Psychiatric Disorders in Youth in Juvenile Detention

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Background: Given the growth of juvenile detainee populations, epidemiologic data on their psychiatric disorders are increasingly important. Yet, there are few empirical studies. Until we have better epidemiologic data, we cannot know how best to use the system’s scarce mental health resources.

Methods: Using the Diagnostic Interview Schedule for Children version 2.3, interviewers assessed a randomly selected, stratified sample of 1829 African American, non-Hispanic white, and Hispanic youth (1172 males, 657 females, ages 10-18 years) who were arrested and detained in Cook County, Illinois (which includes Chicago and surrounding suburbs). We present 6-month prevalence estimates by demographic subgroups (sex, race/ethnicity, and age) for the following disorders: affective disorders (major depressive episode, dysthymia, manic episode), anxiety (panic, separation anxiety, overanxious, generalized anxiety, and obsessive-compulsive disorders), psychosis, attention-deficit/hyperactivity disorder, disruptive behavior disorders (oppositional defiant disorder, conduct disorder), and substance use disorders (alcohol and other drugs).

Results: Nearly two thirds of males and nearly three quarters of females met diagnostic criteria for one or more psychiatric disorders. Excluding conduct disorder (common among detained youth), nearly 60% of males and more than two thirds of females met diagnostic criteria and had diagnosis-specific impairment for one or more psychiatric disorders. Half of males and almost half of females had a substance use disorder, and more than 40% of males and females met criteria for disruptive behavior disorders. Affective disorders were also prevalent, especially among females; more than 20% of females met criteria for a major depressive episode. Rates of many disorders were higher among females, non-Hispanic whites, and older adolescents.

Conclusions: These results suggest substantial psychiatric morbidity among juvenile detainees. Youth with psychiatric disorders pose a challenge for the juvenile justice system and, after their release, for the larger mental health system.

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A GREAT PROPORTION of this country’s young people are now involved in the juvenile justice system. In 1999, the Federal Bureau of Investigation estimated that there were 2.5 million arrests of juveniles.1 In 1997, juvenile courts handled almost 1800000 delinquency cases.2 On an average day, more than 106000 youth are in custody in juvenile facilities.3 Almost 60% of detained youth are African American or Hispanic.3 Moreover, recent changes in the laws, such as mandatory penalties for drug crimes and lowering the age that juveniles can be tried as adults, have resulted in more juveniles serving time than ever before. There are currently 163200 cases per year of juveniles convicted and serving sentences.4 Many are incarcerated in adult prisons, which do not have psychiatric services designed for juveniles. The number of females in the juvenile justice system is increasing at an even faster rate than the number of males5 and is at an all time high.6

Given the growth of juvenile detainee populations,5 epidemiologic data on their psychiatric disorders are increasingly important. Like adult detainees, juvenile detainees with serious mental disorders have a constitutional right (under the Eighth and Fourteenth Amendments) to receive needed treatment.5 Mental health professionals believe that providing psychiatric services to juvenile detainees could improve their quality of life and help reduce recidivism.8,9 Until we have better data, we cannot know how best to use the system’s scarce mental health resources.9,10

Despite the importance of psychiatric epidemiologic data on juvenile detain-
ees, there are few empirical studies \(^6\) and little consistency in results. Among studies \(^7,11-28\) published since 1980 (summary table available from authors), rates for affective disorder varied from 2% \(^1,15\) to 88%. \(^7\) Rates of substance use disorders ranged from 13% \(^14\) to 88%. \(^7\) This disparity in findings may be because youth were sampled at various points in the juvenile justice system (eg, at admission, after conviction). In addition, there are 3 methodologic problems.

1. **Biased Samples.** Previous studies \(^11\) used disparate exclusion criteria (eg, excluding juveniles with psychotic symptoms, mental retardation, or physical handicaps). Many studies excluded females entirely \(^16,21\) or sampled too few to analyze them. \(^25\)

2. **Small Samples.** Some severe disorders have low base rates, between 1% and 4%. \(^29,30\) Low base rates require large sample sizes to generate reliable estimates. \(^31\) Some studies sampled too few subjects to generate reliable rates even for the more common disorders. \(^18,21\)

3. **Problems in Measurement.** Some studies did not specify the diagnostic criteria, \(^18\) used nonstandard or untested instruments, \(^16\) or extracted diagnoses from case records. \(^17\)

This study overcomes these methodologic limitations. We have a large, random sample of juvenile detainees and used a reliable measure, version 2.3 of the Diagnostic Interview Schedule for Children (DISC), \(^32\) to determine psychiatric diagnoses.

### METHODS

**PARTICIPANTS AND SAMPLING PROCEDURES**

Participants in the Northwestern Juvenile Project included 1829 male and female youth (aged 10-18 years) who were randomly sampled from intake into the Cook County Juvenile Temporary Detention Center (CCJTDC) from November 1995 through June 1998. The sample was stratified by sex, race/ethnicity (African American, non-Hispanic white, Hispanic), age (10-13 years or ≥14 years), and legal status (processed as a juvenile or as an adult) to obtain enough participants to compare key subgroups (eg, females, Hispanics, and younger children).

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

Like juvenile detainees nationwide, approximately 90% of the CCJTDC detainees are males, and most are racial/ethnic minorities. \(^3\) The CCJTDC population is 77.9% African American, 5.6% non-Hispanic white, 16.0% Hispanic, and 0.5% other racial or ethnic groups. The age and offense distributions of CCJTDC detainees are also similar to detained juveniles nationwide. \(^3\)

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. \(^5\) Second, Cook County is ethnically diverse and has the third largest Hispanic population in the United States. \(^34\) Studying Hispanics is important because they are the largest minority group in the United States \(^35\) and they are overrepresented in the justice systems. \(^1\) Finally, 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. \(^36,37\) Nevertheless, Illinois’ criteria for detaining juveniles are similar to the criteria of other states. \(^36\) All states allow pretrial detention if the juvenile needs protection, is likely to flee, or is considered a danger to the community. \(^36,37\)

Detainees were eligible to participate, regardless of their psychiatric morbidity, state of alcohol or other drug 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 stratum. Project staff sampled the rarest cells first. When more than one participant was available for a stratum, a random-numbers table was used. The final sampling fractions ranged from 0.018 to 0.689. (Additional information on the sample is available from the authors.)

Studying detained youth requires special procedures because they are minors, they are detained, and many do not have a parent or guardian who can provide appropriate consent. \(^38\) Project staff approached participants on their units, explained the project, and assured them that anything they told us (except comments implying imminent danger to self or others) would be confidential. Detainees who chose to participate signed an assent form (if they were younger than 18 years) or consent form (if they were 18 years or older). Federal regulations allow parental consent to be waived if the research involves minimal risk (45 CFR [Code of Federal Regulations] 46.116[c], 45 CFR 46.116[d], and 45 CFR 46.408[c]). \(^36,37\) 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]). \(^40,41\) Despite repeated attempts to contact the parent or guardian, for 43.8% of participants, none could be found. In lieu of parental consent, assent from the juvenile subject was overseen by a participant advocate who represented the interests of the participants. Federal regulations allow for a participant advocate if parental consent is not feasible (45 CFR 46.116[d]). \(^40\) Of the 2275 names selected, 4.2% (34 youth and 62 parents or guardians) refused to participate. There were no significant differences in refusal rates by sex, race/ethnicity, or age. Some youth processed as adults (automatic transfers) were counseled by their lawyers to refuse participation; in this stratum, the refusal rate was 7.1% (26 of 368 youth). Twenty-seven youth left the detention center before we could schedule an interview; 312 were not interviewed because they left while we were locating their caretakers for consent. Eleven others were excluded: 9 participants who became physically ill during the interview and could not finish it, 1 participant who was too cognitively impaired to be interviewed, and 1 participant who seemed to be lying. The final sample size was 1829. This sample size allows us to reliably detect disorders (ie, distinguish them from zero) that have a base rate in the general population of 1.0% or greater with a power of 0.80. \(^31\)

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 a 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 subjects.

PSYCHIATRIC DIAGNOSES

We used version 2.3 of the DISC, the most recent English and Spanish versions then available. The DISC assesses the presence of disorders in the past 6 months. The DISC is highly structured, contains detailed symptom probes, has acceptable reliability and validity, and requires relatively brief training.

Two diagnoses required special management. The psychosis module, a broad symptom screen, does not generate a specific diagnosis. Instead, this module flags participants if they endorse any “possible” or “probable” pathognomonic symptoms or at least 3 nonpathognomonic symptoms. More than one quarter of our participants scored positive on the screen. To be conservative, we counted these participants as psychotic only if (1) their symptoms persisted for at least 1 week; (2) they had not used alcohol, illicit drugs, or medication during this time; and (3) a project clinician (a psychiatrist or clinical psychologist) reviewed the case and judged that the symptoms were “probably indicative of psychosis.” Twelve participants met these criteria. Project clinicians also included another 8 participants as psychotic who, although they denied symptoms, appeared to have auditory hallucinations, thought disorders, or delusions during the interview.

Attention-deficit/hyperactivity disorder (ADHD) is difficult to assess via self-report and is even more challenging to diagnose among delinquent youth. In addition, DSM-III-R requires that symptoms of ADHD be present before the age of 7 years. Age of onset is usually reported by the caretaker. Most of our participants, even if they reported symptoms of ADHD, could not remember when their symptoms began. To avoid underreporting ADHD, we calculated rates in 2 ways: in the conventional manner (requiring that the subject report that symptoms were present before the age of 7 years) and counting the disorder as present regardless of the reported age of onset, as long as the duration criterion was met. (We present only the latter; the former rates are available from the authors.)

We determined rates of disorders in 2 ways. First, as most investigators have done, we used the DISC standard computer algorithms to calculate rates using DSM-III-R criteria. We then calculated more conservative (less inclusive) rates for diagnoses that met both DSM-III-R criteria and diagnosis-specific impairment criteria, reported by participants. Although young people are poor reporters of their own impairment, we calculated these latter rates because recent reviews suggest that psychiatric diagnoses are more accurately determined by the presence of both symptoms and functional impairment. We also examined rates using DSM-III-R criteria and a global measure of functional impairment, the Children’s Global Assessment Scale. These rates, substantially similar to those reported herein, are available from the authors.

STATISTICAL ANALYSIS

Because we stratified our sample by sex, race/ethnicity, age, and legal status, we weighted all prevalence estimates to reflect the distributions of these variables in the detention center’s population. All reported SEs and tests of significance have been corrected for design characteristics with Taylor series linearization. We used 2-tailed tests; our level of significance for all tests was .05. We report all disorders for males and females separately because combining them masks important differences.

Table 1 presents unweighted demographic characteristics of our sample. Table 2 provides data showing that nearly two thirds of the males and nearly three quarters of females met diagnostic criteria for 1 or more of the disorders listed. The more conservative estimates using the diagnosis-specific impairment criteria are only slightly lower. We also calculated overall rates excluding conduct disorder because many symptoms are related to delinquent behaviors; Table 2 also shows overall rates, excluding conduct disorder (with and without diagnosis-specific impairment criteria); rates decreased only slightly.

The most common disorders among both males and females were substance use disorders and disruptive behavior disorders (oppositional defiant disorder and conduct disorder). Half of males and almost half of females met criteria for a substance use disorder, and more than 40% of males and females met criteria for disruptive behavior
disorders. Rates of disorder using diagnosis-specific impairment criteria for conduct disorder are more than 10% lower than conduct disorder without impairment. More than one fourth of females and almost one fifth of males met criteria for 1 or more affective disorders.

Table 2 also reports the female-male odds ratios. Odds ratios greater than 1.0 indicate that females had higher odds of having the disorder than males; those less than 1.0 show that females had lower odds of having the disorder. Females had significantly higher odds than males of having any disorder, any disorder except conduct disorder, any affective disorder, major depressive episode, any anxiety disorder, obsessive-compulsive disorder, and substance use disorder other than alcohol or marijuana.

Table 3 and Table 4 show the prevalence rates of disorders for males and females by race/ethnicity. Cases in these and subsequent tables met DSM-III-R criteria. (Tables of disorders that meet diagnosis-specific impairment criteria also are available from the authors.) We report protected tests of significance for specific racial/ethnic contrasts only when the overall test was significant. Table 3 shows that among males, non-Hispanic whites had the highest rates of many disorders and African Americans the lowest. Specifically, compared with African Americans, non-Hispanic whites had significantly higher rates of any disorder, any disorder except conduct disorder, any disruptive behavior disorder, conduct disorder, any substance use disorder, and substance use disorder other than alcohol or marijuana. The only disorder for which African Americans had significantly higher rates than non-Hispanic whites was separation anxiety disorder. Hispanics had significantly higher rates than non-Hispanic whites of any anxiety disorder and separation anxiety disorder. Hispanics had higher rates than African Americans of panic disorder, obsessive-compulsive disorder, and substance use other than alcohol or marijuana disorders. Non-Hispanic whites had higher rates than Hispanics of any disorder, any disruptive behavior disorder, conduct disorder, and substance use disorder other than alcohol or marijuana.

Table 4 compares rates by race/ethnicity for females. Non-Hispanic white females had significantly higher rates than African Americans of any disorder, any disorder except conduct disorder, any disruptive behavior disorder, conduct disorder, and all substance use disorders. Non-Hispanic whites had higher rates than Hispanics of any disorder except conduct disorder. Hispanic females had higher rates of generalized anxiety disorder than either African American or white females. Compared with African Americans, Hispanic females had higher rates of all disruptive behavior disorders, conduct disorder, alcohol use disorder, substance use disorder other than alcohol or marijuana, and both alcohol and drug use disorder.

Table 5 and Table 6 show the prevalence rates of disorders for males and females by age. Among males, Table 5 indicates that the youngest age group had the lowest rates of many disorders. They had significantly lower rates than both older age groups of any disorder, any dis-
order except conduct disorder, generalized anxiety disorder, and all the substance use disorders. The 14- to 15-year-old group had higher rates of psychotic disorders than the 16 years or older age group.

Table 6 shows somewhat different patterns of disorder for females. The oldest age group had significantly lower rates of oppositional defiant disorder than the younger age groups. The youngest age group had significantly lower rates of any substance use disorder and marijuana use disorder than either of the older age groups.

**COMMENT**

Our study shows that youth with psychiatric disorders pose a challenge for the juvenile justice system and, after their release, for the larger mental health system. Even after excluding conduct disorder, nearly 60% of male juvenile detainees and more than two thirds of females met diagnostic criteria and had diagnosis-specific impairments for one or more psychiatric disorders.

These rates may underestimate the true prevalence among youth entering the juvenile justice system for 2 reasons. First, our sample included only detainees; it excluded youth who were not detained because their charges were less serious, they were immediately released, or they were referred directly into the mental health system. Second, underreporting of symptoms and impairments by youth is common, especially for disruptive behavior disorders.47

It is difficult to compare our findings with studies of general population youth because rates vary widely, depending on the sample, the method, the source of data (participant or collaterals), and whether functional impairment was required for diagnosis.38 Despite these differences, our overall rates are substantially higher than the median rate reported in a major review article (15%)50 and other more recent investigations: the Great Smoky Mountains Study (20.3%),56 the Virginia Twin Study of Adolescent Behavioral Development (142 cases per 1000 persons)57, the Methods for the Epidemiology of Child and Adolescent Mental Disorders (6.1%),55 and the Miami–Dade County Public School Study (38%).38 We are especially concerned about the high rates of depression and dysthymia among detained youth (17.2% of males, 26.3% of females), which are also higher than general population rates.51,56-60 Depressive disorders are difficult to detect (and treat) in the chaos of the corrections milieu. Overall, our prevalence rates are comparable to rates in other high-risk populations (eg, maltreated or runaway youth).62,63

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**Table 3. Six-Month Prevalence of DSM-III-R Diagnoses for Males by Race/Ethnicity**

<table>
<thead>
<tr>
<th>Disorder</th>
<th>African American (n = 574)</th>
<th>Non-Hispanic White (n = 207)</th>
<th>Hispanic (n = 386)</th>
<th>Overall Significance</th>
<th>Protected Tests†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any of the listed disorders</td>
<td>64.6 (58.8-69.9)</td>
<td>82.0 (76.2-86.7)</td>
<td>70.4 (63.3-76.7)</td>
<td>&lt;.001</td>
<td>White &gt; African American; white &gt; Hispanic</td>
</tr>
<tr>
<td>Any except conduct disorder</td>
<td>59.4 (53.5-65.0)</td>
<td>72.9 (66.5-78.6)</td>
<td>65.3 (58.1-71.9)</td>
<td>.009</td>
<td>White &gt; African American</td>
</tr>
<tr>
<td>Any affective disorder</td>
<td>18.6 (14.4-23.6)</td>
<td>13.8 (9.6-19.5)</td>
<td>21.5 (15.3-29.3)</td>
<td>.19</td>
<td></td>
</tr>
<tr>
<td>Major depressive episode</td>
<td>12.5 (9.1-17.0)</td>
<td>9.5 (6.0-14.6)</td>
<td>16.6 (10.8-24.7)</td>
<td>.20</td>
<td></td>
</tr>
<tr>
<td>Dysthymia</td>
<td>12.2 (8.8-16.7)</td>
<td>9.5 (6.1-14.5)</td>
<td>13.3 (8.4-20.6)</td>
<td>.53</td>
<td></td>
</tr>
<tr>
<td>Manic episode</td>
<td>2.5 (1.2-5.2)</td>
<td>0.5 (0.1-3.7)</td>
<td>1.4 (0.6-3.2)</td>
<td>.27</td>
<td></td>
</tr>
<tr>
<td>Psychotic disorders</td>
<td>1.0 (0.3-3.2)</td>
<td>2.6 (1.6-4.2)</td>
<td>0.7 (0.2-2.6)</td>
<td>.19</td>
<td></td>
</tr>
<tr>
<td>Any anxiety disorder</td>
<td>20.9 (16.5-26.1)</td>
<td>14.4 (10.1-20.2)</td>
<td>25.5 (18.7-33.7)</td>
<td>.046</td>
<td>Hispanic &gt; white</td>
</tr>
<tr>
<td>Panic disorder</td>
<td>0.1 (0.0-0.4)</td>
<td>0.5 (0.1-3.7)</td>
<td>1.0 (0.3-3.1)</td>
<td>.04</td>
<td>Hispanic &gt; African American &gt; white</td>
</tr>
<tr>
<td>Separation anxiety disorder</td>
<td>12.7 (9.3-17.2)</td>
<td>5.9 (3.3-10.3)</td>
<td>15.5 (9.8-23.6)</td>
<td>.02</td>
<td>Hispanic &gt; white</td>
</tr>
<tr>
<td>Overanxious disorder</td>
<td>6.9 (4.4-10.7)</td>
<td>2.9 (1.3-6.6)</td>
<td>7.0 (3.6-13.0)</td>
<td>.16</td>
<td></td>
</tr>
<tr>
<td>Generalized anxiety disorder</td>
<td>7.5 (4.8-11.4)</td>
<td>2.5 (1.0-5.9)</td>
<td>7.2 (3.7-13.3)</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>Obsessive-compulsive disorder</td>
<td>6.5 (4.2-10.0)</td>
<td>9.3 (5.8-14.4)</td>
<td>17.0 (10.7-25.9)</td>
<td>.01</td>
<td>Hispanic &gt; African American</td>
</tr>
<tr>
<td>Attention-deficit/hyperactivity disorder</td>
<td>17.0 (13.0-21.9)</td>
<td>20.9 (15.8-27.3)</td>
<td>13.7 (9.4-19.5)</td>
<td>.18</td>
<td></td>
</tr>
<tr>
<td>Any disruptive behavior disorder</td>
<td>39.8 (34.2-45.7)</td>
<td>60.3 (53.3-66.9)</td>
<td>43.3 (36.1-50.8)</td>
<td>&lt;.001</td>
<td>White &gt; African American; white &gt; Hispanic</td>
</tr>
<tr>
<td>Oppositional-defiant disorder</td>
<td>14.4 (10.7-19.1)</td>
<td>19.4 (14.4-25.6)</td>
<td>13.6 (9.3-19.5)</td>
<td>.23</td>
<td></td>
</tr>
<tr>
<td>Conduct disorder</td>
<td>35.6 (30.1-41.5)</td>
<td>59.9 (53.0-66.5)</td>
<td>41.7 (34.5-49.2)</td>
<td>&lt;.001</td>
<td>White &gt; African American; white &gt; Hispanic</td>
</tr>
<tr>
<td>Any substance use disorder</td>
<td>49.1 (43.2-55.0)</td>
<td>62.6 (55.7-69.0)</td>
<td>55.4 (47.8-62.7)</td>
<td>.01</td>
<td>White &gt; African American</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>24.6 (19.8-30.2)</td>
<td>30.1 (24.0-36.9)</td>
<td>30.8 (24.1-38.5)</td>
<td>.28</td>
<td>White &gt; African American</td>
</tr>
<tr>
<td>Marijuana use disorder</td>
<td>44.4 (38.6-50.4)</td>
<td>53.8 (46.8-60.6)</td>
<td>45.4 (38.0-52.9)</td>
<td>.11</td>
<td>White &gt; African American</td>
</tr>
<tr>
<td>Other substance use disorder</td>
<td>0.5 (0.1-2.8)</td>
<td>21.1 (15.9-27.4)</td>
<td>6.0 (3.9-9.1)</td>
<td>&lt;.001</td>
<td>White &gt; African American; white &gt; Hispanic</td>
</tr>
<tr>
<td>Both alcohol and other drug use disorders</td>
<td>20.4 (16.0-25.7)</td>
<td>24.0 (18.5-30.6)</td>
<td>21.7 (16.5-28.0)</td>
<td>.65</td>
<td></td>
</tr>
</tbody>
</table>

*CI indicates confidence interval. Two cases of “other” race/ethnicity are excluded from this table.
†Protected tests are performed only if the α for the overall test is less than .05.
‡Attention-deficit/hyperactivity disorder is reported without the criterion of onset before the age of 7 years because caretaker information is not available and self-report of symptoms before the age of 7 years is unreliable.

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Our data highlight an important paradox regarding race/ethnicity. More than half of the youth in our juvenile justice system are African American or Hispanic. Therefore, most detained youth with psychiatric disorders are minorities. The prevalence, however, of many disorders is highest among non-Hispanic whites. Thus, white youth in the juvenile justice system may, on average, be more dysfunctional (have greater psychiatric morbidity) than minority youth.

Females had higher rates than males of many psychiatric disorders, including major depressive episode, some anxiety disorders, and "other substance use disorders" (e.g., cocaine and hallucinogens). Our findings confirm those of prior studies of adult female detainees and females with conduct disorders, which found that females have higher rates of psychiatric disorders than males.64,65

Overall, the youngest age group (≤13 years) had the lowest prevalence rates of most disorders, confirming studies57,66-68 of general population youth. Many youth in the juvenile justice system may develop new or additional disorders as they age.

LIMITATIONS

Our study provides only a "snapshot" of our participants' psychiatric disorders immediately after arrest and detention. We cannot know whether mental disorder causes delinquency, increases the likelihood of arrest and detention, or is merely a frequent trait among delinquent youth. Some symptoms could be a reaction to incarceration. Moreover, our rates might differ somewhat from those in the general population. Our findings, drawn from only one site, may pertain only to youth in urban detention centers with similar demographic composition. Finally, because it was not feasible to interview caretakers, our data are subject to the limitations of self-report. Despite these limitations, our study has important implications for research on delinquent youth and mental health policy.

FUTURE RESEARCH

We suggest 3 directions for future research.

1. Studies of Patterns and Sequences of Comorbidity. Examining comorbidity is critical because it is so prevalent among juveniles in the general population,69,70 adult jail detainees,71 and adults who have high arrest rates, such as substance abusers,72 young, long-term psychiatric patients,73 and homeless, mentally ill persons.74 Moreover, studies71 of adults suggest that juveniles with comorbid disorders may be especially vulnerable to arrest, particularly if they are poor and
Table 5. Six-Month Prevalence of DSM-III-R Diagnosis for Males by Age*

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Age &lt;13 Years (n = 315)</th>
<th>Age 14 and 15 Years (n = 361)</th>
<th>Age &gt;16 Years (n = 494)</th>
<th>Overall Significance</th>
<th>Protected Tests†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any of the listed disorders</td>
<td>52.7 (46.5-58.8)</td>
<td>68.0 (60.3-74.8)</td>
<td>67.3 (60.3-73.7)</td>
<td>.001</td>
<td>14 and 15 years &gt; 13 years and younger; 16 years and older &gt; 13 years and younger</td>
</tr>
<tr>
<td>Any except conduct disorder</td>
<td>44.9 (38.9-51.0)</td>
<td>63.4 (55.6-70.6)</td>
<td>61.8 (54.7-68.5)</td>
<td>.001</td>
<td>14 and 15 years &gt; 13 years and younger; 16 years and older &gt; 13 years and younger</td>
</tr>
<tr>
<td>Any affective disorder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major depressive episode</td>
<td>13.0 (9.4-17.6)</td>
<td>21.2 (15.4-28.4)</td>
<td>17.7 (12.9-23.7)</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>Dysthymia</td>
<td>7.5 (4.9-11.4)</td>
<td>14.8 (10.0-21.5)</td>
<td>12.4 (8.5-17.8)</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Manic episode</td>
<td>7.3 (4.7-11.3)</td>
<td>14.5 (9.7-21.1)</td>
<td>11.2 (7.4-16.4)</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>Psychotic disorders</td>
<td>1.6 (0.7-4.0)</td>
<td>2.6 (0.9-7.2)</td>
<td>2.0 (0.7-5.1)</td>
<td>.80</td>
<td></td>
</tr>
<tr>
<td>Any anxiety disorder</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Panic disorder</td>
<td>17.7 (13.6-22.9)</td>
<td>23.0 (16.9-30.4)</td>
<td>20.6 (15.5-26.7)</td>
<td>.42</td>
<td></td>
</tr>
<tr>
<td>Separation anxiety disorder</td>
<td>8.8 (0.2-3.3)</td>
<td>0.1 (0.0-0.9)</td>
<td>0.3 (0.1-0.9)</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>Overanxious disorder</td>
<td>10.0 (6.9-14.3)</td>
<td>14.5 (9.7-21.1)</td>
<td>12.0 (8.1-17.5)</td>
<td>.40</td>
<td></td>
</tr>
<tr>
<td>Generalized anxiety disorder</td>
<td>4.8 (2.8-8.0)</td>
<td>5.1 (2.6-9.9)</td>
<td>8.4 (5.1-13.5)</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>Obsessive-compulsive disorder</td>
<td>1.3 (0.3-3.4)</td>
<td>5.9 (3.1-11.0)</td>
<td>9.2 (5.8-14.4)</td>
<td>.001</td>
<td>14 and 15 years &gt; 13 years and younger; 16 years and older &gt; 13 years and younger</td>
</tr>
<tr>
<td>Attention-deficit/hyperactivity disorder§</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any disruptive behavior disorder</td>
<td>6.0 (3.7-9.7)</td>
<td>9.4 (5.7-15.0)</td>
<td>7.8 (4.9-12.2)</td>
<td>.43</td>
<td></td>
</tr>
<tr>
<td>Oppositional-defiant disorder</td>
<td>12.5 (9.1-16.9)</td>
<td>20.9 (15.1-28.0)</td>
<td>13.8 (9.7-19.2)</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Conduct disorder</td>
<td>32.9 (27.5-38.8)</td>
<td>43.5 (35.9-51.3)</td>
<td>41.2 (34.5-48.2)</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Any substance use disorder</td>
<td>4.8 (2.8-8.0)</td>
<td>5.1 (2.6-9.9)</td>
<td>8.4 (5.1-13.5)</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>28.3 (23.1-34.0)</td>
<td>51.3 (43.5-59.1)</td>
<td>54.4 (47.3-61.3)</td>
<td>.001</td>
<td>14 and 15 years &gt; 13 years and younger; 16 years and older &gt; 13 years and younger</td>
</tr>
<tr>
<td>Marijuana use disorder</td>
<td>12.9 (9.5-17.4)</td>
<td>25.6 (19.3-33.0)</td>
<td>28.7 (22.8-35.4)</td>
<td>.001</td>
<td>14 and 15 years &gt; 13 years and younger; 16 years and older &gt; 13 years and younger</td>
</tr>
<tr>
<td>Other substance use disorder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both alcohol and other drug use disorders</td>
<td>25.1 (20.3-30.5)</td>
<td>46.9 (39.1-54.8)</td>
<td>46.8 (39.8-53.9)</td>
<td>&lt;.001</td>
<td>14 and 15 years &gt; 13 years and younger; 16 years and older &gt; 13 years and younger</td>
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<td>*CI indicates confidence interval.</td>
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<tr>
<td>†Protected tests are performed only if the α for the overall test is less than .05.</td>
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</tr>
<tr>
<td>‡Test computed with 1 df because of empty cells.</td>
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<tr>
<td>§Attention-deficit/hyperactivity disorder is reported without the criterion of onset before the age of 7 years because caretaker information is not available and self-report of symptoms before the age of 7 years is unreliable.</td>
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</table>

2. Studies of Females in the Juvenile Justice System. Females are increasingly arrested for crimes against persons and violent crimes and make up an increasingly large proportion of delinquent youth. Prior studies of youth with conduct disorders (many of whom will become delinquent) suggest that females have greater persistence of emotional disorder and worse outcomes than males. Moreover, their problem behaviors often persist beyond adolescence. As they age, they may become suicidal, addicted to alcohol or other drugs, enmeshed in violent relationships, and unable to care for their children. Delinquent females also engage in sexual activity at an earlier age than nonoffenders, placing them at greater risk for unwanted pregnancy and human immunodeficiency virus. Understanding psychiatric morbidity and associated risk factors among delinquent females could help us to improve treatment and reduce the cycle of disorder and dysfunction.

3. Longitudinal Studies. Many youth in the juvenile justice population may develop new disorders as they age. Risk factors for the development of disorders are common among delinquent youth, including physical and sexual abuse, a troubled family environment, parental substance abuse, poverty, poor education, neighborhood disintegration, and neglect. Delinquent youth have few protective factors to offset these risks. Thus, most youth in the juvenile justice system are at risk for the development of new disorders as they age.
great risk for psychiatric disorders, problem behaviors, and even early death. Longitudinal studies are needed to examine why some delinquent youth develop new psychiatric disorders and others do not, to investigate protective factors, and to determine how vulnerability and risk differ by key variables such as sex and race/ethnicity. We are now collecting longitudinal data on our participants. Future articles will address persistence and change in psychiatric disorders, and even early death. Longitudinal studies are needed to examine why some delinquent youth develop new psychiatric disorders and others do not, to investigate protective factors, and to determine how vulnerability and risk differ by key variables such as sex and race/ethnicity. We are now collecting longitudinal data on our participants. Future articles will address persistence and change in psychiatric disorders, including onset, remission, and recurrence, co-morbidity, associated functional impairments, and the risk and protective factors related to these disorders and impairments.

### IMPLICATIONS FOR MENTAL HEALTH POLICY

Advocacy groups, researchers, and public policy experts believe that the juvenile justice system has become the only alternative for many poor and minority youth with psychiatric disorders. Many states have imposed more severe sanctions for delinquent youth and transfer increasing numbers of juveniles to adult court, policies that disproportionately affect minority youth. In addition, 2 recent changes in public health policy may have inadvertently contributed to the criminalization of youth with mental disorders.

1. **Welfare Reform.** Welfare reform has disrupted Medicaid benefits for millions of children who need treatment. Medicaid enables many youth to receive psychiatric treatment. Many parents who left welfare to go to work found their new jobs did not provide insurance or, when available, they could not afford co-payments. The State Children’s Health Insurance Program, designed to offset the loss of Medicaid, did not fulfill its intended purpose. Moreover, welfare reform has not substantially decreased poverty; many poor children have become even poorer. Poor children are vulnerable to poor outcomes, including involvement with the juvenile justice system.

2. **Managed Care.** Managed care now dominates the private insurance industry and increasingly controls public insurance benefits, such as Medicaid. Many disorders prevalent among delinquent youth, such as conduct disorder, ADHD, and substance use disorders, are often not covered or have restrictive treatment guidelines. As the public health system...
duces services, youth with psychiatric disorders may increasingly fall through the cracks into the juvenile justice system.109

These changes (welfare reform and managed care) have the most serious consequences for poor and minority children, groups overrepresented in the juvenile justice system. Our findings are even more sobering because the prevalence of psychosocial problems among youth seems to be increasing.110,111 The US Surgeon General reports that the unmet need for services is as high now as it was 20 years ago.112 Even youth who are insured often cannot obtain treatment because few child and adolescent psychiatrists practice in poor and minority neighborhoods.113,114

The juvenile justice system is not equipped to provide adequate mental health services for the large numbers of detainees with psychiatric disorders.115,116 Although the mental health needs of youth in the juvenile justice system have been given much attention recently,10,117,118 there are still few empirical studies of the effectiveness of treatment and outcomes.10 This omission is critical. We need research to guide mental health policy and to understand the complex interplay among the many systems—primary care, mental health, education, child welfare, and justice—that treat delinquent youth.

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