



J. Robert Flores, Administrator

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Psychiatric Disorders of Youth in Detention

Linda A. Teplin, Karen M. Abram, Gary M. McClelland, Amy A. Mericle, Mina K. Dulcan, and Jason J. Washburn

The juvenile justice system faces a significant challenge in identifying and responding to the psychiatric disorders of detained youth. In 2001, more than 104,000 juvenile offenders were in custody in juvenile residential placement facilities (Sickmund, Sladky, and Kang, 2004). Understanding the psychiatric disorders of juvenile detainees is an important step toward meeting their needs. Providing such youth with psychiatric services may be critical to breaking the cycle of recidivism. Without sound data on the prevalence of psychiatric disorders, however, defining the best strategies to use and allocating the juvenile justice system's scarce mental health resources are difficult.

Earlier Research

Although epidemiological data are key to understanding the psychiatric disorders of juvenile detainees, few empirical studies exist. Table 1 (page 3) lists studies published in the United States since 1990 that have examined the diagnostic characteristics of incarcerated and detained juveniles. These studies do not provide data that are sufficiently comprehensive to guide juvenile justice policy in this area. Six studies in table 1 present rates of multiple disorders, and four of those

examine patterns of psychiatric comorbidity among juvenile detainees (Domalanta et al., 2003; Duclos et al., 1998; Pliszka et al., 2000; Shelton, 2001). However, the studies' findings are inconsistent. The prevalence of major affective disorder in the studies varies from 5 percent to 88 percent; substance use disorders from 20 percent to 88 percent; and psychosis from 12 percent to 45 percent. Such inconsistencies may arise from discrepancies in methodology:

Sampling strategies. Samples varied substantially among the studies. Some studies used random samples. Others relied on nonrandom samples, for example, consecutive admissions over a specified time period. Only a few studies reported racial and ethnic differences; some studies did not report the racial or ethnic composition of the sample. Females were excluded entirely from some investigations.

Small samples. Some severe disorders have low base rates, between 1 and 4 percent. Low base rates require large sample sizes to generate reliable estimates (Cohen, 1988). Sample sizes among the studies varied substantially. Many of the studies sampled too few subjects to generate reliable rates, even for the more common disorders. Most studies did not

A Message From OJJDP

A significant number of youth in detention suffer from psychiatric disorders. To address the needs of such offenders, justice officials need to know the kinds of disorders that are most common and their prevalence among juvenile detainees.

Research indicates that providing detained youth with mental health services may reduce recidivism, but identifying and responding to such mental health needs are challenging.

This Bulletin draws on research conducted by the Northwestern Juvenile Project, which measured the prevalence of alcohol, drug, and mental disorders among youth detained at the Cook County Juvenile Temporary Detention Center in Illinois. The study examined the prevalence of psychiatric disorders among youth by gender, race and ethnicity, and age.

According to the study, nearly two-thirds of males and three-quarters of females met diagnostic criteria for one or more psychiatric disorders. Many of these youth had two or more disorders.

Youth with serious mental disorders should receive appropriate treatment while they are detained. This Bulletin presents information that can help the juvenile justice system detect youth with psychiatric disorders and respond with an integrated system of services.

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have enough participants in key demographic subgroups to compare participants by gender, race and ethnicity, or age.

Measurement. Some studies in table 1 used nonstandard or untested instruments, did not assess if the disorder impaired the ability of juveniles to function, or reported data on only one category of diagnoses (e.g., substance use disorders, anxiety disorders, personality disorders).

The Northwestern Juvenile Project

The Northwestern Juvenile Project was designed to overcome these methodological limitations. It includes a random sample of juvenile detainees ages 10–18 and a widely accepted and reliable measurement tool, the Diagnostic Interview Schedule for Children (DISC) Version 2.3 (Shaffer et al., 1996), to measure diagnoses of alcohol, drug, and mental disorders. It also uses accepted criteria for identifying functional impairment (Friedman et al., 1996).

Estimates are presented for demographic subgroups (gender, race and ethnicity, and age) for six categories of disorders: affective (major depressive episode, dysthymia, manic episode); psychosis; anxiety (panic, separation anxiety, over-anxious, generalized anxiety, obsessive-compulsive disorders); attention-deficit/hyperactivity disorder (ADHD); disruptive behavior (oppositional-defiant and conduct disorders); and substance use (alcohol and drug disorders).

Methods

Subjects were a randomly selected sample of male and female youth who were arrested and subsequently detained at the Cook County Juvenile Temporary Detention Center (Cook County Detention Center) in Illinois between November 20, 1995, and June 14, 1998. The sample was stratified by gender, race and ethnicity (African American, non-Hispanic white, Hispanic), age (10–13 or 14–18 years old), and legal status (processed as a juvenile or an adult). The final sample ($N=1,829$) comprised 1,172 males (64.1 percent) and 657 females (35.9 percent), 1,005 African Americans (54.9 percent), 524 Hispanics (28.7 percent), 296 non-Hispanic whites (16.2 percent), and 4 detainees of other racial and ethnic groups (0.2 percent). The mean age of participants was 14.9 years old.

Similar to national trends for juvenile detainees, approximately 90 percent of the Cook County Detention Center detainees were male and most were racial or ethnic minorities: African American (77.9 percent), Hispanic (16.0 percent), non-Hispanic white (5.6 percent), and other racial or ethnic groups (0.5 percent). Their age and offense distributions were also similar to other U.S. juvenile detainees (Sickmund, Sladky, and Kang, 2004).

Although no single site can represent the nation, Illinois' criteria for detaining juveniles are similar to other states'. Pretrial detention is allowed if a juvenile needs protection, is likely to flee, or is considered a danger to the community (Grisso, Tomkins, and Casey, 1988; Illinois Criminal Justice Information Authority, 1997). Details of the data collection and sampling procedures can be found in Teplin et al., 2002, and Abram et al., 2003.

Statistical Analysis

Because the sample was stratified by gender, race and ethnicity, age, and legal status, prevalence estimates were weighted to reflect the detention center's population. A simplified version of the results are presented in this Bulletin. Details of the statistical analyses and the results can be found in Teplin et al., 2002, and Abram et al., 2003.

Psychiatric Diagnoses

The DISC Version 2.3 assesses affective disorders, anxiety disorders, disruptive behavior disorders, substance use disorders, and psychosis within the past 6 months (Bravo et al., 1993; Shaffer et al., 1996).

Diagnoses of psychosis and ADHD required special management. The psychosis module of the DISC is a broad symptom screen and does not generate a specific diagnosis. Instead, it flags subjects if they indicate any essential symptoms of psychosis or at least three associated symptoms. More than one-quarter of the subjects scored positive on the screen. To minimize false positive diagnoses, these subjects were counted as psychotic only if their symptoms persisted for at least 1 week; they had not used alcohol, drugs, or medication during this time; and the psychiatrist or clinical psychologist who reviewed the case judged that the symptoms were probably indicative of psychosis. Twelve subjects met

these criteria. The study counted as psychotic another eight subjects who, although they denied symptoms, appeared to have auditory hallucinations, thought disorders, or delusions during their interviews.

ADHD among youth is difficult to assess via self-report and is particularly challenging to diagnose among delinquent youth (Schwab-Stone et al., 1996; Thompson et al., 1996). The *Diagnostic and Statistical Manual of Mental Disorders*, third edition, revised (*DSM-III-R*) (American Psychiatric Association, 1987), requires that ADHD symptoms be present before age 7. Most subjects who reported symptoms of ADHD could not remember when their symptoms began. To reduce the risk of underreporting ADHD, rates were calculated in the conventional manner (requiring that the subject report that symptoms were present before age 7) and by counting the disorder as present regardless of the reported age of onset, as long as the duration criterion was met. (This Bulletin presents only the latter rates; the former are available from the authors.) Details on the DISC can be found in Teplin et al., 2002, and Abram et al., 2003.

Rates of disorder using *DSM-III-R* criteria with and without diagnostic-specific or global functional impairment were examined. The rates were substantially similar. (Tables are available from the authors.) Rates of *DSM-III-R* diagnoses without impairment are presented in the following tables.

Findings

Table 2 (page 7) shows that nearly two-thirds of males and nearly three-quarters of females met the diagnostic criteria for one or more of the disorders listed. Overall rates excluding conduct disorder were also calculated because many of its symptoms are related to delinquent behaviors. Excluding conduct disorder, overall rates decreased only slightly.

Prevalence by Gender

The most common disorders among males and females were substance use and disruptive behavior. One-half of males and almost one-half of females met criteria for a substance use disorder; more than 40 percent of males and females met the criteria for disruptive

Table 1: Published Studies of Psychiatric Disorders in Incarcerated, Detained, and Secured Juvenile Populations in the United States, From 1990 to 2003

Author(s)/Year	Sample*	Diagnostic Measures*	Major Findings*																																																
Davis et al., 1991	Participants: Youth in a state residential facility <i>N</i> : 173 Age: N/R Gender: N/R Race/ethnicity: Equally divided between white and nonwhite	Clinical interview (<i>DSM-III-R</i> criteria)	Affective: Dysthymia: 17%; MDD: 15% SUD/AUD: Alcohol abuse disorder: 34%; alcohol dependence disorder: 12%; drug abuse disorder: 45%; drug dependence disorder: 19% CD: 81% Other: ADD: 19%; adjustment disorder: 18%; any developmental disorder: 17%; any PD: 17%; ODD: 5%																																																
Forehand et al., 1991	Participants: Youth in a juvenile prison <i>N</i> : 52 Age: 16 Gender: Male Race/ethnicity: African American: 63%; white: 37%	DISC-2	Affective: MDD: 33% CD: Group delinquency: 58%; solitary aggression: 23% Anxiety: Overanxious: 40% Other: ADD: 27%																																																
Eppright et al., 1993	Participants: Youth in a juvenile detention center <i>N</i> : 100 Age: 14.6 Gender: 21 females; 79 males Race/ethnicity: African American: 32%; white: 68%	DICA-R; SCID-II	CD: 87% Other: Antisocial PD: 75%; avoidant PD: 4%; borderline PD: 27%; dependent PD: 7%; histrionic PD: 3%; narcissistic PD: 8%; obsessive-compulsive PD: 2%; paranoid PD: 17%; passive aggressive PD: 14%; schizoid PD: 1%; schizotypal PD: 0%; self-defeating PD: 2%																																																
Rohde, Mace, and Seeley, 1997	Participants: Youth in a secure detention facility <i>N</i> : 60 Age: 14.9 Gender: 16 females; 44 males Race/ethnicity: African American: 2%; Asian/Pacific Islander: 2%; Hispanic: 7%; American Indian: 5%; white: 83%; other: 2%	K-SADS-PL (additional items added for <i>DSM-III-R</i> criteria)	<table border="1"> <thead> <tr> <th></th> <th>Lifetime (%)</th> <th>Current (%)</th> </tr> </thead> <tbody> <tr> <td colspan="3">Affective</td> </tr> <tr> <td>Dysthymia</td> <td>8</td> <td>8</td> </tr> <tr> <td>MDD</td> <td>40</td> <td>23</td> </tr> <tr> <td colspan="3">SUD/AUD</td> </tr> <tr> <td>Alcohol abuse</td> <td>7</td> <td>2</td> </tr> <tr> <td>Alcohol dependence</td> <td>42</td> <td>18</td> </tr> <tr> <td>Hard drug abuse</td> <td>7</td> <td>2</td> </tr> <tr> <td>Hard drug dependence</td> <td>33</td> <td>17</td> </tr> <tr> <td>Marijuana abuse</td> <td>5</td> <td>3</td> </tr> <tr> <td>Marijuana dependence</td> <td>43</td> <td>23</td> </tr> <tr> <td>CD</td> <td>73</td> <td>73</td> </tr> <tr> <td>Anxiety</td> <td>18</td> <td>10</td> </tr> <tr> <td colspan="3">Other</td> </tr> <tr> <td>ADHD</td> <td>17</td> <td>13</td> </tr> <tr> <td>ODD</td> <td>17</td> <td>2</td> </tr> </tbody> </table>		Lifetime (%)	Current (%)	Affective			Dysthymia	8	8	MDD	40	23	SUD/AUD			Alcohol abuse	7	2	Alcohol dependence	42	18	Hard drug abuse	7	2	Hard drug dependence	33	17	Marijuana abuse	5	3	Marijuana dependence	43	23	CD	73	73	Anxiety	18	10	Other			ADHD	17	13	ODD	17	2
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Steiner, Garcia, and Mathews, 1997	Participants: Violent incarcerated youth <i>N</i> : 85 Age: 16.6 Gender: Male Race/ethnicity: African American: 38%; Hispanic: 27%; white: 30%; other: 5%	Psychiatric Diagnostic Interview-Revised	Anxiety: 20% met "partial criteria" for PTSD; 32% met full criteria.																																																
Timmons-Mitchell et al., 1997	Participants: Institutionalized delinquents <i>N</i> : 50 Age: 15.7 for females; 15.9 for males Gender: 25 females; 25 males Race/ethnicity: N/R Other: Of the total sample of 173 subjects, 50 were interviewed using DISC.	DISC (modified)	<table border="1"> <thead> <tr> <th></th> <th>Male (%)</th> <th>Female (%)</th> </tr> </thead> <tbody> <tr> <td colspan="3">Psychosis</td> </tr> <tr> <td>16</td> <td>16</td> <td>12</td> </tr> <tr> <td colspan="3">Affective</td> </tr> <tr> <td>72</td> <td>72</td> <td>88</td> </tr> <tr> <td colspan="3">SUD</td> </tr> <tr> <td>88</td> <td>88</td> <td>56</td> </tr> <tr> <td colspan="3">CD</td> </tr> <tr> <td>100</td> <td>100</td> <td>96</td> </tr> <tr> <td colspan="3">Anxiety</td> </tr> <tr> <td>52</td> <td>52</td> <td>72</td> </tr> <tr> <td colspan="3">Other</td> </tr> <tr> <td>ADHD</td> <td>76</td> <td>68</td> </tr> <tr> <td>Eating disorder</td> <td>0</td> <td>16</td> </tr> <tr> <td>Sleep disorder</td> <td>68</td> <td>72</td> </tr> </tbody> </table>		Male (%)	Female (%)	Psychosis			16	16	12	Affective			72	72	88	SUD			88	88	56	CD			100	100	96	Anxiety			52	52	72	Other			ADHD	76	68	Eating disorder	0	16	Sleep disorder	68	72			
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(continued)

Table 1—Continued

Author(s)/Year	Sample*	Diagnostic Measures*	Major Findings*																																																								
Cauffman et al., 1998	<p>Participants: Incarcerated wards N: 189 Age: 17.2 for females; 16.6 for males Gender: 96 females; 93 males Race/ethnicity:</p> <table border="1"> <thead> <tr> <th></th> <th>Male (%)</th> <th>Female (%)</th> </tr> </thead> <tbody> <tr> <td>African American</td> <td>38</td> <td>21</td> </tr> <tr> <td>Hispanic</td> <td>27</td> <td>29</td> </tr> <tr> <td>White</td> <td>30</td> <td>23</td> </tr> <tr> <td>Other</td> <td>5</td> <td>27</td> </tr> </tbody> </table>		Male (%)	Female (%)	African American	38	21	Hispanic	27	29	White	30	23	Other	5	27	Psychiatric Diagnostic Interview—Revised (PTSD module only)	Anxiety: PTSD: 32% (male); 49% (female)																																									
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Duclos et al., 1998	<p>Participants: Youth in a detention facility N: 150 Age: 15 (median) Gender: 65 females; 85 males Race/ethnicity: 100% American Indian, specific group(s) N/R Other: 77% status offenders</p>	DISC 2.3; CIDI	<table border="1"> <thead> <tr> <th></th> <th>Male (%)</th> <th>Female (%)</th> <th>Total (%)</th> </tr> </thead> <tbody> <tr> <td>Affective</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Dysthymia</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>MDD</td> <td>6</td> <td>16</td> <td>10</td> </tr> <tr> <td>SUD/AUD</td> <td>37</td> <td>39</td> <td>38</td> </tr> <tr> <td>CD</td> <td>21</td> <td>11</td> <td>17</td> </tr> <tr> <td>Anxiety (any)</td> <td>2</td> <td>13</td> <td>7</td> </tr> <tr> <td>Generalized</td> <td>0</td> <td>8</td> <td>3</td> </tr> <tr> <td>Overanxious</td> <td>0</td> <td>13</td> <td>5</td> </tr> <tr> <td>PTSD</td> <td>2</td> <td>0</td> <td>1</td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> </tr> <tr> <td>ODD</td> <td>1</td> <td>3</td> <td>2</td> </tr> <tr> <td>ADHD</td> <td>6</td> <td>11</td> <td>8</td> </tr> <tr> <td>Comorbidity†</td> <td>17</td> <td>27</td> <td>21</td> </tr> </tbody> </table>		Male (%)	Female (%)	Total (%)	Affective				Dysthymia	0	0	0	MDD	6	16	10	SUD/AUD	37	39	38	CD	21	11	17	Anxiety (any)	2	13	7	Generalized	0	8	3	Overanxious	0	13	5	PTSD	2	0	1	Other				ODD	1	3	2	ADHD	6	11	8	Comorbidity †	17	27	21
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Atkins et al., 1999	<p>Participants: Youth in a detention facility N: 75 Age: 15.5 Gender: 4 females; 71 males Race/ethnicity: African American: 77%; non-Hispanic white: 23%</p>	DISC 2.3	<p>Psychosis: 45% Affective: 24% SUD: 20% CD: 40% Anxiety: 33% Other: ODD: 15%; ADHD: 1% Comorbidity: Mean of 2.4 diagnoses per youth</p>																																																								
Erwin et al., 2000	<p>Participants: Youth in a secure juvenile treatment facility N: 51 Age: 17.5 Gender: Male Race/ethnicity: African American: 28%; Hispanic: 12%; white: 57%</p>	Clinician-Administered PTSD Scale for Children and Adolescents	Anxiety: Lifetime PTSD: 45%; current PTSD: 18%																																																								
Pliszka et al., 2000	<p>Participants: Youth in a detention center N: 50 Age: 15.4 Gender: 5 females; 45 males Race/ethnicity: N/R</p>	DISC 2.3	<p>Affective (any): 42%; MDD: 20%; mania: 20% SUD: Alcohol dependence: 28%; marijuana dependence: 46%; other: 14% CD: 60% Other: ADHD: 18%; ODD: 24% Comorbidity‡</p>																																																								
Aarons et al., 2001	<p>Participants: Adjudicated youth N: 419 Age: 16.9 Gender: 34% female; 66% male Race/ethnicity: African American: 21%; Asian/Pacific Islander: 9%; Hispanic: 29%; non-Hispanic white: 34%; biracial: 4%; other: 3% Other: Participants from a subsample (<i>n</i>=1,036) of a larger study titled “Patterns of Care”; age and race based on the total subsample</p>	CIDI (SUD module only)	<table border="1"> <thead> <tr> <th></th> <th>Lifetime (%)</th> <th>Past Year (%)</th> </tr> </thead> <tbody> <tr> <td>SUD/AUD (any)</td> <td>62</td> <td>37</td> </tr> <tr> <td>AUD</td> <td>49</td> <td>28</td> </tr> <tr> <td>Amphetamine</td> <td>23</td> <td>10</td> </tr> <tr> <td>Cannabis</td> <td>46</td> <td>15</td> </tr> <tr> <td>Cocaine</td> <td>2</td> <td>0.5</td> </tr> <tr> <td>Hallucinogen</td> <td>9</td> <td>3</td> </tr> <tr> <td>Opiate</td> <td>0.5</td> <td>0</td> </tr> </tbody> </table>		Lifetime (%)	Past Year (%)	SUD/AUD (any)	62	37	AUD	49	28	Amphetamine	23	10	Cannabis	46	15	Cocaine	2	0.5	Hallucinogen	9	3	Opiate	0.5	0																																
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(continued)

Table 1—Continued

Author(s)/Year	Sample*	Diagnostic Measures*	Major Findings*																																										
Garland et al., 2001	Participants: Adjudicated youth N: 478 Age: 16.9 Gender: 74 females; 404 males Race/ethnicity: African American: 21%; Asian/Pacific Islander: 6%; Hispanic: 26%; white: 39%; mixed: 5%; other: 3% Other: Participants from a subsample (<i>n</i> =1,618) of a larger study titled "Patterns of Care"; age and race based on total subsample	Computer-assisted DISC-IV	Affective (any): 7%; dysthymia: 0%; hypomania: 1%; MDD: 5%; mania: 2% CD: 30% Anxiety (any): 9%; generalized anxiety: 1%; obsessive-compulsive: 2%; panic: 0%; PTSD: 3%; separation anxiety: 4%; social phobia: 2% Other: Any DBD: 48%; ADHD: 13%; ODD: 15%																																										
Shelton, 2001	Participants: Youth in commitment and detention facilities N: 312 Age: 12–20 (mean or median N/R) Gender: 60 females; 252 males Race/ethnicity: African American: 57%; Hispanic and other: 17%; white: 26%	DISC; C-GAS	Psychosis: 32% Affective: 17% SUD: 37% Anxiety: 58% Other: Any DBD: 40%; miscellaneous disorders: 18% Comorbidity: [§]																																										
McCabe et al., 2002	Participants: Adjudicated youth N: 625 Age: 16.2 Gender: 112 females; 513 males Race/ethnicity: African American: 19%; Asian/Pacific Islander: 12%; Hispanic: 30%; white: 29%; biracial/other: 9% Other: Participants from a larger study titled "Patterns of Care" (<i>n</i> =1,715)	Computer-assisted DISC-IV (selected modules); CIDI Substance Abuse Module	<table border="1"> <thead> <tr> <th></th> <th>Male (%)</th> <th>Female (%)</th> </tr> </thead> <tbody> <tr> <td>Affective (any)</td> <td>5</td> <td>16</td> </tr> <tr> <td> MDD</td> <td>3</td> <td>14</td> </tr> <tr> <td> Mania</td> <td>1</td> <td>3</td> </tr> <tr> <td>SUD</td> <td>37</td> <td>28</td> </tr> <tr> <td>CD</td> <td>33</td> <td>38</td> </tr> <tr> <td>Anxiety (any)</td> <td>8</td> <td>15</td> </tr> <tr> <td> PTSD</td> <td>2</td> <td>7</td> </tr> <tr> <td> Separation</td> <td>4</td> <td>10</td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> <tr> <td> Any DBD</td> <td>49</td> <td>64</td> </tr> <tr> <td> ADHD</td> <td>15</td> <td>21</td> </tr> <tr> <td> ODD</td> <td>30</td> <td>42</td> </tr> <tr> <td>Comorbidity</td> <td>38</td> <td>28</td> </tr> </tbody> </table>		Male (%)	Female (%)	Affective (any)	5	16	MDD	3	14	Mania	1	3	SUD	37	28	CD	33	38	Anxiety (any)	8	15	PTSD	2	7	Separation	4	10	Other			Any DBD	49	64	ADHD	15	21	ODD	30	42	Comorbidity	38	28
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Wasserman et al., 2002	Participants: Youth in secure facilities N: 292 Age: 17 Gender: Male Race/ethnicity: African American: 54%; Hispanic: 16%; white: 28%; other: 2%	Voice DISC-IV	Affective (any): 10%; dysthymic: 1%; hypomanic: 1%; MDD: 8%; manic: 2% SUD (any): 50%; alcohol abuse: 17%; alcohol dependence: 13%; marijuana abuse: 15%; marijuana dependence: 26%; other substance abuse: 4%; other substance dependence: 13% CD: 32% Anxiety (any): 20%; agoraphobia: 5%; generalized anxiety: 2%; obsessive-compulsive: 5%; panic: 5%; PTSD: 5%; specific phobia: 9%; social phobia: 2% Other: Any DBD: 33%; ADHD: 2%																																										

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behavior disorders. More than one-fourth of females and almost one-fifth of males met the criteria for one or more affective disorders.

Table 2 reports the female-to-male odds ratios. 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, panic disorder, separation anxiety disorder,

overanxious disorder, and substance use disorder other than alcohol or marijuana. Significantly more females (56.5 percent) than males (45.9 percent) met criteria for two or more of the following disorders: major depressive, dysthymic, manic, psychotic, panic, separation anxiety, overanxious, generalized anxiety, obsessive-compulsive, ADHD, conduct, oppositional defiant, alcohol, marijuana, and other substance use. Approximately one-fifth of

females (17.3 percent) and males (20.4 percent) had only one disorder (Abram et al., 2003).

Figures 1 and 2 (page 8) indicate substantial comorbidity for females and males. (Psychoses were omitted from this analysis because there were so few cases.) Patterns of overlap differ somewhat by gender. Nearly one-third of females (29.5 percent) and males (30.8 percent) had substance use disorders and ADHD or

Table 1—Continued

Author(s)/Year	Sample*	Diagnostic Measures*	Major Findings*																		
Domalanta et al., 2003	Participants: Youth in a detention center N: 1,024 Age: 14.9 for females; 15.3 for males Gender: 274 females; 750 males Race/Ethnicity: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>Male (%)</th> <th>Female (%)</th> </tr> </thead> <tbody> <tr> <td>African American</td> <td>42</td> <td>33</td> </tr> <tr> <td>Hispanic</td> <td>35</td> <td>37</td> </tr> <tr> <td>White</td> <td>19</td> <td>23</td> </tr> <tr> <td>Other</td> <td>4</td> <td>7</td> </tr> </tbody> </table>		Male (%)	Female (%)	African American	42	33	Hispanic	35	37	White	19	23	Other	4	7	Patient health questionnaire		Male (%)	Female (%)	Total (%)
			Male (%)	Female (%)																	
		African American	42	33																	
		Hispanic	35	37																	
		White	19	23																	
		Other	4	7																	
		Affective (any)	26	31																	
		MDD	10	10																	
		Mood NOS	12	13																	
		Other mood	4	8																	
SUD	43	36																			
AUD	27	27																			
Anxiety																					
Other	8	12																			
Panic	5	8																			
Somatoform	12	22																			
Comorbidity**					38																

Notes: Treatment studies are not included; only diagnoses reported by each study are displayed. Percentages are rounded to the nearest whole number. Mean age in years is reported unless unavailable or otherwise indicated.

*ADD = attention-deficit disorder; ADHD = attention-deficit/hyperactivity disorder; AUD = alcohol use disorder; CD = conduct disorder; C-GAS = Children's Global Assessment Scale; CIDI = Composite International Diagnostic Interview; DBD = disruptive behavior disorder; DICA-R = Diagnostic Interview for Children and Adolescents-Revised; DISC = Diagnostic Interview Schedule for Children; DSM = *Diagnostic and Statistical Manual of Mental Disorders*; K-SADS-PL = Kiddie-Schedule for Affective Disorders, Present and Lifetime Version; MDD = major depressive disorder; NOS = not otherwise specified; N/R = not reported; ODD = oppositional-defiant disorder; PD = personality disorder; PTSD = posttraumatic stress disorder; SCID = Structured Clinical Interview for DSM; SUD = substance use disorder

† Of the 21% with two or more disorders, 83% had SUD and DBD.

‡ Among those with mania, 82% had CD, 36% had alcohol dependence, 64% had marijuana dependence, and 45% had other substance dependence. Among those with MDD, 80% had CD, 20% had alcohol dependence, and 60% had marijuana dependence.

§ Anxiety and DBD: 28%; anxiety and psychotic: 21%; anxiety and affective: 14%; anxiety and SUD: 25%; DBD and psychotic: 14%; DBD and affective: 9%; DBD and SUD: 19%; psychotic and affective: 1%; psychotic and SUD: 15%; affective and SUD: 7%.

** Among those with MDD, 49% had substance abuse and 39% had alcohol abuse. Among those with alcohol abuse, 14% had MDD and 83% had substance abuse. Among those with substance abuse, 12% had MDD and 55% had alcohol abuse.

disruptive behavior disorders; approximately half of these also had anxiety disorders, affective disorders, or both. Significantly more females (47.8 percent) than males (41.6 percent) had two or more of the following types of disorders: affective, anxiety, substance use, and ADHD or disruptive behavior. Significantly more females (22.5 percent) than males (17.2 percent) had three or more types of disorders. Additional information is available in Abram et al., 2003.

Prevalence by Race and Ethnicity

Tables 3 and 4 (pages 9 and 10) show the prevalence rates of disorders for males and females by race and ethnicity. Table 3 indicates that among males, non-Hispanic whites had the highest rates for many disorders and African Americans had the lowest. 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. Compared with African Americans, Hispanics had higher rates of panic disorder, obsessive-compulsive disorder, and substance use disorder other than alcohol or marijuana. 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 prevalence rates among females by race and ethnicity. Compared with African American females, non-Hispanic white females had significantly higher rates of any disorder, any disorder except conduct disorder, any disruptive behavior disorder, conduct disorder, and all substance use disorders. Compared with Hispanic females, non-Hispanic white

females had higher rates of any disorder except conduct disorder. Hispanic females had higher rates of generalized anxiety disorder than either African American or non-Hispanic white females. Compared with African American females, Hispanic females had higher rates of all disruptive behavior disorders, alcohol use disorder, substance use disorder other than alcohol or marijuana, and alcohol and drug use disorders.

Among females, significantly more non-Hispanic whites (63.1 percent) had two or more types of disorders than African Americans (42.6 percent). Among males also, significantly more non-Hispanic whites (53.1 percent) had two or more types of disorders than African Americans (40.7 percent). The odds of having comorbid disorders were higher than expected for most racial and ethnic subgroups, except when base rates of disorders were already high or when there were few participants in a category (Abram et al., 2003).

Prevalence by Age

Tables 5 and 6 (pages 11 and 12) show the prevalence of disorders for males and females by age. Table 5 indicates that among males, the youngest age group had the lowest rates of many disorders, including any disorder, any disorder except conduct disorder, generalized anxiety disorder, and all the substance use disorders. The 14–15 age group had higher rates of psychotic disorders than the 16-and-older age group. Significantly more males age 16 and older (41.2 percent) had two or more types of disorders than males age 13 and younger (27.0 percent). Similarly, more males age 14 and 15 (45.3 percent) had two or more types of disorders than males age 13 and younger (Abram et al., 2003).

Table 6 indicates that patterns of disorders are different for females than for

males. The oldest female age group had significantly lower rates of oppositional-defiant disorder than the younger age groups. Compared with the older age groups, the youngest age group had significantly lower rates of any substance use disorder and marijuana use disorder. Among females, there were no significant age differences in the prevalence of comorbid disorder types.

Comorbidity of Substance Use Disorders and Major Mental Disorders

More than one-tenth of males (10.8 percent) and 13.7 percent of females had a major mental disorder (psychosis, manic episode, or major depressive episode) and

a substance use disorder (Abram et al., 2003). These disorders were examined in depth because detention centers are mandated to treat major mental disorders and because comorbidity complicates treatment.

Prevalence of Substance Use Disorders Among Youth With Major Mental Disorders

Compared with participants with no major mental disorder,¹ females and males with any major mental disorder had significantly greater odds of having substance use disorders. Two subcategories of major mental disorder were examined: psychosis or manic episode (combined

¹ Relevant analyses regarding major mental disorders are available from authors.

Table 2: Six-Month Prevalence and Odds Ratios of *DSM-III-R* Diagnoses, by Gender

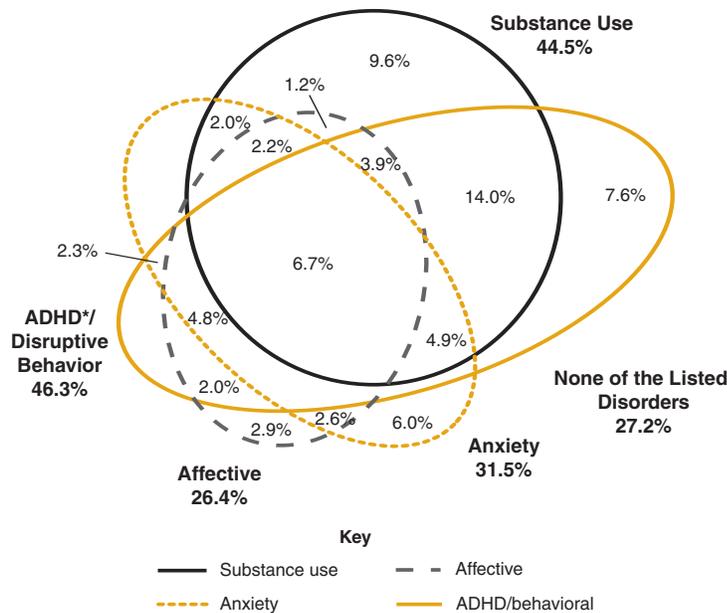
Disorder	Male (%) (<i>n</i> =1,170)	Female (%) (<i>n</i> =656)	Female-to-Male Odds Ratios
Any of the listed disorders	66.3	73.8	1.43†
Any except conduct disorder	60.9	70.0	1.49†
Any affective disorder	18.7	27.6	1.66†
Major depressive episode	13.0	21.6	1.85†
Dysthymia	12.2	15.8	1.34
Manic episode	2.2	1.8	0.81
Psychotic disorders	1.0	1.0	0.98
Any anxiety disorder	21.3	30.8	1.64†
Panic disorder	0.3	1.5	5.65†
Separation anxiety disorder	12.9	18.6	1.55†
Overanxious disorder	6.7	12.3	1.95†
Generalized anxiety disorder	7.1	7.3	1.03
Obsessive-compulsive disorder	8.3	10.6	1.31
Attention-deficit/ hyperactivity disorder*	16.6	21.4	1.37
Any disruptive behavior disorder	41.4	45.6	1.19
Oppositional-defiant disorder	14.5	17.5	1.25
Conduct disorder	37.8	40.6	1.12
Any substance use disorder	50.7	46.8	0.86
Alcohol use disorder	25.9	26.5	1.03
Marijuana use disorder	44.8	40.5	0.84
Other substance use disorder	2.4	6.9	3.00†
Alcohol and other drug use disorders	20.7	20.9	1.01

Notes: The odds ratios show the relative likelihood of one group having a disorder compared with another group. For the female-to-male odds ratios, odds ratios greater than 1.0 indicate that females had higher odds of having a specific disorder than males; ratios less than 1.0 show that females had lower odds of having the disorder.

*Attention-deficit/hyperactivity disorder is reported without the criterion of onset before age 7 because caretaker information is not available and self-reporting of symptoms before age 7 is unreliable.

† Odds ratios are significant at $p < .05$.

Figure 1: Comorbidity Among Females, by Disorder



Note: Detail may not total 100% due to rounding.
*Attention-deficit/hyperactivity disorder.

Age differences. Among females with major mental disorders, no significant differences existed by age. Among males, nearly 90 percent of those age 16 and older with a major mental disorder also had a substance use disorder, significantly more than males ages 10–13 and 14–15 (55.2 percent and 60.6 percent, respectively).

Prevalence of Major Mental Disorders Among Youth With Substance Use Disorders

Nearly 30 percent of females and more than 20 percent of males with any substance use disorder also had a major mental disorder. Among youth with drug and alcohol use disorders, more than one-third of females and more than one-quarter of males had a major mental disorder. There were no significant differences by gender, race and ethnicity, or age.

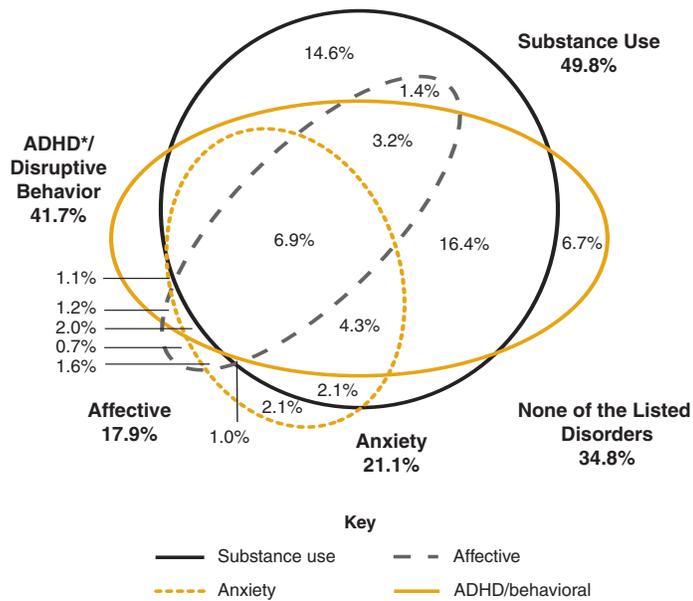
Compared with participants with no substance use disorder (the residual category), females and males with any substance use disorder had significantly greater odds of having any major mental disorder and its subcategory, major

because there were too few cases to analyze separately and because these disorders have similar symptoms) and major depressive episode. Most odds ratios for these subcategories were statistically significant, except when cell sizes were small.

Gender differences. Among youth with major mental disorders ($n=305$), more than half of females and nearly three-quarters of males had any substance use disorder. Differences between females and males (and the corresponding odds ratios) were not statistically significant.

Racial and ethnic differences. Among females with major mental disorders, significantly more non-Hispanic whites and Hispanics had drug and alcohol use disorders than did African Americans (50.0 percent and 43.4 percent, respectively, versus 21.3 percent). Significantly more Hispanic females had alcohol use disorders than did African Americans (52.5 percent versus 26.6 percent). Among males with major mental disorders, no significant differences existed relative to race and ethnicity.

Figure 2: Comorbidity Among Males, by Disorder



Note: Detail may not total 100% due to rounding.
*Attention-deficit/hyperactivity disorder.

Table 3: Six-Month Prevalence of *DSM-III-R* Diagnoses for Males, by Race and Ethnicity

Disorder	African American (%) (n=574)	Non-Hispanic White (%) (n=207)	Hispanic (%) (n=386)	Overall Significance	Specific Tests*
Any of the listed disorders	64.6	82.0	70.4	< .001	White > African American; white > Hispanic
Any except conduct disorder	59.4	72.9	65.3	.009	White > African American
Any affective disorder	18.6	13.8	21.5	.19	
Major depressive episode	12.5	9.5	16.6	.20	
Dysthymia	12.2	9.5	13.3	.53	
Manic episode	2.5	0.5	1.4	.27	
Psychotic disorders	1.0	2.6	0.7	.19	
Any anxiety disorder	20.9	14.4	25.5	.05	Hispanic > white
Panic disorder	0.1	0.5	1.0	.04	Hispanic > African American
Separation anxiety disorder	12.7	5.9	15.5	.02	African American > white; Hispanic > white
Overanxious disorder	6.9	2.9	7.0	.16	
Generalized anxiety disorder	7.5	2.5	7.2	.08	
Obsessive-compulsive disorder	6.5	9.3	17.0	.01	Hispanic > African American
Attention-deficit/ hyperactivity disorder[†]	17.0	20.9	13.7	.18	
Any disruptive behavior disorder	39.8	60.3	43.3	< .001	White > African American; white > Hispanic
Oppositional-defiant disorder	14.4	19.4	13.6	.23	
Conduct disorder	35.6	59.9	41.7	< .001	White > African American; white > Hispanic
Any substance use disorder	49.1	62.6	55.4	.01	White > African American
Alcohol use disorder	24.6	30.1	30.8	.28	
Marijuana use disorder	44.4	53.8	45.4	.11	
Other substance use disorder	0.5	21.1	6.0	< .001	White > African American; white > Hispanic; Hispanic > African American
Alcohol and other drug use disorders	20.4	24.0	21.7	.65	

* Specific tests are performed only if the alpha for the overall test is less than .05.

† Attention-deficit/hyperactivity disorder is reported without the criterion of onset before age 7 because caretaker information is not available and self-reporting of symptoms before age 7 is unreliable.

depressive episode. Among males, odds ratios for psychosis or a manic episode were significant for alcohol use disorder and comorbid drug and alcohol use disorders.

Relative Onset of Major Mental Disorders and Substance Use Disorders

One-quarter of females (27.2 percent) and males (25.0 percent) reported that their major mental disorder preceded their substance use disorder by more than 1 year. One-tenth of females (9.8 percent) and 20.7 percent of males reported that their

substance use disorder preceded their major mental disorder by more than 1 year. Nearly two-thirds of females (63.0 percent) and 54.3 percent of males developed their disorders within the same year. Findings were similar for subcategories of disorders.

Analysis

Data gathered by the Northwestern Juvenile Project indicate that youth with psychiatric and substance use disorders pose a challenge for the juvenile justice system. Even when conduct disorder was excluded, 60 percent of male and 70

percent of female juvenile detainees met diagnostic criteria for one or more psychiatric disorders. Comorbidity was common. To the extent that Cook County is typical, the findings suggest that on an average day, as many as 72,000 detained youth have at least one psychiatric disorder; 47,000 detained youth have two or more types of psychiatric disorders; and more than 12,000 detained youth have both a major mental disorder and a substance use disorder.

The prevalence of psychiatric disorders among youth entering the juvenile justice system may be greater than that of detainees, as reflected in this study. The

Table 4: Six-Month Prevalence of *DSM-III-R* Diagnoses for Females, by Race and Ethnicity

Disorder	African American (%) (n=430)	Non-Hispanic White (%) (n=89)	Hispanic (%) (n=136)	Overall Significance	Specific Tests*
Any of the listed disorders	70.9	86.1	75.9	.01	White > African American
Any except conduct disorder	67.4	83.9	69.5	.01	White > African American; white > Hispanic
Any affective disorder	26.2	23.4	28.7	.68	
Major depressive episode	19.7	19.0	22.8	.70	
Dysthymia	15.5	17.9	17.2	.80	
Manic episode	1.9	1.1	2.1	.85	
Psychotic disorders	0.9	0.0	2.1	.29†	
Any anxiety disorder	31.2	30.0	32.6	.92	
Panic disorder	0.9	3.4	2.8	.17	
Separation anxiety disorder	18.9	14.5	21.7	.41	
Overanxious disorder	12.5	11.1	13.2	.90	
Generalized anxiety disorder	6.6	4.4	13.1	.03	Hispanic > African American; Hispanic > White
Obsessive-compulsive disorder	10.3	12.4	10.6	.84	
Attention-deficit/hyperactivity disorder‡	20.0	22.2	29.3	.08	
Any disruptive behavior disorder	39.4	61.6	56.5	<.001	White > African American; Hispanic > African American
Oppositional-defiant disorder	15.8	17.8	26.2	.03	Hispanic > African American
Conduct disorder	34.3	58.9	50.2	<.001	White > African American; Hispanic > African American
Any substance use disorder	42.3	61.9	51.7	.002	White > African American
Alcohol use disorder	21.2	39.2	34.0	<.001	White > African American; Hispanic > African American
Marijuana use disorder	37.8	53.4	44.7	.02	White > African American
Other substance use disorder	0.9	20.0	14.7	<.001	White > African American; Hispanic > African American
Alcohol and other drug use disorders	17.2	35.1	28.3	<.001	White > African American; Hispanic > African American

* Specific tests are performed only if the alpha for the overall test is less than .05.

† Test computed with one degree of freedom because of empty cells.

‡ Attention-deficit/hyperactivity disorder is reported without the criterion of onset before age 7 because caretaker information is not available and self-reporting of symptoms before age 7 is unreliable.

sample included only detainees; it excluded youth who were not detained because their charges were less serious, because they were immediately released, or because they were referred directly to the mental health system. Moreover, under reporting of symptoms and impairments by youth is common, especially for disruptive behavior disorders (Schwab-Stone et al., 1996).

Comparing these findings with studies of youth in the general population is difficult because published estimates for the latter vary widely depending on the sample, the method, the source of data, and whether

functional impairment was required for diagnosis (Roberts, Attkisson, and Rosenblatt, 1998). Despite these differences, the overall rates presented here are substantially higher than the median rate (15 percent) reported by Roberts, Attkisson, and Rosenblatt (1998) and the rates of other recent investigations (Costello et al., 1996b; Simonoff et al., 1997; Shaffer et al., 1996; and Turner and Gil, 2002). The rates of comorbidity reported here are also substantially higher than those reported in community samples (Angold, Costello, and Erkanli, 1999; Costello et al., 1996a; Costello et al., 1999; Kessler and Walters, 1998; Lewinsohn, Gotlib, and Seeley, 1995).

Of particular concern are the high rates of depression and dysthymia among detained youth,² which are also higher than rates in the general population (Costello et al., 1996a; Costello et al., 1996b; Garrison et al., 1997; Kessler and Walters, 1998; McGee et al., 1992; Simonoff et al., 1997; Turner and Gil, 2002). Depressive disorders, which are a risk factor for suicide and attempted suicide, are difficult to detect and treat in the corrections milieu. Overall, the prevalence rates presented

² Although not included in table 2, combined prevalence rates of major depressive episode and dysthymia were 17 percent for males and 24 percent for females.

Table 5: Six-Month Prevalence of *DSM-III-R* Diagnoses for Males, by Age

Disorder	13 and Younger (%) (n=315)	14–15 Years Old (%) (n=361)	16 and Older (%) (n=494)	Overall Significance	Specific Tests*
Any of the listed disorders	52.7	68.0	67.3	.001	14 and 15 years > 13 and younger; 16 and older > 13 and younger
Any except conduct disorder	44.9	63.4	61.8	< .001	14 and 15 years > 13 and younger; 16 and older > 13 and younger
Any affective disorder	13.0	21.2	17.7	.09	
Major depressive episode	7.5	14.8	12.4	.06	
Dysthymia	7.3	14.5	11.2	.08	
Manic episode	1.6	2.6	2.0	.80	
Psychotic disorders	0.0	2.1	0.3	.01†	14 and 15 years > 16 and older
Any anxiety disorder	17.7	23.0	20.6	.42	
Panic disorder	0.8	0.1	0.3	.25	
Separation anxiety disorder	10.0	14.5	12.0	.40	
Overanxious disorder	4.8	5.1	8.4	.25	
Generalized anxiety disorder	1.3	5.9	9.2	.001	14 and 15 years > 13 and younger; 16 and older > 13 and younger
Obsessive-compulsive disorder	6.0	9.4	7.8	.43	
Attention-deficit/ hyperactivity disorder‡	12.5	20.9	13.8	.06	
Any disruptive behavior disorder	32.9	43.5	41.2	.06	
Oppositional-defiant disorder	10.7	18.2	12.1	.08	
Conduct disorder	30.8	41.1	36.4	.10	
Any substance use disorder	28.3	51.3	54.4	< .001	14 and 15 years > 13 and younger; 16 and older > 13 and younger
Alcohol use disorder	12.9	25.6	28.7	< .001	14 and 15 years > 13 and younger; 16 and older > 13 and younger
Marijuana use disorder	25.1	46.9	46.8	< .001	14 and 15 years > 13 and younger; 16 and older > 13 and younger
Other substance use disorder	0.8	2.5	2.6	.01	14 and 15 years > 13 and younger; 16 and older > 13 and younger
Alcohol and other drug use disorders	10.2	21.5	22.0	< .001	14 and 15 years > 13 and younger; 16 and older > 13 and younger

* Specific tests are performed only if the alpha for the overall test is less than .05.

† Test computed with one degree of freedom because of empty cells.

‡ Attention-deficit/hyperactivity disorder is reported without the criterion of onset before age 7 because caretaker information is not available and self-reporting of symptoms before age 7 is unreliable.

here are comparable to rates in other high-risk populations, such as maltreated or runaway youth (Famularo, Kinscherff, and Fenton, 1992; Feitel et al., 1992).

The comorbidity of substance use disorders is also of particular concern. Among

the disorders assessed, detainees are more likely to have substance use plus ADHD or disruptive behavior disorders than any other combination. Half of these detainees also have an affective or anxiety disorder. Among adolescent substance users, these internalizing disorders are

associated with more severe substance use (Riggs et al., 1999; Whitmore et al., 1997) but better treatment outcomes (Randall et al., 1999).

The data highlight an important paradox regarding race and ethnicity. More than

Table 6: Six-Month Prevalence of *DSM-III-R* Diagnoses for Females, by Age

Disorder	13 and Younger (%) (n=56)	14–15 Years Old (%) (n=353)	16 and Older (%) (n=247)	Overall Significance	Specific Tests*
Any of the listed disorders	66.7	72.2	77.6	.18	
Any except conduct disorder	64.7	67.4	74.8	.13	
Any affective disorder	20.7	27.9	28.8	.50	
Major depressive episode	13.0	21.6	23.4	.27	
Dysthymia	10.4	15.6	17.2	.46	
Manic episode	3.9	1.4	1.9	.45	
Psychotic disorders	0.0	0.6	1.8	.21†	
Any anxiety disorder	26.6	32.6	29.2	.55	
Panic disorder	1.9	1.7	1.0	.75	
Separation anxiety disorder	18.1	19.7	17.2	.77	
Overanxious disorder	7.1	13.8	11.4	.34	
Generalized anxiety disorder	3.8	7.1	8.4	.51	
Obsessive-compulsive disorder	10.4	11.8	8.8	.51	
Attention-deficit/hyperactivity disorder‡	26.6	22.7	18.5	.30	
Any disruptive behavior disorder	44.7	50.0	39.6	.11	
Oppositional-defiant disorder	30.5	20.2	10.7	<.001	13 years and younger > 16 and older; 14 and 15 > 16 and older
Conduct disorder	33.0	45.3	35.7	.06	
Any substance use disorder	30.5	45.8	52.0	.02	14 and 15 years > 13 and younger; 16 and older > 13 and younger
Alcohol use disorder	16.7	25.4	30.3	.16	
Marijuana use disorder	24.8	41.3	43.3	.04	14 and 15 years > 13 and younger; 16 and older > 13 and younger
Other substance use disorder	5.9	5.3	9.5	.52	
Alcohol and other drug use disorders	11.5	21.8	22.0	.20	

* Specific tests are performed only if the alpha for the overall test is less than .05.

† Test computed with one degree of freedom because of empty cells.

‡ Attention-deficit/hyperactivity disorder is reported without the criterion of onset before age 7 because caretaker information is not available and self-reporting of symptoms before age 7 is unreliable.

one-half of the youth in the juvenile justice system are African American or Hispanic. Therefore, most delinquent youth with psychiatric disorders are minorities. The prevalence of many single and comorbid disorders, however, is highest among non-Hispanic whites. Thus, non-Hispanic white youth in the juvenile justice system may, on average, be more dysfunctional (have greater psychiatric morbidity) than minorities.

Females had higher rates than males of many single and comorbid psychiatric disorders, including major depressive episodes, some anxiety disorders, and substance use disorders other than

alcohol and marijuana (e.g., cocaine and hallucinogens). These findings confirm those of earlier studies of adult female detainees and females with conduct disorder (Lewis et al., 1991; Teplin, Abram, and McClelland, 1996; Wasserman et al., 2005).

In contrast to the general population, males did not have significantly higher odds of ADHD than females. This may reflect a greater prevalence of attentional problems among females in detention compared with those in the general population, or a possible unreliability of the ADHD diagnosis.

The youngest age group (13 and younger) had the lowest prevalence rates of most

disorders, consistent with studies of youth in the general population (Cohen, Cohen, and Brook, 1993; Kandel et al., 1997; Newman et al., 1996; Simonoff et al., 1997). Many youth in the juvenile justice system may develop new or additional disorders as they grow older. Although comorbidity of major mental and substance use disorders is more prevalent among older detainees, this study found no dominant sequence of onset, suggesting that multiple pathways to disorders exist.

Limitations

This study provides a snapshot of the subjects' psychopathology immediately after

arrest and detention. It cannot show whether mental disorder causes delinquency, increases the likelihood of arrest and detention, or is merely a frequent trait among delinquent youth. Some symptoms may be a reaction to detention. Moreover, the rates might differ somewhat using *DSM-IV* rather than *DSM-III-R* criteria. The findings are drawn from one site only and may pertain only to youth in urban detention centers with a similar demographic composition. Finally, because interviewing caretakers was not feasible, the data are subject to the limitations of self-reporting. Despite these constraints, the study has implications for future research on delinquent youth and for the juvenile justice system.

Future Research

Further research is needed to determine the most common pathways to comorbidity, critical periods of vulnerability, and how these factors differ by gender, race and ethnicity, and age. Longitudinal studies that identify the most common developmental sequences would demonstrate when primary and secondary preventive interventions might prove most beneficial (Nottlemann and Jensen, 1995).

Females are increasingly arrested for violent crimes, and they make up a growing proportion of delinquent youth (Office of Juvenile Justice and Delinquency Prevention, 2001; Snyder and Sickmund, 1999). Understanding psychiatric morbidity and associated risk factors among delinquent females could help improve treatment and reduce the cycle of disorder and dysfunction. Earlier studies of conduct-disordered youth (many of whom become delinquent) suggest that females have a greater persistence of emotional disorder and worse outcomes than males (Loeber and Stouthamer-Loeber, 1998; Zoccolillo, 1992). Moreover, problem behaviors among females often persist beyond adolescence. As they grow older, delinquent females may become suicidal, addicted to alcohol or drugs, enmeshed in violent relationships, and unable to care for their children (Lewis et al., 1991; Zoccolillo, 1992). Delinquent females also engage in sexual activity at an earlier age than nonoffenders, placing them at greater risk for unintended pregnancy and the human immunodeficiency virus (Gender-Specific Programming for Girls Advisory Committee, 1998).

Longitudinal studies are needed to examine why some delinquent youth develop new psychopathology and others do not,

to investigate protective factors, and to determine how vulnerability and risk differ by key variables such as gender and race and ethnicity. Many youth in the juvenile justice population will develop new disorders as they grow older. Risk factors for the development of disorders are common among delinquent youth (Werner, 1989). These factors include 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 (Cocozza, 1992). Thus, most youth in the juvenile justice system are at great risk for psychopathology, problem behaviors, and even early death (Lattimore, Linster, and MacDonald, 1997; Loeber et al., 1999; Teplin et al., 2005). Longitudinal data on the subjects described in this Bulletin are being collected. Future papers will address persistence and change in psychiatric disorders (including onset, remission, and recurrence), comorbidity, associated functional impairments, and how these disorders affect risk behaviors that may lead to rearrest.

Implications for Juvenile Justice

Research findings indicate that a substantial number of youth in detention need mental health services. Youth with serious mental disorders have a constitutional right to receive treatment while detained. Providing mental health services to youth in detention and redirecting them to the mental health system after release may help prevent their return to the correctional system (Dembo et al., 1997; National Research Council and Institute of Medicine, 2001). However, providing services within the juvenile justice system poses a number of challenges.

Mental health screening. Identifying youth who need mental health services is a significant first step. Experts recommend that youth be screened for psychiatric problems within 24 hours of admission to a juvenile facility. At a minimum, screening should address acute mental health problems (including psychosis), the risk for suicide or harm to self, the use of psychiatric medications, substance abuse, and the risk for assaultive behavior. Youth who disclose such information should have appropriate legal protections (Wasserman et al., 2003).

Many detention centers do not routinely screen for psychiatric problems (Goldstrom et al., 2001). Only recently have specialized screening tools been developed to assess the mental health needs of youth entering the juvenile justice system (Dembo et al., 1996; Grisso, 1999; Grisso et al., 2001); these instruments need further testing and evaluation.

Mental health services. Youth in need of mental health services require access to them while in detention (Costello and Jameson, 1987; Wasserman et al., 2003). Detention centers should train personnel to detect mental disorders that are overlooked at intake or that arise during incarceration (Dembo et al., 1997; Hayes, 2000; Ulzen and Hamilton, 1998). Furthermore, personnel need to know how to make appropriate referrals once they suspect a disorder may be present.

Although fewer in number, females in detention have greater service needs than males. Earlier studies indicate that females with problem behaviors may have worse outcomes than males (Lewis et al., 1991; Loeber and Stouthamer-Loeber, 1998; Zoccolillo, 1992). Services should be developed to address the unique needs of this growing population.

Community services. Youth typically do not remain in detention for long. Most detainees return to their communities within 2 weeks (Snyder and Sickmund, 1999). Ideally, those with mental disorders should be linked to community mental health services prior to their release (Cocozza and Skowrya, 2000; Faenza, Siegfried, and Wood, 2000). However, youth in the juvenile justice system are disproportionately minority, impoverished, and poorly educated, and many lack social networks—characteristics known to limit the type and scope of mental health services provided to youth (Kataoka, Zhang, and Wells, 2002; McKay, McCadam, and Gonzales, 1996). Juvenile justice administrators need to form collaborative relationships with education, child welfare, mental health, and substance abuse service systems to ensure that youth have adequate access to care after their release.

Because many youth in detention suffer from psychiatric disorders and pose a challenge to the juvenile justice system, research is needed to better understand the comorbidity of psychiatric disorders, psychiatric disorders among females involved in the juvenile justice system,

and the long-term outcomes of detained youth with mental disorders. These youth will continue to overburden the juvenile justice system, and eventually the adult justice system, until it is better able to detect them and respond with an integrated system of appropriate services during detention and after release.

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