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Trauma Exposure, Psychiatric Disorders, and Resiliency in Juvenile-Justice-Involved Youth

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Recent studies suggest that juvenile-justice-involved youth have high levels of trauma exposure, and that trauma correlates with psychiatric disorders. We assessed the relationships between trauma, posttraumatic stress disorder (PTSD), depression, substance abuse, and resiliency factors in a population of justice-involved youth in New Hampshire (NH) and Ohio. We screened 350 youth at 5 NH family courts, the NH juvenile detention center, NH residential treatment facilities, and at one Ohio county juvenile court. The Web-based screen measured trauma, PTSD, depression, substance abuse, and resiliency factors. Ninety-four percent reported at least 1 trauma; the mean was 5.4. Screening showed 45.7% of youth positive for PTSD, 49.4% for depression, 61.2% for substance abuse, and 26.3% positive for all 3 disorders. Trauma exposure was significantly correlated with PTSD ($p < .001$), depression ($p < .001$), and substance abuse ($p = .009$). Juveniles reporting 5.4 traumas had almost 8 times the probability of PTSD compared with those reporting 1 trauma, 7 times the likelihood of depression, and over 6 times the likelihood of substance abuse. Total resiliency score was not a moderator, but one subscale (Involvement) significantly moderated depression ($p = .036$) and showed a trend to moderate PTSD ($p = .102$). Results support recent findings reporting high levels of trauma exposure and related psychiatric disorders in juvenile-justice-involved youth. Multiply traumatized youth appear at risk for PTSD, depression, and substance use disorder. The apparent moderating effects of one resiliency subscale on depression and PTSD should be further explored.

Keywords: trauma, juvenile-justice-involved youth, PTSD, resiliency

Multiple studies have found that youth in the juvenile justice system report elevated rates of trauma exposure and posttraumatic symptoms. Precise comparisons of justice-system-involved youth with the general population of youth are difficult because of limitations in the current literature. For example, some population studies include stressful life events that do not meet the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV*; American Psychiatric Association, 2000) criteria for traumatic events: generally, events that threaten injury, death, or

the physical integrity of self or others. A number of studies look at only a particular class of traumas, such as disaster-related events or interpersonal victimization; some focus on at-risk populations of youth, such as refugees or inner-city youth; and others rely on retrospective reports from adults about trauma exposure earlier in life. Although self-reported rates of trauma exposure among adolescents range from 16% (Cuffe et al., 1998) to more than 80% (Elklit, 2002), the available large general-population studies assessing all forms of trauma exposure among youth report rates

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varying between 25% to about 67% (Boney-McCoy & Finkelhor, 1995; Costello, Erkanli, Fairbank, & Angold, 2002; Copeland, Keeler, Angold, & Costello, 2007; Giaconia et al., 1995). In these community-based studies, a large majority of youth report either no trauma exposure or exposure to a single trauma in their lifetime (Copeland et al., 2007; Costello et al., 2002). Rates of posttraumatic stress disorder (PTSD) for children and youth, in the most representative studies to date, have varied from .5% to about 7% (Copeland et al., 2007; Costello et al., 2002; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Kilpatrick et al., 2003). An additional point of ambiguity is that many high-risk youth, such as those who are delinquent or truant, are underrepresented in longitudinal studies (Teplin, Welty, Abram, Dulcan, & Washburn, 2012).

In contrast, numerous clinical and epidemiological studies have indicated that at least 75% of delinquent youth have experienced traumatic victimization (Ko et al., 2008). The most rigorous epidemiologic study of 898 juvenile detainees in Cook County, Illinois, reported 93% being exposed to at least one trauma, with the mean number of traumas equaling 14.6. Over 11% met criteria for PTSD in the past year (Abram et al., 2004). High rates of violence exposure are associated with PTSD and related mental health problems (Kilpatrick et al., 2003).

Estimates of PTSD prevalence in the juvenile justice system vary widely (between 3% and 50%), depending on assessment instrument used, type of informant report (child vs. adult), and time frame assessed (Wasserman, Ko, & McReynolds, 2004; Wolpaw & Ford, 2004). However, these rates are up to 8 times as high as other community samples of similar-age youth (Saigh, Yasik, Sack, & Koplewicz, 1999). Ko et al. (2008) reported that 11% to 50% of justice-involved youth meets criteria for PTSD. Steiner, Garcia, and Matthews (1997) assessed 85 juveniles with violent offenses and found 32% met full PTSD criteria, 20% met partial criteria, and half described witnessing interpersonal violence as the traumatizing event. Youth who were more severely maltreated have higher levels of depression, PTSD, initial delinquency, and more stable delinquency over time (Ford, Chapman, Mack, & Pearson, 2006). Females in the juvenile justice system also have particularly high rates of trauma and PTSD symptoms. Cauffman, Feldman, Waterman, and Steiner (1998) surveyed 96 incarcerated female juvenile offenders and found 76% had experienced trauma, 65% had suffered a lifetime incident of PTSD, and 49% met criteria for current PTSD. Dixon, Howie, Starling, and Franz (2005) found that 37% of incarcerated female offenders met criteria for PTSD, with childhood sexual abuse being the index trauma in 70% of these cases.

Children and adolescents who suffer from PTSD frequently present with other psychiatric disorders, particularly depressive, substance abuse, and externalizing disorders (Donnelly & Amaya-Jackson, 2002; Kilpatrick et al., 2003). Juvenile justice associated youth, in addition to PTSD, also display other psychiatric problems related to trauma exposure, with 57% of females and 46% of males meeting criteria for two or more psychiatric problems (Abram, Teplin, McClelland, & Dulcan, 2003). Carrion and Steiner (2000) studied 64 adolescents in a California detention center and found that 97% had experienced a traumatic event and 28% had a dissociative disorder. A study of 100 incarcerated youth (37% with PTSD) showed that all had comorbid substance abuse disorders, 76% had depression, 19% had psychosis, 16% had

ADHD, 38% had other anxiety disorders, and 68% had attempted suicide (Dixon et al., 2005). The development of PTSD appears to play a key role in the relationship between victimization, adolescent psychiatric problems, substance use disorder, and delinquent behavior.

Resiliency is commonly understood as the ability to sustain healthy development in the face of significant adversity. It is a complex concept, often characterized as multifactorial, variable, and changeable over time, and primarily related to the interplay between risk and protective factors (Garmezy, Masten, & Tellegen, 1984; Masten et al., 1988; Rutter, 1985; Werner & Smith, 1992). Risk factors can include vulnerabilities in multiple domains, such as developmental deficits, and environmental and familial stressors. In contrast, psychosocial resilience is thought to result from a cumulative effect of a variety of protective factors, including positive aspects of early family history, inherent personality characteristics, social support relationships, certain school-related factors, involvement in structured activities, and particular perceptions and outlooks. The possession of some or most of these protective factors has been shown in longitudinal studies to moderate the long-term psychosocial outcomes of various high-risk populations (Anthony, 1987; Loeber, Pardini, Stouthamer-Loeber, & Raine, 2007). Most of the known protective factors are thought to be related to some underlying neuroendocrine process that would be expected to temper the damaging neurophysiological effects of excessive stress, by moderating cortisol, decreasing sympathetic arousal, or enhancing prefrontocortical control over a stressed limbic system (Vance, 2001; Charney, 2004). For these reasons, it could be expected that the possession of certain protective factors might moderate the deleterious neurobiological effects of extreme stress and trauma, and thereby prevent the progression to serious psychiatric illness.

For example, various recent studies have identified family/parental closeness and support, easy temperament, school connectedness, and overall resilience as significant moderators against the development of PTSD in children following a variety of negative life events (Brookmeyer, Fanti, & Henrich, 2006; Fincham, Altes, Stein, & Seedat, 2009; Ge, Natsuaki, Neiderhiser, & Reiss, 2009; Kennedy, Bybee, Sullivan, & Greeson, 2009; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; Ozer & Weinstein, 2004). Other longitudinal studies have found childhood environmental and parental factors that protect against the development of delinquency, and other studies have shown that good marriages, military service, and transformation of identity can promote resistance against criminality (DiRago & Vaillant, 2007; Laub & Sampson, 2001). Higher levels of certain protective factors have been associated with improved behavioral and educational outcomes in longitudinal studies of emotionally disordered youths with aggression (Willie M. Program, 1996; Vance, Bowen, Fernandez, & Thompson, 2002; Vance, Fernandez, & Biber, 1998). In this project, we surveyed protective factors in a population of juvenile-justice-involved youth to see if they might serve as a buffer against the impact of the multiple traumas and the development of psychiatric disorder.

Beginning in 2010, New Hampshire (NH) initiated a quality improvement project to increase awareness of the impact of trauma exposure on youth across state systems of care. Part of this project involved the creation and use of a Web-based screen for assessing trauma, PTSD, depression, substance abuse, and resiliency factors

in a population of youth involved with the NH juvenile justice system. In this article, we report on the use of this standardized Web-based screening procedure in a multisite study of justice-involved youth in NH and Ohio.

Method

Settings and Participants

We surveyed 350 juveniles: 269 in NH and 81 in Ohio. The participants included incarcerated youth, youth housed in residential treatment facilities, and youth appearing before six family courts—five courts in NH and one in Stark County Ohio. In NH, the Dartmouth College Committee for the Protection of Human Subjects determined that, because it was a quality improvement project, human subjects research protocols did not apply and individual informed consent was not required for reporting pooled Web-based data. In Ohio, the Web-based screening procedure was adopted in 2010 to take the place of paper-and-pencil measures, used in an ongoing court initiative initiated in 2001 to screen youth for trauma and PTSD. The Stark County Ohio Juvenile Court, under the direction of Judge Michael Howard, had been committed to the idea that a trauma-informed family court system can enhance recognition of posttraumatic symptoms, facilitate referral, and increase use of appropriate trauma treatment (Howard & Tener, 2008; Kletzka & Siegfried, 2008). The NH Web-based method offered the Ohio court an efficient way to collect data and to add screens for other factors associated with trauma and PTSD.

During the period of this study, approximately 2,500 youth were involved in the NH Division of Juvenile Justice Services. Eighty-six percent were between the ages of 14 and 17 years; 85% were Caucasian, and approximately 15% were African American or Latino. Seventy percent were male and 30% were female. The Sununu Youth Services Center (SYSC) is the only secure facility for court-committed youth in NH. On average, 19% of the residents are girls, and 19% are minority, non-Caucasian youth. Most youth were committed for felony assaults, theft or robbery, drug charges, or serious violations of probation, and failures at lesser restrictive residential treatment facilities.

NH Circuit Court's Family Division includes 26 court locations across the state under the direction of the Circuit Court Administrative Judge. The Family Division hears cases including divorce/parenting action, domestic violence petitions, guardianship of minors, termination of parental rights, abuse/neglect cases, children in need of services, juvenile delinquency, and adoptions. There are currently 10 full-time judges, 9 full-time marital masters, and 10 part-time judges who work regularly in the family division. The NH youth surveyed in the family courts for this project were children in need of services and children with juvenile delinquency. They did not present to the court because of abuse/neglect per se. They ranged in age from 11 to 17 years; approximately 75% were boys and 25% were girls. Charges ranged broadly from misdemeanor criminal mischief, to simple assault and criminal trespass, to felonies, including serious injury to others and destruction of property.

Stark County, Ohio, with a population of 375,000, is the seventh largest of Ohio's 88 counties. The juvenile court averages 2,200 delinquencies and 350 status offenses per year. Minority children, primarily African Americans, account for approximately 27% of

those offenses. Felony adjudications average 200 per year. Approximately 970 children account for 1,400 admissions to detention per year. Local residential treatment averages 80 admissions per year, with an average daily count of 35 children. During the period of this study, Stark County had 20 children with serious felonies committed to the Ohio Department of Youth Services. Forty percent of the youth surveyed in Ohio for this project were girls. Fourteen percent of the total youth were charged with felonies, 60% with misdemeanors, and 25% had status offenses.

Procedure

The Stress and Resources Survey, utilized in the current project, is a Web-based self-report inventory of trauma, posttraumatic stress symptoms, depression, substance abuse, and resiliency factors. A Web-based procedure was chosen for several reasons, including the minimal training requirements for the on-site person administering the survey, assured uniformity of administration across sites, the availability of instant scoring and generation of results in a standard format, and the maintenance of a cross-site database containing all study results in real time. Finally, previous research reported higher rates of disclosure among youth regarding stigmatized and illegal behavior in a computerized format as opposed to face-to-face interviewing (Jennings, Lucenko, Malow, & Dévieux, 2002; Turner et al., 1998). In the five NH family courts, youth were screened either at arraignment, adjudicatory, dispositional, violation or review hearings. Screening was conducted primarily by juvenile probation and parole officers, and additionally by a master's-level social work intern assigned to the courts. At the NH detention center (SYSC) for committed youth, an admitting clinician conducted screening. Screening in Ohio was done primarily at arraignment by a trained juvenile probation officer. Juveniles entered data on a computer connected to the Internet. As the youth completed the measures, data were transmitted into a secure, encrypted database and, simultaneously, a printed report was available to the survey administrator, including scores and symptoms. To assure confidentiality, the juvenile was identified only by a number created for the project and entered by the survey administrator. No other identifying data were included. This technology has provided huge benefit and utility. For example, if a youth entered and completed treatment, the survey could be readministered as an outcome measure to assess symptom change.

Measures

The Web-based Stress and Resources Survey¹ consists of five trauma- and stress-related measures. The Upsetting Events Survey is a modified version of the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000). The TLEQ assesses exposure to traumatic life events. We shortened the measure to 17 questions and simplified the wording to a seventh-grade reading level. The modified measure includes only traumas that meet *DSM-IV* diagnostic Criterion A1: events that involve experiencing or witnessing death, injury, or a threat to physical integrity of self or others (American Psychiatric Association, 2000). Criterion A1 traumas

¹ The Stress and Resources Survey is available at https://live.datstat.com/PRC-Collector/Survey.ashx?Name=Stress_Resources_Sept10

include such events as natural disasters, serious motor vehicle accidents, the unexpected death of a loved one, being the victim of a mugging or robbery, assault resulting in bodily harm, childhood physical and sexual abuse, and witnessing other disturbing, terrifying, or distressing events. Question 6 asks, "Have you ever been hit or beaten up and badly hurt by a stranger or by someone you didn't know very well?" Question 12 asks, "Before your 16th birthday, did anyone touch or stroke your body in a sexual way when you did not want them to? Or make you touch or stroke their body when you didn't want to?" There are four possible response categories: "no," "yes," "more than one time," and "I don't know." Prior testing of the Upsetting Events Survey with adolescents using a Web-based format (3,000 entries) and as a paper-and-pencil self-report indicated that adolescents are comfortable disclosing trauma using the measure. The TLEQ has been extensively studied and has shown good test-retest reliability ($r > .80$), good convergent validity and high positive predictive power (Kubany et al., 2000; Norris & Hamblen, 2004).

The UCLA PTSD Reaction Index (Steinberg, Brymer, Decker, & Pynoos, 2004) is one of the most widely used instruments for the assessment of PTSD symptoms in traumatized children and adolescents. Although the instrument was not designed to make a formal PTSD diagnosis, it can provide preliminary diagnostic information. Part 3 (used in this study) assessed PTSD symptom frequency during the past month (rated from 0 = *none of the time* to 4 = *most of the time*). These items mapped directly onto *DSM-IV* PTSD criteria B (intrusion), C (avoidance/numbing), and D (arousal; American Psychiatric Association, 2000). Question 12 provides an example of arousal: "I feel jumpy or startle easily, like when I hear a loud noise or when something surprises me." Twenty items assessed PTSD symptoms; two additional items assessed associated features: fear of recurrence and trauma-related guilt. A cutoff score of 38 (used in this project) has been found to have a sensitivity of 0.93 and specificity of 0.87 in detecting PTSD (Rodriguez, Steinberg, Saltzman, & Pynoos, 2001a, 2001b). Test-retest reliability has ranged from good to excellent (Roussos et al., 2005).

The Mood and Feelings Questionnaire (short version; SMFQ; Messer et al., 1995) is a 13-item brief screening instrument designed to detect clinical depression in children and adolescents. The SMFQ consists of a series of descriptive phrases regarding how the youth has been feeling or acting in the past 2 weeks. For example, Question 1 states, "I feel miserable or unhappy." There are three possible response categories: "true (most of the time)," "sometimes (some of the time)," or not true. The SMFQ has been used to screen juvenile justice populations for depression, with good sensitivity and specificity (Kuo, Vander Stoep, & Stewart, 2005).

The CRAFFT Substance Abuse Screening Test (Knight, Sherritt, Shrier, Harris, & Chang, 2002) is a behavioral health screening tool for youth under age 21 and is recommended by the American Academy of Pediatrics' Committee on Substance Abuse for use with adolescents. It consists of a series of six yes/no questions developed to screen adolescents for high-risk alcohol and other drug use disorders simultaneously. For example, Question 3 asks, "Do you ever use alcohol or drugs while you are by yourself, alone?" The CRAFFT is considered an effective screening tool intended to assess whether further evaluation is warranted. The CRAFFT has demonstrated good internal reliability, and adequate

sensitivity (.80) and specificity (.86) for identifying adolescents with substance-related problems. (Knight et al., 2002).

The Youth Resiliency Checklist includes 43 questions divided into six subscales to assess protective factors: Involvement ("I have done volunteer work in the past"), Social Skills ("I get along well with other kids"), Family Strengths ("Growing up, I've had a mostly warm and positive relationship with my mother"), School Strengths ("I'm a good student, in doing schoolwork and homework"), Social Supports ("I have some close friends that support me and I like to spend time with"), and Positive Outlooks ("I'm usually able to put hard times behind me and move on with life"). There are five possible response categories: "not true at all," "rarely true," "sometimes true," "often true," "true nearly all the time." The checklist is a self-report version of a previously used, multi-informant inventory of well-documented risk and protective factors used in the Willie M. Program (1996; Vance et al., 1998, 2002). The Willie M. Assessment and Outcomes Instrument showed adequate interrater reliability, and factor analysis of the assessed protective factors guided the development of the subscales on the current Youth Resiliency Checklist.

Data Analysis

Based on previous findings, we hypothesized that we would find high rates of trauma exposure compared with community samples, high rates of PTSD, and high rates of comorbidity between PTSD, depression, and substance abuse. We also hypothesized that resiliency might be a moderator of the negative effects of trauma exposure. We examined distributions, frequencies, and correlations between the key variables (trauma exposure, PTSD, depression, substance abuse, and resiliency). We examined whether (a) trauma exposure predicted PTSD, depression, and substance abuse (using PTSD, depression, and substance abuse as continuous variables); and (b) resiliency was a moderator of the negative effects of trauma exposure (PTSD, depression, substance abuse). Data were analyzed using a procedure developed by Baron and Kenny (1986) to test for moderation when the primary predictor variable (number of traumas) and the moderator variable (total resiliency factors) are continuous. Finally, we computed unweighted odds ratios to indicate the strength of the associations between reported trauma exposure, PTSD, depression, and substance abuse. In all analyses, alpha was set to 0.05.

Results

Two hundred and sixty-nine youth were screened in NH; 81 were screened in Ohio. The juvenile justice associated youth in our sample reported high levels of trauma exposure, PTSD, depression, and substance abuse. Ninety-four percent of the youth in our sample of 350 (92.3% Ohio; 95.2% NH) reported at least one trauma ($M = 5.41$; $SD = 3.44$). Table 1 shows the descriptive statistics for the Ohio and NH groups, demonstrating similarity across samples for trauma exposure, PTSD, substance abuse, depression, resiliency, and involvement.

The rates of disorders were as follows: 45.7% screened positive for PTSD, 49.4% for depression, and 61.2% for substance abuse. Trauma exposure (total trauma) was significantly correlated with PTSD ($r = .510$; $p < .001$), depression ($r = .381$; $p < .001$), and substance abuse ($r = .215$; $p = .009$). Comorbidity was high, with

Table 1
Comparison of the Primary Variables, Ohio and New Hampshire

Site	Measure	<i>N</i>	Mean	<i>SD</i>	Minimum	Maximum
Ohio	Total traumas	81	4.67	2.89	0.00	11.00
	CRAFFT Score ^a	81	2.16	1.96	0.00	6.00
	UCLA Total ^b	81	25.31	15.65	0.00	66.00
	Depression	81	7.78	6.65	0.00	25.00
	Total Resiliency	81	108.20	24.61	27.00	152.00
New Hampshire	Involvement ^c	81	12.68	4.00	6.00	22.00
	Total traumas	269	5.63	3.56	0.00	17.00
	CRAFFT Score ^a	269	2.68	2.17	0.00	6.00
	UCLA Total ^b	269	25.03	16.03	0.00	76.00
	Depression	269	8.17	6.26	0.00	26.00
	Total Resiliency	269	108.48	24.86	18.00	165.00
	Involvement ^c	269	14.43	4.68	6.00	26.00

^a The CRAFFT Score is a measure of substance abuse. ^b The UCLA total is a continuous measure of posttraumatic stress disorder severity.

^c Involvement is a subscale of the Youth Resiliency Checklist.

80.3% of respondents having at least one disorder, 48.6% having two or more disorders, and 26.3% having three disorders. A regression analysis showed a strong relationship between the number of disorders (PTSD, depression, substance abuse) and the number of traumas, $F(1, 348) = 106.70, p < .001$, adjusted $R_2 = .232$. Youth with no reported disorders averaged 3.1 traumas, youth with one disorder averaged 4.4 traumas, youth with two disorders averaged 6.2 traumas, and youth reporting all three disorders averaged 7.6 traumas. Each disorder was significantly related to each other, but depression and PTSD were the most strongly correlated (Φ coefficient), $\Phi = .562, \chi^2(1df) = 109.141, p < .001$.

Next, we analyzed the data to see if either the total score on the Youth Resiliency Checklist or the Involvement subscale score moderated the effect of trauma on depression or PTSD. According to Baron and Kenney (1986), the best way to test for a moderator is to test the significance of the interaction term between the primary predictor (total number of traumas) and the moderator in a regression equation. To such end, we carried out a multiple regression using depression scores as the dependent variable, total traumas as the primary predictor, and the interaction of total traumas and total resiliency score. The interaction of total resiliency score and total traumas did not approach significance, indicating that total resiliency score was not a moderator of the symptoms associated with trauma exposure on depression. We carried out a similar analysis to see if the Involvement subscale score moderated the effect of trauma on depression symptoms. In this analysis, the interaction of total traumas and the Involvement score was significant ($\beta = -.633, p = .036$). The negative β

shows that higher involvement lessens the effect of trauma on depression. Involvement, then, appeared to ameliorate the effect of trauma on depression at least to a modest extent. We carried out similar analyses using PTSD scores as the dependent measure. In this case, the interaction of trauma and Involvement was not significant ($\beta = -1.15, p = .102$) but did show a nonsignificant trend in the direction of moderation.

Table 2 shows the odds ratios for the likelihood of screening positive for PTSD, depression, and substance abuse, given trauma exposure when treating the disorders as yes/no variables. Calculations were done for the total sample (Ohio and NH) and for each of the three disorders. As shown in Table 2, there were strong and significant associations between number of traumas reported and odds of screening positive for each disorder. Endorsement of each additional trauma elevated the likelihood of screening positive for PTSD (OR = 1.43), so those youth reporting the average number of traumas ($n = 5.4$) were 7.7 times more likely to have the disorder. Similar but less-strong relationships were found for depression (OR = 1.30) and substance abuse (OR = 1.16).

Discussion

Consistent with results from other studies examining juvenile-justice-involved youth, we found high levels of trauma exposure and PTSD, as well as comorbid depression and substance abuse. Multitraumatized youth appeared to be particularly vulnerable to psychiatric disorder. This study also provided more specific information on the strong relationship between total trauma exposure and the extent of psychiatric morbidity. Juveniles endorsing the

Table 2
Logistic Regression: Total Traumas Reported and Disorders (Dichotomous Measures)

Disorders	<i>N</i>	Wald	Significance	Odds ratio	95% confidence interval	
					Lower	Upper
Substance abuse	345	15.91	<.001	1.16	1.08	1.24
PTSD	348	63.47	<.001	1.43	1.31	1.56
Depression	348	44.19	<.001	1.30	1.20	1.41

Note. PTSD = posttraumatic stress disorder.

average number of traumas in this study ($n = 5.4$) had almost 8 times the probability of screening positive for PTSD compared with those reporting a single trauma, 7 times the likelihood of depression, and over 6 times the likelihood of substance abuse. As Teplin et al. (2012) observed, delinquent youth remain vulnerable to elevated psychiatric morbidity as they move into adulthood, particularly if appropriate treatments are not provided and protective factors are not enhanced.

Our findings have implications for confirming and extending the importance of trauma exposure in the psychological problems of justice-involved youth, and potential implications for developing interventions to improve mental health, substance abuse, and behavioral outcomes for delinquent youth. Increased awareness on the part of NH and Ohio judges and justice system personnel of the high rates of trauma exposure in delinquent youth has led to a commitment to assess for, as early as possible, associated mental health disorders. The use of a computer-assisted Web-based screening proved highly effective and has facilitated this process in the courts. Administration proved simple after a brief familiarization period, as youth were extremely comfortable using computers and disclosed problems at a very high rate, and computer-generated reports became a standard part of case review and triage processes in the courts.

As a consequence, procedures were developed for linking identified youth to mental health service providers with knowledge of the impact of trauma and expertise in evidence-based trauma treatments. Although the limitations of this study did not allow us to follow the progress of individual youth, the triage procedures created through this project have led to increased linkage of the justice and mental health systems, and to increased opportunities for treatment.

Although the literature clearly supports the idea that categories of protective factors included in our survey may mitigate adverse events such as trauma, one aspect of our project was to explore the role of protective factors that might be enhanced to reduce symptoms in this high-risk population. Although hypotheses about the moderating effects of resiliency overall were not confirmed, the trend toward moderation shown by one of the six subscales (Involvement) of the Youth Resiliency Checklist was intriguing. The Involvement subscale items are (a) "I work out, play sports, or exercise a few times each week"; (b) "I belong to an organized activity (club, team, group) that I go to at least once a week"; (c) "I have a regular part-time or full-time job"; (d) "I've had jobs in the past"; (e) "I have done volunteer work in the past"; and (f) "I go to church or youth group regularly." These items have obvious face validity in terms of participation in prosocial activities, and a factor analysis of the Youth Resiliency Checklist confirmed that these six questions all had their highest loading on the same factor (Involvement), and all six items cohere. No other question on the checklist loaded on that factor. Item 5 (volunteer work) had the highest loading weight, but all were similar, ranging from .425 to .619. Further research is needed to assess the potential protective impact of involvement for delinquent youth exposed to trauma. However, emerging evidence, as well as our study findings, suggests that this approach might have important implications. Spring, Dietz, and Grimm (2007) found that disadvantaged, violence-exposed youth are less likely to participate in volunteer activities than more advantaged youth, but that when given this pathway, they participate with the same degree of engagement, leading to

more adaptive outcomes. Bowen and Flora (2002) state that protective factors are more important to youth with high-risk exposure than to those with lower risk profiles. Our results supported the conclusion that engagement in prosocial, organized activities or employment may provide protection against the development of depression and PTSD in spite of a history of significant trauma. This finding is particularly compelling because participation in structured activities can be court ordered, and programs that provide such opportunities are relatively easy to develop.

Current evidence-based treatments for traumatic stress disorders are based on conventional psychotherapeutic approaches, including psychoeducation, emotional regulation training, cognitive-behavioral and narrative therapies, and psychiatric medications. These interventions focus on the repair or rehabilitation of damaged emotional, cognitive, or behavioral patterns in traumatized patients. However, these treatment options are not always readily accepted by youth in the juvenile justice system, due to emotional reactivity, oppositional tendencies, cognitive limitations, or reluctance to explore past traumas. Although many justice-involved youth spend only a brief time in detention, residential treatment, or diversion programs, it makes sense to educate families, schools, religious institutions, and other community organizations about the importance of promoting involvement. It may be that engagement and involvement in structured activities can serve to prevent the progression of trauma to mental illness, or even help the psychosocial reintegration of youth who have suffered the effects of multiple traumas.

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