

# Posttraumatic Stress Disorder and Trauma in Youth in Juvenile Detention

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**Objective:** To determine prevalence estimates of exposure to trauma and 12-month rates of posttraumatic stress disorder (PTSD) among juvenile detainees by demographic subgroups (sex, race/ethnicity, and age).

**Design:** Epidemiologic study of juvenile detainees. Master's level clinical research interviewers administered the PTSD module of the Diagnostic Interview Schedule for Children, version IV (DISC-IV), to randomly selected detainees.

**Setting:** A large, temporary detention center for juveniles in Cook County, Illinois (which includes Chicago and surrounding suburbs).

**Participants:** Randomly selected, stratified sample of 898 African American, non-Hispanic white, and Hispanic youth (532 males, 366 females, aged 10-18 years) arrested and newly detained.

**Main Outcome Measures:** Diagnostic Interview Schedule for Children, version IV.

**Results:** Most participants (92.5%) had experienced 1 or more traumas (mean, 14.6 incidents; median, 6 incidents). Significantly more males (93.2%) than females (84.0%) reported at least 1 traumatic experience; 11.2% of the sample met criteria for PTSD in the past year. More than half of the participants with PTSD reported witnessing violence as the precipitating trauma.

**Conclusion:** Trauma and PTSD seem to be more prevalent among juvenile detainees than in community samples. We recommend directions for research and discuss implications for mental health policy.

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**E**ACH YEAR, APPROXIMATELY 2.4 million youth are arrested, accounting for 17% of all arrests.<sup>1</sup> On a typical day, approximately 109 000 youth are detained.<sup>2</sup> The number of youth in the juvenile justice system with psychiatric disorders is a major public health problem. Two thirds of males and three quarters of females in juvenile detention have 1 or more psychiatric disorders.<sup>3,4</sup>

The related literature suggests that posttraumatic stress disorder (PTSD) is more common in youth in the juvenile justice system than in community samples.<sup>4-15</sup> Lifetime diagnoses of PTSD in community samples of youth range from 6.3%<sup>16</sup> to 7.8%<sup>10</sup>; current diagnoses are 3.5%.<sup>17</sup> Prevalence of PTSD among youth in the juvenile justice system varies considerably, depending on the type of sample, the measure used, and the time frame assessed (within the past year, within the past month, or at the time of the interview).<sup>4,13-15,18-20</sup> For example, rates among males are 2.3%

among American Indian detainees (past year)<sup>19</sup>; 4.8% among youth in secure placement (past month)<sup>4</sup>; 24.2% among felons in secure custody (at the time of the interview)<sup>14</sup>; and 32.3% among incarcerated youth (at the time of the interview).<sup>13</sup> Far fewer data are available on females in the juvenile justice system. Duclos et al<sup>19</sup> found 0 cases of PTSD within the past year among 64 female American Indian juvenile detainees. In contrast, Cauffman et al<sup>15</sup> found 47 (48.9%) of 96 incarcerated females met criteria for PTSD in the past 3 months.

Unfortunately, most of these studies are too small,<sup>13-15,19</sup> too unique,<sup>19</sup> or lack sufficiently standardized diagnostic assessments<sup>14</sup> to generate reliable estimates. To date, no large-scale study has examined the prevalence of trauma and PTSD across demographic subgroups that make up increasing proportions of the juvenile justice population, that is, African Americans, Hispanics, females, and younger children. This omission is critical. Posttraumatic stress disorder is associated with

severe functional impairment<sup>16</sup> and other psychiatric problems.<sup>8,10,21</sup> Left untreated, PTSD may become chronic,<sup>8,10,22,23</sup> with enormous personal and societal costs.<sup>24</sup>

In this article we present the prevalence of PTSD and trauma among juvenile detainees. This study has 2 advantages: (1) a stratified, random sample, large enough to compare sex, racial/ethnic, and age groups; and (2) a standardized measure of PTSD, the Diagnostic Interview Schedule for Children, version IV (DISC-IV).

## METHODS

### PARTICIPANTS AND SAMPLING PROCEDURES

Participants were part of the Northwestern Juvenile Project, a longitudinal study of 1829 youth (aged 10-18 years) arrested and detained between November 20, 1995, and June 14, 1998, at the Cook County (Illinois) Juvenile Temporary Detention Center (CCJTDC) in Chicago. The random sample was stratified by sex, race/ethnicity (African American, non-Hispanic white, Hispanic), age (10-13 years or  $\geq 14$  years), and legal status (processed as a juvenile or as an adult) to obtain enough participants to examine key subgroups (eg, females, Hispanics, and younger children).

The CCJTDC received approximately 8500 admissions each year during the time data were collected (John Howard Association, unpublished data, 1992). The CCJTDC is used solely for pretrial detention and for offenders sentenced for fewer than 30 days. All detainees younger than 17 years are held at the CCJTDC, including youth processed as adults (automatic transfers to adult court). Youth up to the age of 21 years may be detained in the CCJTDC if they are being prosecuted for an arrest that occurred when they were younger than 17 years.

Like juvenile detainees nationwide,<sup>25</sup> approximately 90% of the CCJTDC detainees are male; most are racial/ethnic minorities. The population of the CCJTDC is 77.9% African American, 5.6% non-Hispanic white, 16.0% Hispanic, and 0.5% other racial/ethnic groups. The age and offense distributions of the CCJTDC detainees are also similar to detained juveniles nationwide.<sup>25</sup>

We chose the detention center in Cook County (which includes Chicago and surrounding suburbs) for 3 reasons. First, nationwide, most juvenile detainees live in and are detained in urban areas.<sup>26</sup> Second, Cook County is ethnically diverse and has the third largest Hispanic population in the United States.<sup>27</sup> Studying Hispanics is important because they are the largest minority group in the United States<sup>28</sup> and they are overrepresented in the justice systems.<sup>25</sup> Third, the detention center's size (daily census of approximately 650 youth and intake of 20 youth per day) ensured that enough participants would be available.

No single site can represent the entire country because jurisdictions may have different options for diversion.<sup>29,30</sup> Nevertheless, Illinois' criteria for detaining juveniles are similar to other states.<sup>29</sup> All states allow pretrial detention if the juvenile needs protection, is likely to flee, or is considered a danger to the community.<sup>29,30</sup>

Detainees were eligible to be sampled, regardless of their psychiatric morbidity, state of drug or alcohol intoxication, or fitness to stand trial. Within each stratum, we used a random numbers table to select names from the CCJTDC's intake log. Throughout the study, we tracked how many participants were still needed to fill each cell. Project staff sampled the rarest categories first. The final sampling fractions ranged from 0.018 to 0.689. (Additional information on the sample is available from us.)

Studying detained youth requires special procedures because they are minors, because they are detained, and because

many do not have a parent or guardian who can provide appropriate consent.<sup>31</sup> Project staff approached participants on their units, explained the project, and assured them that anything they told us (except acute suicidal or homicidal risk) would be confidential. Participants signed either an assent form (if they were  $< 18$  years) or a consent form (if they were  $\geq 18$  years). Federal regulations allow parental consent to be waived if the research involves minimal risk (45 CFR §46.116[c], 45 CFR §46.116[d], and 45 CFR §46.408[c]).<sup>31,32</sup> The Northwestern University Institutional Review Board, the Centers for Disease Control and Prevention Institutional Review Board, and the US Office of Protection from Research Risks waived parental consent. However, as ethicists recommend, we nevertheless tried to contact parents to provide them an opportunity to decline participation and to offer them additional information (45 CFR §46.116[d][4]).<sup>33,34</sup> Despite repeated attempts to contact the parent or guardian, for 43.8% of the participants, none could be found. In lieu of parental consent, youth assent was overseen by an independent participant advocate representing the interests of the participants. Federal regulations allow for a participant advocate if parental consent is not feasible (45 CFR §46.116[d]).<sup>33</sup>

We began collecting data on PTSD 13 months after the larger study began. Of the 1148 names selected, 34 detainees (3.0%) refused to participate in the study. There were no significant differences in refusal rates by sex, race/ethnicity, or age. Two youth were released before finishing the interview; 189 youth left the CCJTDC while we were locating their caretakers for consent or before we could schedule an interview; 25 youth were released after consent was obtained but before the interview commenced. The final sample size was 898 and comprised 532 males (59.2%) and 366 females (40.8%); 490 African Americans (54.6%), 154 non-Hispanic whites (17.1%), 252 Hispanic (28.1%), and 2 others (0.2%). Participants ranged in age from 10 to 18 years; the mean was 14.8 years; the median was 15 years.

Participants were interviewed in a private area, almost always within 2 days of intake. Most interviews lasted 2 to 3 hours, depending on how many symptoms were reported. We used both male and female interviewers. Female participants were always interviewed by female interviewers. Interviewers were trained for at least 1 month; most had a master's degree in psychology or an associated field and experience interviewing high-risk youth. One third of our interviewers were fluent in Spanish. We maintained consistency throughout the study by monitoring scripted interviews with mock participants. Additional information on our methods is published elsewhere.<sup>3,35,36</sup>

### MEASURING PTSD

We used the DISC-IV, based on *DSM-IV* criteria, to assess PTSD. (Other disorders, presented elsewhere,<sup>3,35</sup> were assessed using the DISC, version 2.3.) Our data are based on the youth's self-report because it was not feasible to interview caretakers. Like other measures of PTSD in children,<sup>37</sup> there are still insufficient data on the DISC-IV's reliability and validity, in part, because the PTSD diagnosis is relatively new.<sup>37</sup> Studies documenting the module's reliability and validity are in progress (P. Fisher, PhD, e-mail, July 11, 2003). Despite the lack of psychometric data on the PTSD module of the DISC-IV, we chose it for several reasons. The DISC is the most widely used diagnostic instrument for child and adolescent research.<sup>38</sup> It is especially useful for large-scale epidemiologic studies because it is relatively brief; it can be administered by nonclinicians; it is designed to assess youth who have and have not been traumatized; and it generates *DSM-IV* disorders using computerized scoring.

The PTSD module assesses whether youth have ever experienced any of the 8 traumatic experiences listed in **Table 1**. Participants then identify the event that was "the most diffi-

**Table 1. Prevalence of Trauma by Sex and Race/Ethnicity\***

Variable	Male Detainees													
	Total (N = 898)	Total† (n = 532)	African American (n = 247)	Non- Hispanic White (n = 107)	Hispanic (n = 177)	Analyses Comparing Race/Ethnicity			Protected Tests‡	Analyses Comparing Sex				
						F	df	P Value		F	df	P Value		
Ever traumatized														
Ever experienced any trauma listed	92.5	93.2	94.0	89.8	90.8	0.62	2,522	.92				6.42	1,880	.02
Mean No. of traumas	14.6	14.6	15.2	14.7	11.9	0.56	2,885	.57				0.02	1,886	.88
Type of trauma¶														
Ever been in a situation where you thought you/someone close to you was going to be hurt very badly or die? (n = 439)	53.2	53.5	54.2	52.7	50.8	0.08	2,552	.93				1.02	1,881	.31
Ever been attacked physically, or beaten badly? (n = 332)	35.3	35.7	32.3	57.8	43.8	6.11	2,521	.02	Non-Hispanic white > African American			1.23	1,880	.27
Ever been threatened with a weapon? (n = 490)	58.4	59.3	59.2	75.0	54.6	4.11	2,521	.12				5.82	1,880	.10
Ever forced to do something sexual that you did not want to do? (n = 130)	4.4	2.4	2.2	5.3	2.9	0.87	2,522	.42				36.83	1,881	<.001
Ever been in a bad accident, like a car crash? (n = 234)	33.1	34.0	35.5	38.2	26.1	1.15	2,522	.32				7.41	1,881	.046
Ever in a fire, flood, tornado, earthquake, or other natural disaster where you thought you were going to die or be seriously injured? (n = 93)	10.5	10.5	11.4	8.0	7.1	0.65	2,521	.52				0.01	1,880	.99
Other than on television/movies, ever seen/heard someone get hurt very badly or be killed? (n = 595)	74.1	74.9	76.0	60.6	74.2	3.06	2,521	.29				5.70	1,880	.09
Ever very upset by seeing a dead body/pictures of a dead body of someone you knew well? (n = 224)	23.5	23.1	24.5	16.8	18.9	0.93	2,522	.40				1.20	1,880	.27

(continued)

cult for you in your entire life.” The DISC-IV assesses PTSD diagnosis within the past year for this “worst” trauma.

Because we stratified our sample by sex, race/ethnicity, age, and legal status, we weighted all prevalence estimates to reflect the population of the CCJTD. All reported standard errors and inferential tests have been corrected for design characteristics with Taylor series linearization<sup>40,41</sup> using the survey estimation procedures of *Stata Statistical Software: Release 8.0*.<sup>39</sup> Tests of prevalence use logit models, and tests of means of counts use Poisson regression models.<sup>39</sup> We used 2-tailed tests throughout. To reduce the probability of type I errors, we used layered Bonferroni corrections.<sup>42</sup> Our level of significance for each group of tests was  $P < .05$ .

## RESULTS

### TRAUMA

#### Overall Rates

Table 1 shows that 92.5% of the sample had experienced at least 1 trauma; 84.0% had experienced more

than 1 trauma (not shown); the mean number of traumatic incidents equals 14.6; the median equals 6 incidents (not shown). Significantly more males (93.2%) than females (84.0%) reported a traumatic experience. There were no significant differences in overall prevalence of trauma across race/ethnicity for males and females. Among both male and female detainees, significantly more youth 14 years or older (94.2% males and 86.5% females) reported trauma than youth aged 10 to 13 years (82.4% males [ $F_{1,523} = 7.20, P = .008$ ] and 59.1% females [ $F_{1,363} = 14.56, P < .001$ ]); analyses of age are available from us.

#### Specific Traumas

Table 1 also shows that, among both males and females, the 3 most frequently reported traumas were having “seen or heard someone get hurt very badly or be killed” (reported by 74.9% of males and 63.5% of females), having been “threatened with a weapon” (re-

**Table 1. Prevalence of Trauma by Sex and Race/Ethnicity\* (cont)**

Variable	Female Detainees											
	Total (N = 898)	Total§ (n = 366)	African American (n = 243)	Non- Hispanic White (n = 47)	Hispanic (n = 75)	Analyses Comparing Race/Ethnicity			Protected Tests‡	Analyses Comparing Sex		
						F	df	P Value		F	df	P Value
Ever traumatized												
Ever experienced any trauma listed	92.5	84.0	85.8	76.8	81.6	0.93	2,362	.31		6.42	1,880	.02
Mean No. of traumas	14.6	14.2	13.2	11.6	19.4	1.50	2,885	.22		0.02	1,886	.88
Type of trauma¶												
Ever been in a situation where you thought you/someone close to you was going to be hurt very badly or die? (n = 439)	53.2	49.1	47.0	53.7	55.2	1.17	2,357	.31		1.02	1,881	.31
Ever been attacked physically, or beaten badly? (n = 332)	35.3	30.9	26.7	32.6	46.9	5.34	2,357	.04	Hispanic > African American	1.23	1,880	.27
Ever been threatened with a weapon? (n = 490)	58.4	47.3	47.9	36.8	50.6	1.12	2,357	.33		5.82	1,880	.10
Ever forced to do something sexual that you did not want to do? (n = 130)	4.4	29.6	31.0	27.4	24.9	0.59	2,357	.56		36.83	1,881	<.001
Ever been in a bad accident, like a car crash? (n = 234)	33.1	21.9	19.0	33.3	27.9	2.93	2,356	.06		7.41	1,881	.046
Ever in a fire, flood, tornado, earthquake, or other natural disaster where you thought you were going to die or be seriously injured? (n = 93)	10.5	10.6	10.7	8.4	11.4	0.14	2,357	.87		0.01	1,880	.99
Other than on television/movies, ever seen/heard someone get hurt very badly or be killed? (n = 595)	74.1	63.5	65.2	60.0	58.1	0.78	2,357	.46		5.70	1,880	.09
Ever very upset by seeing a dead body/pictures of a dead body of someone you knew well? (n = 224)	23.5	27.9	30.2	23.2	21.0	1.48	2,356	.23		1.20	1,880	.27

\*Data are given as percentages unless otherwise indicated. Each cell is weighted to reflect the population of the detention center. Because females constituted only 7.3% of the detention center population, overall rates cannot be computed by averaging the rates of male and female participants. To protect against type I error, each group of tests is Bonferroni-adjusted beginning with the lowest P to the highest; for this reason, the probability of type I error may not be a monotonic function of the F statistics. We present Bonferroni-adjusted P values for tests that were originally statistically significant at .05. Tests for mean numbers of trauma are computed with the Poisson regression for survey data module in Stata statistical software: Release 8.0.<sup>39</sup>

†One male participant, who self-identified as "other," is excluded from the analysis of race/ethnicity.

‡Protected tests are performed only if the Bonferroni-adjusted tests are statistically significant at P = .05.

§One female, who self-identified as "other," is excluded from the analysis of race/ethnicity.

||Bonferroni-adjusted test.

¶Subjects may have experienced more than 1 trauma.

ported by 59.3% of males and 47.3% of females), and being in a situation where "you thought you or someone close to you was going to be hurt very badly or die" (reported by 53.5% of males and 49.1% of females). Significantly more males than females reported having "been in a bad accident." On the other hand, significantly more females than males reported being "forced to do something sexual that you did not want to do." Among males, non-Hispanic whites were more likely to have "been attacked physically or beaten badly" than were African Americans. Among females, Hispanics were more likely to have been attacked physically or beaten badly than were African Americans.

## POSTTRAUMATIC STRESS DISORDER

**Table 2** reports PTSD diagnoses in the past year for the entire sample (11.2%). There were no significant differences in PTSD diagnosis by sex or across race/ethnicity for males and females.

We examined precipitating traumas for persons diagnosed as having PTSD. Among male participants "having seen or heard someone get hurt very badly or be killed" was the most frequent precipitating trauma for PTSD, significantly higher among males (58.9%) than females (23.5%) ( $F_{1,98}=6.46, P=.01$ ). Among female participants, thinking "you or someone close to you was going

to be hurt very badly or die” was the most frequent precipitating trauma, significantly higher among females (27.8%) than males (9.5%) ( $F_{1,98}=6.31, P=.01$ ). (These analyses are available from us.) Other precipitating traumas were too rare to analyze further.

We also examined the age at which the participants had experienced their worst, precipitating trauma. Most participants (88.7%) reported that their worst traumas occurred within 2 years prior to the interview. However, being forced to do something sexual—when that was identified as the worst trauma—occurred 5 years before the interview for most participants. (These analyses are available from us.)

## COMMENT

### TRAUMA

Exposure to trauma is a fact of life for delinquent youth. More than 90% of our sample experienced at least 1 traumatic event; more than half (56.8%) were exposed 6 or more times. These findings are comparable to reports from smaller studies of youth in correction facilities.<sup>7,13,15,18</sup>

It is difficult to compare our findings to community studies because published findings vary, depending on the sample (eg, urban, suburban, minority) and which traumas were assessed. Yet, our overall prevalence of trauma is substantially higher than most studies of youth and young adults (ages 15-24 years), especially for severe and violent trauma.<sup>5,6,16,17,43-45</sup>

Witnessing violence, the most common trauma, is far more common in our sample (63.5% of the females and 74.9% of the males) than in most community studies of youth and young adults (4.9%-40.1%)<sup>5,6,10,16,43,46</sup> Our findings are most comparable to studies of urban teenagers.<sup>44,45,47-49</sup> Living with widespread or chronic community violence in the inner city has been compared with living in a war zone.<sup>47</sup>

### TRAUMA AND PTSD

More than 1 (11.2%) of 10 detainees had PTSD during the year prior to the interview. These estimates are lower than those reported by Burton et al<sup>14</sup> (24%, current disorder), Cauffman et al<sup>15</sup> (48.9% of females, past 3 months), and Steiner et al<sup>13</sup> (31.7% of males, current disorder), perhaps because our instruments and methods are different. Burton et al<sup>14</sup> used a symptom checklist administered to small groups. Cauffman et al<sup>15</sup> and Steiner et al<sup>13</sup> used the PTSD module of the *Revised Psychiatric Diagnostic Interview*.<sup>50</sup> The *Revised Psychiatric Diagnostic Interview* assesses symptoms of PTSD independent of a particular trauma. In contrast, the DISC, like most instruments, assesses PTSD based on the participant's perceived worst trauma.

The prevalence of PTSD in our sample was higher than reported by Garland et al<sup>20</sup> (3.1%, past year) and Wasserman et al<sup>4</sup> (4.8%, males only, past month), who used the DISC, and Duclos et al<sup>19</sup> (1.3%, past year), who used a modified version of the Composite International Diagnostic Interview (CIDI); the CIDI is similar in structure to the DISC. Our findings and those of prior stud-

**Table 2. Prevalence of DSM-IV Posttraumatic Stress Disorder by Sex and Race/Ethnicity\* for 892 Study Participants**

Variable	Percentage	Statistical Analysis		
		F	df	P Value
Male detainees (n = 531)	10.9			
Race/ethnicity		2.26†	2,521	.11
African American (n = 247)	9.2			
Non-Hispanic white (n = 107)	8.0			
Hispanic (n = 177)	19.6			
Age, y		0.76	2,521	.47
10-13 (n = 156)	6.8			
14-15 (n = 151)	11.8			
16+ (n = 224)	11.0			
Female detainees (n = 361)	14.7			
Race/ethnicity		0.46‡	2,358	.63
African American (n = 239)	14.7			
Non-Hispanic white (n = 47)	10.5			
Hispanic (n = 75)	16.9			
Age, y		0.84	2,358	.43
10-13 (n = 33)	13.1			
14-15 (n = 194)	12.8			
16+ (n = 134)	17.9			
Total (N = 892)	11.2	1.19§	1,880	.28

\*Posttraumatic stress disorder could not be determined for 4 participants because of missing data. One male participant and 1 female participant who self-identified as “other” (race/ethnicity) were excluded from the analyses. Each cell is weighted to reflect the population of the detention center. Because females constituted only 7.3% of the detention center population, overall rates cannot be computed by averaging the rates of male and female participants. This is also true for race/ethnicity and age. To protect against type I error, each group of tests is Bonferroni-adjusted beginning with the lowest P to the highest. For this reason, the probability of type I error may not be a monotonic function of the F statistics. Tests of differences by race/ethnicity and age within sex were not calculated because cell sizes were too small.

†Test of differences by race/ethnicity among male participants.

‡Test of differences by race/ethnicity among female participants.

§Test of differences by sex.

ies may differ because of the point at which the sample was drawn. We sampled youth right after they were detained, and before their adjudication hearings. Garland et al<sup>20</sup> and Wasserman et al<sup>4</sup> sampled convicted juveniles in secure placement. The findings of Duclos et al<sup>19</sup> may be different from ours because their sample was composed only of American Indian detainees.

The prevalence of PTSD in our sample (during the 12 months prior to the interview) exceeds lifetime estimates of PTSD reported in community samples of youth and young adults (3.5%-9.2%).<sup>5,6,10,16</sup> More than half of our participants with PTSD had reported witnessing violence as the precipitant. Our findings might reflect that our participants, like most juvenile detainees nationwide, live in urban areas that have high rates of violence.<sup>51,52</sup> Alternatively, our findings are consistent with research linking traumatic victimization in childhood and subsequent psychosocial problems, such as delinquency, perpetration of violence, and drug use.<sup>13,16,17,47,48,53-58</sup>

Why were rates of PTSD not higher, given the extent of exposure to trauma in our sample? There are sev-

eral possibilities. First, the types and patterns of traumas reported by youth in community samples and our sample differ. We do not know the conditional risk of specific traumas in our sample because the DISC-IV, like most instruments, assesses PTSD only for the worst trauma.<sup>6</sup> Second, traumatic experiences can precipitate other conditions besides PTSD, for example, disruptive behavior disorders, other internalizing disorders, some personality disorders, and physical illnesses.<sup>37</sup> These disorders are common in our sample.<sup>3,35</sup> Third, prevalence of PTSD may have been higher had we asked about a wider range of traumas, used more than 1 screen question to ask about sexual abuse or other types of intimate violence, or conducted interviews using techniques that allow for anonymity (eg, the Voice DISC).<sup>4,59,60</sup>

Most demographic differences corroborated prior investigations of community samples.<sup>6,10,16,46,61</sup> Although male detainees were significantly more likely than female detainees to have experienced trauma, female detainees were as likely to have PTSD as were male detainees. In community samples, females are twice as likely as males to develop PTSD following exposure to trauma.<sup>6</sup>

Like prior studies in the community, we found few racial/ethnic differences in rates of trauma or PTSD.<sup>5,10</sup> Those few differences pertained to the type of trauma reported most frequently. In our sample, African American males were more likely to have witnessed violence than were non-Hispanic whites, consistent with the high levels of violence exposure among inner-city, minority youth.<sup>62</sup> Non-Hispanic white males were more likely to have experienced actual and threatened violence than other males. Among females, Hispanics were most likely to have experienced violent victimization.

## LIMITATIONS

Our findings are drawn from 1 site and may pertain only to youth in urban detention centers with similar demographic composition. Moreover, our findings are based on a sample of pretrial detainees and may not be generalizable to adjudicated juveniles serving sentences.

Because it was not feasible to interview caretakers, our data are subject to the reliability and validity of the youths' self-report. However, youth and their caretakers are comparable reporters of youths' anxiety disorders.<sup>63</sup> Recall of traumas may be affected by arrest and detention; yet, recall of events by youth may be less subject to the distortions of time than recall by adults.<sup>5</sup> Moreover, the DISC—like most measures—probes for PTSD for the single-worst trauma; hence, we are unable to estimate the age of onset of PTSD or the vulnerability to PTSD by type of trauma.<sup>6</sup> Despite these limitations, our study has implications for research on PTSD and for mental health policy.

## FUTURE RESEARCH

We suggest 3 directions for future research.

**1. Studies of vulnerability to PTSD in high-risk youth.** Although more than 90% of our sample were exposed to 1 or more traumas, only 11.2% of the sample

met criteria for PTSD in the past year. We need to determine the relative risk of PTSD for types of trauma (eg, witnessing murder, being shot, witnessing ongoing domestic violence, sudden loss of a loved one) among youth who are frequently exposed to trauma and violence, such as our participants. Such studies could document factors that increase resilience to PTSD among high-risk youth and guide prevention strategies.<sup>64,65</sup>

**2. Studies of chronic community violence and its relationship to PTSD.** Community violence is epidemic in inner cities.<sup>62</sup> Research suggests that chronic exposure to violence may have more deleterious effects on children than acute violence.<sup>62</sup> We must study the effects of chronic community violence on high-risk youth as they become adults.<sup>17</sup> Longitudinal studies should examine the role that witnessing violence plays in perpetuating the cycle of violence.

**3. Definition of trauma and diagnosis of PTSD.** There is a scarcity of research on the validity and reliability of diagnostic measures of PTSD, in part because the diagnosis is relatively new.<sup>37</sup> Moreover, the definitions of trauma in *DSM-IV* are somewhat ambiguous<sup>66</sup>; hence, there is little consistency among diagnostic instruments that measure traumas. For example, most measures assess violent victimization (DISC-IV, CIDI 2.1)<sup>67</sup>; others also assess trauma from perpetration of violence (R. C. Kessler, PhD, National Comorbidity Study—Replication, unpublished data, 2001-2002). Some measures assess sexual victimization by any perpetrator (DISC-IV, CIDI 2.1); others specifically ask about victimization by family members (DIS-IV,<sup>68</sup> National Comorbidity Study—Replication). These differences reduce the validity and reliability of diagnoses. We need a consensually understood and empirically validated framework to define and measure traumatic events.<sup>24,69-71</sup>

## IMPLICATIONS FOR MENTAL HEALTH POLICY

The mental health system must

**1. Improve services for victims of trauma.** Exposure to trauma is a serious public health problem among high-risk youth. Yet, services are insufficient.<sup>43</sup> Timely interventions may avert subsequent and often chronic social problems common among traumatized youth.<sup>8,16,62</sup> To the extent that PTSD is correlated with subsequent violent perpetration, effective treatment is also a matter of public safety.<sup>15,72,73</sup>

**2. Improve the detection of PTSD.** The Surgeon General's report on children's mental health suggests that emergency medical providers must address the mental health needs of youth who have experienced trauma.<sup>74</sup> Posttraumatic stress disorder is frequently overlooked even in the best psychiatric settings.<sup>75,76</sup> Because PTSD frequently co-occurs with other psychiatric disorders,<sup>10,16</sup> it can be difficult to detect without systematic screening.

**3. Avoid retraumatizing youth.** The conditions of confinement often exacerbate symptoms of mental disorder, including PTSD.<sup>77</sup> Juvenile justice providers must also reduce the likelihood that youth will be retraumatized during routine processing. Symptoms of PTSD may be exac-

erbed by such common practices as handcuffs and searches.<sup>78,79</sup> In detention centers, psychiatric crises are often handled by isolating and restraining symptomatic detainees. These practices can trigger or escalate symptoms of PTSD (eg, severe anxiety, aggression, and numbing of emotions).<sup>78,79</sup> Psychiatrists can help to develop strategies to manage emergencies more humanely—and, ultimately, more cost-effectively.

Our nation's delinquent children are among the most traumatized. We must balance the resources used to punish with resources needed to heal the traumas endured by vulnerable youth.

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