pits.22102>