Childhood trauma and risk for suicidal distress in justice-involved children

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Abstract

Justice-involved children (JIC) have higher rates of trauma exposure and suicidality than the general population. The Childhood Trauma Model predicts that children can accumulate multiple traumatic experiences that can be more harmful than a single traumatic event. The purpose of this study is to investigate the individual and cumulative effects of childhood trauma on suicidal distress among JIC. The study employs logistic regression to analyze panel data on 2367 12–16 year-olds from the Florida Department of Juvenile Justice (FLDJJ). The study shows that 9 types of individual traumatic experiences increased risk for suicidal ideation from 22 to 180%. For one unit increase in the trauma score, the risk for suicidal distress increased 25%, so that JIC who experienced 5 types of traumas were 2.4 times more likely to experience suicidal distress as JIC who experienced a single trauma. These findings illustrate the need to invest mental health services and suicide prevention resources in populations in the juvenile justice system. Intervention must be tailored to serve children who suffered specific traumatic events, as well as those who experience multiple types of trauma. Further, policies that manage JIC as kid criminals rather than as traumatized children may exacerbate their suicidality and problematic behavior.

Keywords

Childhood trauma; Suicidal ideation; Juvenile justice

Suicidal ideation, attempts, and fatality are tragic public health concerns that cost an estimated $51 billion in combined medical and work loss costs (Berman, Jobes, & Silverman, 2006). Suicide is the second-leading cause of death for adolescents and young adults, ages 12 to 24, according to the U.S. Center for Disease Control and Prevention (CDC, 2013). More teenagers and young adults die from suicide than the 4th through 10th leading causes of death combined. This is a critical issue for all adolescents, and is especially an issue for children in the juvenile justice system, also called justice-involved children (JIC).

Suicidal distress refers to a cluster of experiences including suicidal ideation, suicidal attempts, or non-suicidal self-injury. JIC have exceptionally high rates of contemplating, attempting, and committing suicide (Penn, Esposito, Schaeffer, Fritz, & Spirito, 2003; Scott, Underwood, & Lamis, 2015). According to a review by the National Action Alliance for Suicide Prevention (Alliance, 2013), up to one-third of JIC reported suicidal distress in the past year and nearly 40% attempted suicide at some point in their life. Some studies found that suicidal thoughts and behavior in this population are two to four times higher (Gallagher & Dobrin, 2006) and more violent than the general population (Penn et al., 2003), and risk increases with longer involvement in the justice system (Stokes, McCoy, Abram, Byck, & Teplin, 2015). In a national report, Hockenberry, Sickmund, and Sladky (2015) found that more than a third of the deaths among juveniles in confinement were due to suicide.

The Childhood Trauma Model (Johnson, 2017) argues that early trauma exposure predicts suicidality and other symptoms of distress. Childhood trauma is a well-documented precursor of suicidal ideation and behavior (Dube et al., 2001; Miller, Esposito-Smythers, Weismoore, & Renshaw, 2013; Stokes et al., 2015), and the children in the criminal justice system represent some of the most traumatized children in America (Abram et al., 2013; Baglivio et al., 2014; King et al., 2011; Slate & Johnson, 2008; Stokes et al., 2015).

Their social positions create circumstances that disproportionately expose them to both deeply disturbing experiences throughout their childhood and negative police contact. Many of the significant risks and resources that can attenuate or exacerbate negative manifestations of their distress are socially allocated in ways that reduce their access to resources and increases their exposure to risks. For example, trauma effects are often worse for minorities, women and younger children (Alliance, 2013). Though childhood trauma is often the defining characteristic of JIC, they are commonly stigmatized as criminals and re-traumatized by the criminal justice system (Alexander, 2010; Gallagher & Dobrin, 2006). In this unfortunate social scenario, children in distress may be on a pathway to prison and/or early death.

1. Childhood trauma and suicidal distress

The Childhood Trauma Model (CTM) emphasizes children and their upbringings in understanding health and health-related disparities (Johnson, 2017). It has two main components: trauma and distress. It submits that individuals who are on the lower rungs of society are subject to more traumatic circumstances and less protective resources in their childhoods, which obstruct healthy development, causing a chain reaction of pathology that may endure for generations. Depending on the toxicity of the traumatic condition and the presence of risks and/or resources, trauma can produce diverse symptoms of distress. Distress refers to a state of extreme anxiety, sorrow, and/or pain.

1.1. Distress

JIC are perceived and managed as kid criminals (Slate & Johnson, 2008), but are commonly crying out for help. Less than 9% of the youth arrested are serious or violent offenders, and 94% have been exposed to trauma (Baglivio et al., 2014). Suicidal ideation rates in juvenile justice populations range from 14% to 51% (Bhatta, Jefferis, Kavadas, Alemagno, &

Shaffer-King, 2014; Esposito & Clum, 2002; Scott et al., 2015; Wasserman & McReynolds, 2006). In a study of Chicago detainees, Abram et al. (2008) found that more than one third of juveniles and nearly half of females had felt hopeless or thought about death in the 6 months before detention. Among a juvenile justice population in Nevada, 18% attempted suicide with intent to die (Buttar, Clements-Nolle, Haas, & Reese, 2013).

1.2. Childhood trauma

Exposure to trauma is the most commonly identified predictor of suicidal ideation and attempt among youth in the juvenile justice system (Dube et al., 2001; Esposito & Clum, 2002; Miller et al., 2013; Stokes et al., 2015). Childhood trauma is a deeply distressing or disturbing experience or condition occurring during the pre-adulthood stages of development. The most documented forms of trauma that are linked to suicidal distress include emotional abuse (Miller et al., 2013), physical abuse (Miller et al., 2013), sexual abuse (Alliance, 2013; Bhatta et al., 2014; King et al., 2011; Miller et al., 2013; Stokes et al., 2015), physical neglect (Dube et al., 2001; Miller et al., 2013), exposure to violence –as victim, observer or perpetrator (Buttar et al., 2013; Dube et al., 2001; Holsinger & Holsinger, 2005; Voisin et al., 2007; Wasserman & McReynolds, 2006), household substance use disorder (SUD), household member mental illness (Dube et al., 2001), and separation from parent or loved ones due to divorce, incarceration or death (Alliance, 2013; Dube et al., 2001). In the original Adverse Childhood Experiences Study (ACEs), Felitti, Anda, Nordenberg, and Williamson (1998) found that between 66% and 80% of all attempted suicides could be attributed to childhood trauma. In another seminal study of childhood trauma, Dube et al. (2001) found that individual trauma items increased the risk of attempted suicide two to five fold (Dube et al., 2001). Childhood trauma was linked to approximately two-thirds (64%) of suicide attempts among adults and 80% of suicide attempts during childhood and adolescence.

1.3. Accumulation toxicity

According to CTM, the toxicity of trauma refers to the relative or specific capacity for trauma to produce symptoms of distress. Accumulation toxicity is a domain of toxicity that concerns the adverse effects of experiencing multiple types of traumatic childhood experiences—also known as cumulative trauma. CTM predicts that as traumatic experiences accumulate, risk for suicidal distress increases, and multiple trauma types may be more toxic than an individual trauma. The overwhelming majority of JIC experience multiple traumas (Baglivio et al., 2014), and evidence suggests that elevated trauma exposures may predict elevated suicidal risk in JIC. In the general population, Felitti et al. (1998) found that 20% of individuals with four or more traumatic events attempted suicide. Further, there was a 1200% increase in attempted suicides when comparing those with an ACEs score of zero and those with a score of four. As trauma accumulated, attempted suicide increased by 30–51 times (Felitti et al., 1998). Dube et al. (2001) found that adults with a trauma score of seven or more were 31 times more likely to attempt suicide than individuals with a trauma score of zero, and adolescents with a trauma score of seven or more were 51 times more likely than adolescents with a trauma score of zero (Dube et al., 2001). Among JIC, Bhatta et al. (2014) found that JIC who experienced four traumatic events were 7.8 times more likely to report suicide attempts than those who experienced none.

1.4.   The current research

The research on trauma among juvenile offenders is limited by small sample sizes, cross sectional designs, and homogenous populations (Stokes et al., 2015). Previous studies of Florida JIC use cross-sectional designs and none of them examined suicidal distress (Baglivio, Wolff, Piquero, & Epps, 2015; Fox, Perez, Cass, Baglivio, & Epps, 2015). Among the limited studies that examined trauma and suicidality among youth in the criminal justice system (Esposito & Clum, 2002), very few have investigated the effect of accumulating traumatic experiences on suicidal distress. Florida has the third largest juvenile justice population in the nation (Juvenile Justice Geography, Policy, Practice, and Statistics, 2017); and FLDJJ collects data on trauma exposures and several adolescent health and behavioral outcomes. Drawing on data from FLDJJ, the current study represents a longitudinal analysis of the effect of individual and cumulative childhood trauma on suicidal distress. CTM hypothesizes that JIC who report individual trauma will be associated with a higher risk of suicidal distress and attempts than those who do not experience each respective trauma; and JIC who experience multiple types of trauma will be associated with higher risk of suicidal distress and attempts than JIC who experience a single type of trauma.

2.   Methods

Youth typically enter the Florida Department of Juvenile Justice (FLDJJ) system through receiving an official sanction, or arrest. During the intake process for each arrest, trained FLDJJ data collectors administer the Positive Achievement Change Tool (PACT) assessment via in-depth interviews and code the data using the FLDJJ coding software. FLDJJ typically require youth to complete a follow-up PACT assessment–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 (a) received one or more official referrals for delinquency (equivalent to an adult arrest) before the age of 16; (b) completed the (PACT) Full Assessment once in both 2007 and 2008; and (c) reached the age of 18 by year 2016. A cohort of 2687 12–16 year-old juveniles met the selection criteria. There was 12% attrition at the follow-up year, resulting in a total of 2367 juveniles. All data were self-reported by youth. All procedures were reviewed and approved by the University of Florida and FLDJJ Institutional Review Boards. A cohort of 12–16 year-old JIC were followed for two years and 2, 367 remained after attrition.

The sample comprised of roughly 371 females (16%) and 1996 males (84%). Nearly 60% of subjects were non-Latino/a Black or African American, 29% were non-Latino/a White, 10% Latino/a, and < 1% was another race. The mean age at baseline was 14.

2.1.   Measures

2.1.1.   Risk for suicidal distress—The term suicidal distress includes suicidal ideation, suicidal attempts, and self-injury. Risk for suicidality was measured via a dichotomous variable derived from a categorical variable reporting thoughts, threats, plans and attempts (0 = none, 1 = serious thoughts about suicide, 2 = made plans to commit suicide, 3 = attempted suicide, and 4 = engages in self-mutilation) in 2008. It was coded

(0) no suicidal ideation, attempt or self-injury and (1) yes, suicidal ideation, attempt, and self-injury.

2.1.2. Trauma—The trauma index reflects lifetime trauma in 2007. It was created by FLDJJ based on the ACEs instrument (for details, see Baglivio et al., 2014). There are 11 types of trauma measured in this study. Six were adversity-related types of trauma: family violence, household SUD, household mental illness, parental separation or divorce, household member incarceration, and community violence. Five were victimization-related types of trauma: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. For each trauma type, response options were dichotomized (0 = no, this did not occur, 1 = yes, this experience occurred). There are many other types of childhood trauma but these were heavily studied in the research and were the most commonly reported by a group of about 300 Kaiser members in the original ACEs study (Felitti et al., 1998). Accumulation toxicity was measured via a ratio index. The 11 dichotomous measures of childhood trauma were summed to create an additive cumulative trauma index ranging from 0 (zero types of trauma) to 11 (eleven types of trauma). Each type of trauma counts as one. For instance, a juvenile who has been physically abused, has a mother who was also physically abused and has a brother who is incarcerated, has a trauma score of three.

2.1.3. Risk and resources—Race, gender, and age represent societal-level risks and resources. Race and ethnicity was measured via a four-item nominal variable (0 = White, 1 = Black, 2 = Latino/a, 3 = other); gender was a dichotomous measure (0 = male, 1 = female); and age was an interval variable ranging from 12 to 16.

2.2. Analytic strategy

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 risk for suicidal distress at follow-up (year 2008). The study estimated 11 multivariate models to test the individual effects of trauma while controlling for race, gender and age. The multivariate models adjusted for race (4-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), and age (5-item interval; 12–16). The BIC test will be used to select the best multivariate model, which will be interpreted in the Results and Discussion sections.

The study used the common stepwise method to estimate logistic regression: first, a bivariate model; second, a model controlling for race, gender and age; and third, a full model that also controlled for baseline ideation. This approach was needed to assess any changes in the relationship after considering the control variables. The third step is needed to observe changes once also considering baseline ideation. 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 "one" (too few cases to estimate comparisons for JIC with no trauma). Several pre/post estimations were used to assess the assumptions of logistic regression and ensure the integrity of the findings. Other control variables were considered in the analysis but are not discussed in the article. For example,

the study controlled for proxy measures of intelligence and core components of SES (GPA, family income and parental occupational status; these variables were nonsignificant and caused over-fitted logistic regression models). Thorough discussions of all known predictors of suicidal distress extend beyond the scope of the current study. All analyses were conducted using STATA 13 SE.

3. Findings

3.1. Descriptive statistics

Roughly 97% of the sample reported one or more traumatic events and the average trauma score was 4.13. The most common types of trauma were domestic violence (77%), parent separation/divorce (91%), household member incarceration (41%), and community violence (58%). For complete descriptive statistics, see Table 1. See Table 2 for bivariate analysis.

3.2. Individual trauma

Models 1 through 11 in Table 3 display the results from logistic regression models estimating the effects of 11 types of trauma on suicidal distress and attempts while adjusting for race, gender, and age. Except for emotional abuse and household SUD, all trauma items were significantly correlated with risk for suicidal distress: Physically abused youth were 1.77 times more likely (Pseudo $R^2 = 0.07$, X^2 (6) = 132, $p < 0.001$; AOR = 2.50, $p = 0.000$); sexually abused youth were 2.82 times more likely (Pseudo $R^2 = 0.07$, X^2 (6) = 126, $p < 0.001$; AOR = 2.82, $p = 0.000$); emotionally neglected youth were 1.36 times more likely (Pseudo $R^2 = 0.05$, X^2 (6) = 90, $p < 0.001$; AOR = 1.36, $p = 0.021$); physically neglected youth were 1.62 times more likely (Pseudo $R^2 = 0.05$, X^2 (6) = 93, $p < 0.001$; AOR = 1.62 $p = 0.003$); youth who witnessed domestic violence were 2.22 times more likely (Pseudo $R^2 = 0.06$, X^2 (6) = 105, $p < 0.001$; AOR = 2.22, $p = 0.000$); youth in households with mental illness were 1.98 times more likely (Pseudo $R^2 = 0.07$, X^2 (6) = 96, $p < 0.001$; AOR = 1.98, $p = 0.001$); youth whose parents were separated were 2.66 times more likely (Pseudo $R^2 = 0.06$, X^2 (6) = 99, $p < 0.001$; AOR = 2.66, $p = 0.001$); youth with a household member who was incarcerated were 1.33 times more likely (Pseudo $R^2 = 0.05$, X^2 (6) = 93, $p < 0.001$; AOR = 1.33, $p = 0.024$); youth who witnessed community violence were 1.40 times more likely (Pseudo $R^2 = 0.05$, X^2 (6) = 92, $p < 0.001$; AOR = 1.40, $p = 0.011$); and emotional abuse was not significant (Pseudo $R^2 = 0.05$, X^2 (6) = 88, $p < 0.001$; AOR = 1.24, $p = 0.096$).

3.3. Cumulative trauma

Model 13 in Table 4 displays the effects of the cumulative trauma index on suicidal distress while adjusting for race, gender, and age (Pseudo $R^2 = 0.08$, X^2 (6) = 137, $p < 0.001$; AOR = 1.25, $p = 0.000$), indicating that for a one unit increase in trauma at the baseline year, the likelihood of experiencing suicidal distress and attempts the follow-up year increase 25%. Youth with a trauma score of five were roughly 2.3 times as likely to experience suicidal distress than youth with a trauma score of one. This indicates that experiencing more types of trauma is more toxic than a single type of trauma.

4.   Discussion

4.1.   Individual trauma

The study found evidence that supports CTM (Johnson, 2017) and the empirical research linking trauma to ideation in JIC (Stokes et al., 2015). Roughly 18% of the sample reported suicidal distress and attempt compared to 14% found in some national samples (CDC, 2016). Different types of trauma had different effects. JIC who were sexually abused or whose parents were separated were nearly three times as likely to report ideation, while emotional abuse and household SUD had no effect.

4.2.   Cumulative trauma

The accumulation of trauma was also imperative for understanding ideation patterns in JIC, and assessing risk levels. For each additional type of trauma, the likelihood of experiencing suicidal distress increased roughly 25%. Reporting five or more traumatic experiences were two to five times as toxic as a single experience. These findings support the research proposing that experiencing five types of trauma is a critical threshold for serious effects (Baglivio et al., 2014).

4.3.   Limitations

This study was the first to longitudinally investigate the individual and cumulative effects of trauma on risk for suicidal distress in JIC. It advances the growing body of literature on suicidality among JIC while testing the empirical and theoretical utility of individual and cumulative models. However, the study had limitations. First, the exact time of initial trauma exposure is not specified in the data. This limits the ability to consider the effects of developmental sensitivities to trauma exposure. Also, baseline data may be influenced by prior trauma exposure, producing estimated effects. Second, there is no data on the frequency and severity of each indecent, which must be considered to fully understand how trauma affects children. Third, the binary measure of ideation risk aggregates aspects of suicidality that are best conceptualized as distinct phenomena. While collapsing these responses are a common approach for managing the low response rates of these behaviors, it makes interpretation more complicated. Likewise, the ideation risk measure does not consider severity—such as mild versus severe suicidality. Comprehensive trauma screening instruments that correct these shortcomings can advance the current science and improve the effectiveness of interventions.

4.4.   Future research and policies

This research and growing evidence indicates that suicidal distress in JIC may be, in-part, due to a painful upbringing. Detection and intervention initiatives can leverage these findings to define specific indicators of elevated concern—sexual abuse, parent separation, and five or more traumatic events—and implement targeted treatments that align with risk indicators, such as sexual abuse counseling, life skills development, and/or treatment for toxic stress. Future research must examine the ways in which JIC are re-traumatized in the justice system and the long-term implications of being doubly stigmatized as disturbed and criminal. Further, studies should consider how certain racial or ethnic minorities are subject

to conditions that may exacerbate the impact of childhood trauma on suicidal distress, particularly among those in the criminal justice system.

Acknowledgement

Biography

Micah E. Johnson is a NIDA postdoctoral fellow in the Department of Epidemiology in the College of Medicine and Public Health and Health Professionals at the University of Florida. His research surrounds childhood trauma and adolescent health.

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Table 1

Descriptive statistics for the sample.

Variables	Items/range	Frequency	Percent	Mean (SD)
Suicidal distress	Yes	309	13	
Trauma				
Emotional abuse	Yes	855	36	
Physical abuse	Yes	618	26	
Sexual abuse	Yes	309	13	
Emotional neglect	Yes	689	29	
Physical neglect	Yes	309	13	
Domestic violence	Yes	1830	77	
Household SUD	Yes	523	22	
Household mental illness	Yes	166	7	
Parent separation	Yes	2162	91	
Household incarceration	Yes	974	41	
Community violence	Yes	1378	58	
Cumulative trauma index in 2007	0–11			4.13 (2.05)
Race/ethnicity	White	689	29	
	Black	1449	61	
	Latino/a	238	10	
Gender	Female	380	16	
Age	12–16			13.92 (0.93)

N = 2376. SUD = substance use disorder.

Table 2

Bivariate analysis of individual trauma items and suicidal distress.

Individual trauma	Item	Suicidal distress (%)		Chi square
		No	**Yes**	
Emotional abuse	No	89	11	(1) = 4.88 *
	Yes	85	15	
Physical abuse	No	91	9	(1) = 86.47 ***
	Yes	77	23	
Sexual abuse	No	90	10	(1) = 106.20 ***
	Yes	69	31	
Emotional neglect	No	89	11	(1) = 8.73 **
	Yes	84	16	
Physical neglect	No	88	12	(1) = 15.45 ***
	Yes	80	20	
Domestic violence	No	93	7	(1) = 22.75 ***
	Yes	86	14	
Household SUD	No	88	12	(1) = 3.79
	Yes	85	15	
Household mental illness	No	88	12	(1) = 22.88 ***
	Yes	76	24	
Parent separation	No	94	6	(1) = 10.25 **
	Yes	87	13	
Household incarceration	No	89	11	(1) = 5.99 *
	Yes	85	15	
Community violence	No	89	11	(1) = 4.82 *
	Yes	86	14	

N = 2367. Data displayed as row percent. SUD = substance us disorder.

*
$p < 0.05$.

**
$p < 0.01$.

***
$p < 0.001$.

Table 3

Multivariate logistic regression model using individual trauma items to predict suicidal distress.

Model	Individual trauma	AOR	95% CI
1	Emotional abuse	1.24	0.95/1.58
2	Physical abuse	2.50[***]	1.91/3.20
3	Sexual abuse	2.82[***]	2.06/3.81
4	Emotional neglect	1.36[*]	1.04/1.75
5	Physical neglect	1.62[**]	1.16/2.19
6	Domestic violence	2.22[***]	1.54/3.24
7	Household SUD	1.13	0.84/1.50
8	Household mental illness	1.98[**]	1.33/2.90
9	Parent separation/divorce	2.66[**]	1.40/4.34
10	Household incarceration	1.33[*]	1.02/1.68
11	Community violence	1.40[*]	1.09/1.83

N = 2367. AOR = Adjusted Odds ratio; SE = standard error. Model 1–11 adjusts for race, gender and age. SUD = substance us disorder.

[*]
$p < 0.05$.

[**]
$p < 0.01$.

[***]
$p < 0.001$.

Table 4

Logistic regression model using cumulative trauma to predict suicidal distress.

	M12: Bivariate		M13: Control		M14: Full	
	OR	95% CI	AOR	95% CI	AOR	95% CI
Cumulative trauma						
Trauma index	1.32 ***	1.23/1.39	1.25 ***	1.17/1.33	1.15 ***	1.06/1.23
Demographics						
Race (ref = White)						
Black			0.52 ***	0.11	0.61 **	0.13
Latino/a			0.76	0.19	0.82	0.22
Other			0.72		2.34	
Female			2.36 ***	0.11	1.51 *	0.11
Age			1.02	0.04	0.93	0.04
Baseline control						
Suicidal distress 07					21.96 ***	1.19
Chi-square	(1) 81 ***		(6) 137 ***		(7) 565 ***	

N = 2367. AOR = adjusted odds ratios, SE = standard errors. Model 13 is presented in text.

*
p < 0.05.

**
p < 0.01.

***
p < 0.001.