U.S. Department of Justice
Office of Justice Programs
Office of Juvenile Justice and Delinquency Prevention

Working for Youth Justice and Safety

JUVENILE JUSTICE BULLETIN

September 2015

Robert L. Listenbee, Administrator

Beyond Detention

Even though research indicates that the majority of youth in the juvenile justice system have been diagnosed with psychiatric disorders, reports issued by the Surgeon General and the President's New Freedom Commission on Mental Health show that juvenile detainees often do not receive the treatment and services they need.

This bulletin series presents the results of the Northwestern Juvenile Project, the first large-scale, prospective longitudinal study of drug, alcohol, and psychiatric disorders in a diverse sample of juvenile detainees. Individual bulletins examine topics such as suicidal behaviors in youth in detention, posttraumatic stress disorder and trauma among this population, functional impairment in youth after detention, and barriers for youth who need to receive mental health services.

Nearly all detained youth eventually return to their communities and the findings presented in this series provide empirical evidence that can be used to better understand how to meet youth's mental health needs and provide appropriate services while in detention and after their release. The Office of Juvenile Justice and Delinquency Prevention hopes this knowledge will help guide innovative juvenile justice policy and create a better future for youth with psychiatric disorders in the justice system.

Psychiatric Disorders in Youth After Detention

Linda A. Teplin, Leah J. Welty, Karen M. Abram, Mina K. Dulcan, Jason J. Washburn, Kathleen McCoy, and Marquita L. Stokes

Highlights

This bulletin examines the results of the Northwestern Juvenile Project—a longitudinal study of youth detained at the Cook County Juvenile Temporary Detention Center in Chicago, IL. The authors discuss the findings related to the prevalence and persistence of psychiatric disorders in youth after detention.

Key findings include the following:

- Five years after the first interview, more than 45 percent of male juveniles and nearly 30 percent of female juveniles had one or more psychiatric disorders.
- Substance use disorders were the most common and most likely to persist. Males had higher prevalence rates of substance use disorders over time.
- As compared to African Americans, non-Hispanic whites and Hispanics had higher rates of substance use disorders.
- Females had higher rates of depression over time.

JUVENILE JUSTICE BULLETIN

SEPTEMBER 2015

Psychiatric Disorders in Youth After Detention

Linda A. Teplin, Leah J. Welty, Karen M. Abram, Mina K. Dulcan, Jason J. Washburn, Kathleen McCoy, and Marquita L. Stokes

Psychiatric disorders are prevalent among incarcerated juveniles (Rohde, Mace, and Seeley, 1997; Timmons-Mitchell et al., 1997; Wasserman et al., 2002), a fact that a 2008 literature review, which concluded that psychiatric disorders are substantially more common in adolescents in detention than among adolescents in the general population, further confirms (Fazel, Doll, and Långström, 2008). The Northwestern Juvenile Project found that at intake to detention, even after excluding the most prevalent disorder found in detained populations—conduct disorder—more than 60 percent of juvenile detainees met the diagnostic criteria for one or more psychiatric disorders (Teplin et al., 2002). Among youth incarcerated for 9 months, Karnik and colleagues (2009) found even higher rates—approximately 90 percent of detainees had a psychiatric disorder other than conduct disorder or oppositional defiant disorder. Using only the lower rate mentioned above (Teplin et al., 2002), an estimated 36,800 of the 61,423 youth held in U.S. correctional facilities each day (Sickmund et al., 2013) have 1 or more psychiatric disorders.

For many of these juveniles, psychiatric disorders will persist as they become young adults because of their continual exposure to numerous risk factors—including maltreatment (Dixon, Howie, and Starling, 2004; Gover, 2004; Wareham and Dembo, 2007), dysfunctional families (Dembo et al., 2007; Dixon, Howie, and Starling, 2004),

ABOUT THIS SERIES

Studies in this series describe the results of statistical analyses of the Northwestern Juvenile Project, the first comprehensive longitudinal study of youth detained at the Cook County Juvenile Temporary Detention Center in Chicago, IL, between 1995 and 1998. The sample included 1,829 male and female detainees between ages 10 and 18. The data come from structured interviews with the youth.

Topics covered in the series include the prevalence of suicidal thoughts and behaviors among juvenile detainees, posttraumatic stress disorder and trauma within this population, functional impairment after detention (at work, at school, at home, or in the community), psychiatric disorders in youth processed in juvenile or adult court, barriers to mental health services, violent death among delinquent youth, and the prevalence of psychiatric disorders in youth after detention. The bulletins can be accessed from the Office of Juvenile Justice and Delinquency Prevention's (OJJDP's) website, ojjdp.gov.

In addition to the funding that OJJDP provided, the research also was supported by the National Institute on Drug Abuse, the National Institute of Mental Health, the National Institute on Alcohol Abuse and Alcoholism, the Substance Abuse and Mental Health Services Administration (Center for Mental Health Services, Center for Substance Abuse Prevention, and Center for Substance Abuse Treatment), the Centers for Disease Control and Prevention (National Center for Injury Prevention and Control and National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention), the National Institutes of Health Office of Research on Women's Health, the National Institute on Minority Health and Health Disparities, the Office of Rare Diseases, the Office of Behavioral and Social Sciences Research, the U.S. Departments of Labor and Housing and Urban Development, the William T. Grant Foundation, and the Robert Wood Johnson Foundation. The John D. and Catherine T. MacArthur Foundation, the Open Society Foundations, and the Chicago Community Trust provided additional funds.

family substance abuse (Wareham and Dembo, 2007), and brain injury (Perron and Howard, 2008). With few protective factors to offset these risks, many delinquent youth are vulnerable to continued psychiatric morbidity as they age (Wareham and Dembo, 2007).

Despite their importance, few longitudinal studies have examined the prevalence and persistence of psychiatric disorders after youth leave detention. Instead, studies of delinquent youth have focused on the association between psychiatric disorders and criminal recidivism, antisocial behavior, or social functioning (Douglas, Epstein, and Poythress, 2008; Hiscoke et al., 2003; Randall et al., 1999). Harrington and colleagues (2005)—the only longitudinal study of the persistence and prevalence of psychiatric disorders in detained youth—found that 2 years after detention, many mental health problems persisted or worsened. However, their sample excluded females, was 80 percent white, and was too small (n = 97) to permit detailed analyses. Moreover, the study was conducted in the United Kingdom, limiting its applicability when generalized to juvenile detainees in the United States.

The related literature—longitudinal studies of high-risk youth—also provides little information. Youth with histories of detention have been included in studies of high-risk youth: homeless youth (Craig and Hodson, 2000; Meyer et al., 2009), youth living in impoverished or high-crime neighborhoods (Cohen et al., 2007; Fothergill et al., 2008; Mason et al., 2004), and the offspring of parents who have used substances or have psychiatric disorders themselves (Buu et al., 2009; King and Chassin, 2007, 2008; Nigg et al., 2006). Yet, none of these studies distinguished between youth with and without histories of detention.

In sum, the researchers do not know of any large-scale longitudinal study that has examined the prevalence and persistence of psychiatric disorders after youth leave detention. This omission is critical. Among detained juvenile offenders, only 28 percent of youth are in facilities 30 days or more (Snyder and Sickmund, 2006), which greatly limits any efforts to diagnose and treat them; therefore, they may pose problems in the community when they are released and may continue to burden society as they age. Epidemiologic studies are the first step to improving prevention and treatment in correctional facilities and in the community (U.S. Department of Health and Human Services, 2011). Data are also needed to address health disparities, a priority of Healthy People 2020 (U.S. Department of Health and Human Services, 2014) and the Institute of Medicine (Smedley, Stith, and Nelson, 2003). African Americans and Hispanics comprise one-third of the general population (see table 11 in U.S. Census Bureau, 2014) but make up nearly two-thirds of the approximately 500,000 incarcerated youth and young adults (age 24 and younger) (Sickmund et al., 2013; West, 2010).

In this bulletin, the authors examine changes in the prevalence and persistence of disorders during the 5 years after detention, focusing on gender and racial/ethnic differences.

Methods

This section provides a brief overview of the authors' methods. Additional, detailed information on the authors' methods, statistical analysis, and potential bias from attrition can be found in Teplin et al. (2012).

Participants and Sampling Procedures

Participants were part of the Northwestern Juvenile Project, a longitudinal study of 1,829 youth (ages 10–18) arrested and detained between November 20, 1995, and June 14, 1998, at the Cook County Juvenile Temporary Detention Center (CCJTDC) in Chicago, IL. The random sample was stratified by gender, race/ethnicity (African American, non-Hispanic white, Hispanic, or other), age (10–13 years or 14 years and older), and legal status (processed in juvenile or adult court) to obtain enough participants to examine key subgroups (e.g., females, Hispanics, younger children).

Like juvenile detainees nationwide, the majority of CCJTDC detainees are male and most belong to racial/ethnic minority groups (77.9 percent African American, 5.6 percent non-Hispanic white, 16 percent Hispanic, and 0.5 percent other racial/ethnic groups). The age and offense distributions of the CCJTDC detainees are also similar to detained juveniles nationwide (Snyder and Sickmund, 2006).

The authors chose the detention center in Cook County, which includes Chicago and surrounding suburbs, for three reasons:

- Nationwide, most juvenile detainees live in and are detained in urban areas (Pastore and Maguire, 2000).
- Cook County is ethnically diverse and has the third-largest Hispanic population in the United States (U.S. Census Bureau, 2001). Studying this population is important because Hispanics are the largest minority group in the United States (U.S. Census Bureau, 2000).
- The detention center's size (daily census of approximately 650 youth and intake of 20 youth per day) ensured a large enough pool of participants would be available.

Table 1. Sample Characteristics at Baseline, Time 1, and Time 2

Characteristic	Baseline (n = 1,829)		Time 1 (n = 1,659)[1]		Time 2 (n = 1,561)[2]	
	Number	Percent	Number	Percent	Number	Percent
Race/Ethnicity						
African American	1,005	54.9	927	55.9	893	57.2
Non-Hispanic white	296	16.2	267	16.1	242	15.5
Hispanic	524	28.6	461	27.8	423	27.1
Other	4	0.2	4	0.2	3	0.2
Gender						
Male	1,172	64.1	1,054	63.5	993	63.6
Female	657	35.9	605	36.5	568	36.4
Legal Status at Detention						
Processed in adult court	275	15.0	263	15.9	244	15.6
Processed in juvenile court	1,554	85.0	1,396	84.1	1,317	84.4
	Age (years)		Age (years)		Age (years)	
Age						
Mean (*SD*)	14.9 (1.4)		18.1 (1.5)		19.8 (1.5)	
Median	15		18		20	
Range	10–18		13–22		14–24	

SD = standard deviation.

Note: Percentages may not sum to 100 due to rounding.

[1] At time 1, 90.7 percent of the participants were interviewed. Of the remaining participants at baseline, 32 had died, 5 refused participation, 41 were lost to followup, and 92 had followup interviews that were out of range.

[2] At time 2, 85.3 percent of the participants were interviewed. Of the remaining participants at baseline, 50 had died, 25 refused participation, 76 were lost to followup, and 117 had followup interviews that were out of range.

Baseline interviews. All detainees who were awaiting the adjudication or disposition of their case were eligible to participate in the study. Among them, 2,275 detainees were randomly selected; 4.2 percent (34 youth and 62 parents or guardians) refused to participate. There were no significant differences in refusal rates by gender, race/ethnicity, or age. The final sample size was 1,829: 1,172 males and 657 females; 1,005 African Americans, 296 non-Hispanic whites, 524 Hispanics, and 4 of other race/ethnicity; with an age range of 10 to 18 years (a mean of 14.9 years and a median of 15 years) (see table 1). Face-to-face structured interviews were conducted at the detention center in a private area, most within 2 days of intake.

Followup interviews. Participants were interviewed at various followup points. Followup interviews were scheduled at 3 years (time 1) and 4.5 years (time 2) after baseline interviews; two additional interviews were scheduled at 3.5 years and 4 years for a random subsample of 997 participants (600 males and 397 females). The median time between baseline and the time 1 interview was 3 years, with a range of 2.7 to 4.5 years. For simplicity, the time 1 interview is considered to occur approximately 3 years after baseline. The median time between baseline and the time 2 interview was 4.7 years, with a range of 4.3 to 6 years. For simplicity, the time 2 interview is considered to occur approximately 5 years after baseline. All interviews were used to examine gender and racial/ethnic differences and to identify changes over time. Teplin and colleagues (2012) contains more information about the statistical analyses.

Analyses

This section discusses methods used in the study.

Baseline interviews. The researchers used the Diagnostic Interview Schedule for Children (DISC), version 2.3 (Fisher et al., 1993; Shaffer et al., 1996), the most recent English and Spanish versions available at the time. This version, based on the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–III–R;* American Psychiatric Association [APA], 1987), assesses the presence of disorders in the past 6 months. It is highly structured, contains detailed symptom probes, has acceptable reliability and validity, and requires relatively brief training (Piacentini et al., 1993; Schwab-Stone et al., 1993, 1996; Shaffer et al., 1993, 1996). Because DISC 2.3 did not include posttraumatic stress disorder (PTSD), the researchers used the module from DISC–IV when it

became available 13 months after the study began (Abram et al., 2004). Additional information about baseline diagnostic decisions can be found in other sources (Abram et al., 2003, 2004; Teplin et al., 2002).

Followup interviews. The researchers administered DISC–IV (child and young adult versions), based on *DSM–IV* (APA, 1994), to assess for schizophrenia, mood disorders, anxiety disorders, attention-deficit/hyperactivity disorder, and disruptive behavior disorders in the past year (Shaffer, Fisher, and Lucas, 2003; Shaffer et al., 2000). They defined impairment as moderate impairment in at least one area of functioning (Canino et al., 2004). The researchers present all analyses using the impairment criterion.

To assess substance use disorders and antisocial personality disorder (APD) at followup, researchers administered the Diagnostic Interview Schedule, version IV (DIS–IV) (Compton and Cottler, 2004; Robins et al., 1995). They used DIS–IV to assess substance use disorders because DISC–IV is not sufficiently detailed for the study population. APD was assessed for participants age 18 and older (who are no longer eligible for diagnoses of childhood disruptive behavior disorders). Disorders are assessed for the year prior to the interview. In accordance with the National Comorbidity Survey Replication (Kessler et al., 1994), participants who met criteria for substance use disorder or APD with "partial recovery" were scored as having the disorder.

Comparability of diagnoses over time. The diagnostic measures changed over time for three reasons: (1) the release of the DISC–IV (based on the *DSM–IV* criteria) midstudy, (2) some participants turned 18 years old and were therefore ineligible for childhood disruptive behavior disorders, and (3) the need to use a more comprehensive measure of substance use disorder (DIS–IV) for the followup interviews. Researchers analyzed measurement factors to ensure that they did not affect results.

Findings

This section discusses study findings.

Prevalence

Table 2 reports prevalence rates of disorders at baseline, time 1, and time 2 for males and females. Tables 3 and 4 show prevalence rates of disorders by race/ethnicity for males and females.

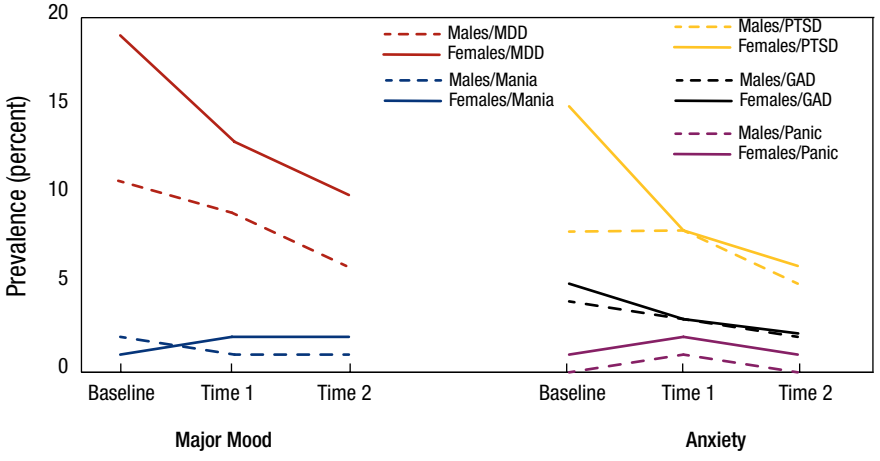
At time 2, more than 45 percent of males and nearly 30 percent of females had a disorder (with impairment). Even excluding disruptive behavior disorders, 37 percent of males and 25 percent of females had a disorder. Among males, 44 percent of African Americans, 50 percent of Hispanics, and 64 percent of non-Hispanic whites had a disorder at time 2. More than one-quarter of African American females and more than one-third of Hispanic and non-Hispanic white females had a disorder.

Mood disorders. Other than mania, the prevalence rates for mood disorders decreased as the participants aged. Over time, females had higher rates of any mood disorder than males. Figure 1 shows prevalence rates of major mood disorders over time by gender. The only significant racial/ethnic difference was for mania, which was more prevalent among minorities over time.

Anxiety disorders. The prevalence of panic disorder increased slightly overall. Figure 1 shows changes in prevalence rates over time by gender. Females had higher rates of any anxiety disorder. Compared with non-Hispanic whites, Hispanics were more likely to have an anxiety disorder and its subcategory, PTSD. Compared with African Americans, Hispanics were more likely to experience panic disorder. In addition, African Americans were more likely than non-Hispanic whites to have PTSD, although non-Hispanic whites were more likely than African Americans to have panic disorder.

Disruptive behavior disorders. The prevalence of any disruptive behavior disorder decreased over time, but the rate of this decrease depended on gender. Males and females did not have significantly different rates of disruptive behavior disorder at baseline, but the prevalence of these disorders decreased faster among females than

Figure 1. Past-Year Prevalence of Major Mood and Anxiety Disorders



MDD = major depression, PTSD = posttraumatic stress disorder, GAD = generalized anxiety disorder.

Table 2. Prevalence of Disorder at Baseline, Time 1, and Time 2 for Males and Females

Disorder	Males (Percent)			Females (Percent)		
	Baseline	Time 1	Time 2	Baseline	Time 1	Time 2
Any Disorder[1]	61.8	51.7	46.5	65.3	42.9	29.0
Any Disorder Except Behavioral[1]	60.2	45.1	36.9	62.9	38.6	25.3
Schizophrenia[2]	—	0.2	0.1	—	0.2	0.0
Any Mood Disorder	15.8	14.9	8.8	22.8	17.0	11.9
Any major mood disorder	12.7	9.5	6.4	19.9	13.2	10.4
Mania	2.0	0.5	0.7	1.2	1.6	1.5
Major depression	11.0	9.1	6.4	18.9	12.7	10.2
Hypomania	2.1	6.3	2.1	0.3	4.1	0.8
Dysthymia	9.9	1.1	1.0	12.5	1.5	0.7
Any Anxiety Disorder[1]	10.8	9.8	7.7	18.9	12.4	8.1
Generalized anxiety disorder	3.8	2.6	1.9	5.1	3.3	2.1
Panic disorder	0.1	1.4	0.5	1.0	2.3	0.9
Posttraumatic stress disorder[1]	7.9	7.6	5.4	14.6	7.9	5.8
Attention-Deficit/Hyperactivity Disorder (<18 years)[3]	11.2	6.5	4.2	16.4	9.7	0.0
Any Disruptive Behavior Disorder[4]	29.5	21.9	22.1	34.6	16.6	7.3
Conduct disorder (<18 years)[3]	24.3	20.5	9.3	28.5	13.5	—
Oppositional defiant disorder (<18 years)[3]	12.6	15.7	10.0	15.1	9.1	4.0
Antisocial personality disorder (≥18 years)[5]	NA	20.4	22.2	NA	15.4	7.2
Any Substance Use Disorder	45.7	29.4	28.0	41.7	18.0	13.5
Alcohol disorder	19.9	15.6	17.1	20.0	7.8	6.0
Drug disorder	42.3	22.0	18.8	38.4	12.7	9.2

NA = Not applicable. — = Data not available.

Note: Descriptive statistics are weighted to adjust for sampling design and reflect the demographic characteristics of the Cook County Juvenile Temporary Detention Center. The sample consisted of 1,172, 1,054, and 993 males and 657, 605, and 568 females at baseline, time 1, and time 2, respectively. Prevalence rates are for disorders assessed with impairment criteria except for hypomania, which has no impairment criteria for diagnosis.

[1] Assessed at baseline on participants who were interviewed after the DISC–IV posttraumatic stress disorder module became available (541 males).

[2] Not assessed at baseline.

[3] Assessed for participants younger than age 18 (1,172 males at baseline, 350 males and 148 females at time 1, and 96 males and 21 females at time 2). The authors do not estimate prevalence rates for cells with fewer than 20 participants.

[4] For participants younger than age 18, any disruptive behavior disorder is defined as having conduct disorder or oppositional defiant disorder. For participants age 18 and older, it is defined as having antisocial personality disorder.

[5] Not applicable at baseline because the sample consisted only of juveniles. Assessed for participants age 18 and older at time 1 and time 2 (704 and 897 males, and 457 and 547 females, respectively).

Table 3. Prevalence of Disorder at Baseline, Time 1, and Time 2, by Race/Ethnicity in Males

Disorder	African American (Percent)			Hispanic (Percent)			Non-Hispanic White (Percent)		
	Baseline	Time 1	Time 2	Baseline	Time 1	Time 2	Baseline	Time 1	Time 2
Any Disorder[1]	59.7	49.6	44.3	65.6	56.6	49.8	79.4	64.3	63.9
Any Disorder Except Behavioral[1]	58.8	43.8	34.2	62.5	47.9	41.9	72.7	52.6	56.2
Schizophrenia[2]	—	0.0	0.0	—	0.9	0.4	—	0.6	0.7
Any Mood Disorder	15.4	15.3	9.0	18.9	13.5	7.5	12.3	11.3	7.3
Any major mood disorder	12.4	9.3	6.7	15.4	10.5	5.8	9.5	8.4	4.6
Mania	2.3	0.2	0.5	1.3	2.0	1.7	0.0	0.6	0.0
Major depression	10.5	9.1	6.7	14.6	9.2	5.8	9.5	7.6	4.6
Hypomania	1.9	6.9	2.1	3.4	4.3	2.0	1.0	3.3	3.3
Dysthymia	9.7	1.1	1.0	11.3	0.9	0.0	8.4	0.9	0.7
Any Anxiety Disorder[1]	9.1	8.7	8.0	18.6	16.1	6.8	9.8	7.8	6.0
Generalized anxiety disorder	3.7	2.7	2.2	5.0	2.4	0.5	2.0	1.7	0.8
Panic disorder	0.0	0.8	0.1	0.3	4.0	1.6	0.5	3.0	2.3
Posttraumatic stress disorder[1]	6.2	6.7	5.6	16.0	13.1	5.6	7.0	3.8	2.6
Attention-Deficit/Hyperactivity Disorder (<18 years)[3]	11.6	5.0	4.4	8.1	8.2	3.8	16.1	13.8	—
Any Disruptive Behavior Disorder[4]	26.7	19.9	21.2	35.5	26.9	22.8	52.8	34.6	31.1
Conduct disorder (<18 years)[3]	20.6	15.3	8.2	33.3	43.7	18.4	51.6	32.8	—
Oppositional defiant disorder (<18 years)[3]	12.6	16.3	11.0	12.2	13.4	6.9	16.3	15.6	—
Antisocial personality disorder (≥18 years)[5]	NA	18.9	21.3	NA	22.4	22.9	NA	33.0	31.7
Any Substance Use Disorder	44.2	26.4	25.4	49.7	38.2	34.2	58.0	41.5	46.9
Alcohol disorder	19.8	14.5	15.7	20.2	17.9	19.9	23.2	25.3	27.9
Drug disorder	41.5	19.3	16.7	43.2	30.4	23.5	54.6	31.5	33.8

NA = Not applicable. — = Data not available.

Note: Descriptive statistics are weighted to adjust for sampling design and reflect the demographic characteristics of the Cook County Juvenile Temporary Detention Center. Because some participants were interviewed more often than others, the authors used a subset of interviews to summarize prevalence rates at baseline, time 1, and time 2. The sample consisted of 575 African American, 207 non-Hispanic white, and 387 Hispanic males at baseline; 526 African American, 184 non-Hispanic white, and 341 Hispanic males at time 1; and 505 African American, 171 non-Hispanic white, and 315 Hispanic males at time 2. Three males who identified as "other" race/ethnicity are excluded from the table. Prevalence rates are for disorders assessed with impairment criteria except for hypomania, which has no impairment criteria for diagnosis.

[1] Assessed at baseline on participants who were interviewed after the DISC–IV posttraumatic stress disorder module became available (251 African American, 107 non-Hispanic white, and 182 Hispanic males).

[2] Not assessed at baseline.

[3] Assessed for participants younger than age 18 (575 African American, 207 non-Hispanic white, and 387 Hispanic males at baseline; 200 African American, 40 non-Hispanic white, and 108 Hispanic males at time 1; and 59 African American, 10 non-Hispanic white, and 27 Hispanic males at time 2). The authors do not present prevalence rates for cells with fewer than 20 participants.

[4] For participants younger than age 18, any disruptive behavior disorder is defined as having conduct disorder or oppositional defiant disorder. For participants age 18 and older, it is defined as having antisocial personality disorder.

[5] Assessed for participants age 18 and older at time 1 and time 2 (326 African American, 144 non-Hispanic white, and 233 Hispanic males at time 1; 446 African American, 161 non-Hispanic white, and 288 Hispanic males at time 2). Not applicable at baseline because the sample consisted only of juveniles.

Table 4. Prevalence of Disorder at Baseline, Time 1, and Time 2, by Race/Ethnicity in Females

Disorder	African American (Percent)			Hispanic (Percent)			Non-Hispanic White (Percent)		
	Baseline	Time 1	Time 2	Baseline	Time 1	Time 2	Baseline	Time 1	Time 2
Any Disorder[1]	60.5	38.6	27.8	73.8	49.0	35.0	73.7	54.0	34.8
Any Disorder Except Behavioral[1]	57.4	33.7	24.0	68.3	45.0	28.6	67.3	52.5	34.8
Schizophrenia[2]	—	0.3	0.0	—	0.0	0.0	—	0.0	0.0
Any Mood Disorder	20.4	17.2	11.9	24.2	18.3	14.6	23.4	16.9	10.7
Any major mood disorder	17.7	12.6	10.6	20.3	16.7	12.2	20.1	13.8	8.6
Mania	1.2	2.0	1.3	1.4	0.7	2.7	1.1	0.0	1.4
Major depression	16.7	12.0	10.6	19.7	16.5	11.2	19.0	13.8	8.4
Hypomania[3]	0.2	4.3	0.5	0.7	2.6	1.8	0.0	6.0	1.4
Dysthymia	11.3	1.8	0.5	15.8	0.8	0.9	17.9	1.3	1.5
Any Anxiety Disorder[1]	14.2	12.9	8.2	27.1	16.1	10.7	8.6	4.6	5.3
Generalized anxiety disorder	4.7	3.1	2.3	8.5	5.6	3.3	3.3	1.5	0.0
Panic disorder	0.7	2.2	0.6	2.1	4.6	2.2	1.1	0.0	1.8
Posttraumatic stress disorder[1]	10.6	8.8	6.1	16.8	7.6	7.6	8.6	3.6	2.8
Attention-Deficit/Hyperactivity Disorder (<18 years)[3]	15.8	9.7	—	20.5	3.7	—	16.6	—	—
Any Disruptive Behavior Disorder[4]	27.7	14.3	5.8	44.9	19.2	14.5	54.4	13.8	8.7
Conduct disorder (<18 years)[3]	22.0	13.8	—	35.9	7.5	—	49.9	—	—
Oppositional defiant disorder (<18 years)[3]	13.7	10.1	—	21.0	6.0	—	17.8	—	—
Antisocial personality disorder (≥18 years)[5]	NA	12.0	6.0	NA	20.4	14.1	NA	11.6	7.2
Any Substance Use Disorder	36.3	12.9	12.1	45.8	20.5	14.8	59.6	35.8	23.7
Alcohol disorder	15.3	5.7	6.0	25.7	12.9	7.3	30.1	15.6	5.6
Drug disorder	33.0	8.9	6.8	41.7	11.7	13.9	56.7	25.6	20.9

NA = Not applicable. — = Data not available.

Note: Descriptive statistics are weighted to adjust for sampling design and reflect the demographic characteristics of the Cook County Juvenile Temporary Detention Center. Because some participants were interviewed more often than others, the authors used a subset of interviews to summarize prevalence rates at baseline, time 1, and time 2. The sample consisted of 430 African American, 89 non-Hispanic white, and 137 Hispanic females at baseline; 401 African American, 83 non-Hispanic white, and 120 Hispanic females at time 1; and 388 African American, 71 non-Hispanic white, and 108 Hispanic females at time 2. One female who identified as "other" race/ethnicity is excluded from the table. Prevalence rates are for disorders assessed with impairment criteria except for hypomania, which has no impairment criteria for diagnosis.

[1] Assessed at baseline on participants who were interviewed after the DISC–IV posttraumatic stress disorder module became available (249 African American, 48 non-Hispanic white, and 76 Hispanic females).

[2] Not assessed at baseline.

[3] Assessed for participants younger than age 18 (430 African American, 89 non-Hispanic white, and 137 Hispanic females at baseline; 101 African American, 15 non-Hispanic white, and 32 Hispanic females at time 1; and 15 African American, 2 non-Hispanic white, and 4 Hispanic females at time 2). The authors do not estimate prevalence rates for cells with fewer than 20 participants.

[4] For participants younger than age 18, any disruptive behavior disorder is defined as having conduct disorder or oppositional defiant disorder. For participants age 18 and older, it is defined as having antisocial personality disorder.

[5] Assessed for participants age 18 and older at time 1 and time 2 (300 African American, 68 non-Hispanic white, and 88 Hispanic females at time 1; 373 African American, 69 non-Hispanic white, and 104 Hispanic females at time 2). Not applicable at baseline because the sample consisted only of juveniles.

among males. Figure 2 shows these differences over time. Three years after baseline, males were more likely to have a disruptive disorder; at 5 years, the disparity was even greater. Figure 2 shows that non-Hispanic whites had the highest rates of disruptive behavior disorder over time, followed by Hispanics.

Substance use disorders. Substance use disorders were the most prevalent disorders found in this juvenile population. The prevalence of substance use disorders generally decreased over time, but the rate of decrease depended on gender. Figure 2 illustrates gender and racial/ethnic differences over time. At baseline, compared with females, males had about one-third greater odds of having any substance use disorder and its subcategory, drug use disorder. Rates for alcohol use disorder were not significantly different. By the followup interviews, however, the disparities between males and females increased substantially because prevalence rates decreased faster for females than for males. Three years after baseline, compared with females, males were more likely to have a substance use disorder and its subcategories, drug use disorder and alcohol use disorder. Five years after baseline, the disparity was even larger, with males even more likely than females to have these disorders. Although the prevalence rates of most disorders decreased for males and females alike, 3 years after baseline, rates of alcohol use disorder were no longer decreasing among males.

Even after adjusting for time spent in correctional facilities, substance use disorders were more common among non-Hispanic whites and Hispanics than among African Americans. Compared with African Americans, non-Hispanic whites were more likely to have a substance use disorder and its subcategories, drug use disorder and alcohol use disorder. Hispanics also were more likely than African Americans to have a substance use disorder.

Substance use disorders among participants living in the community at time 2. Because substance use is restricted in jails and prisons, the researchers examined rates of substance use disorders only among participants who had lived in the community the entire year before time 2 (345 males and 479 females). These prevalence rates, and the demographic differences, were substantially similar to those in the entire sample.

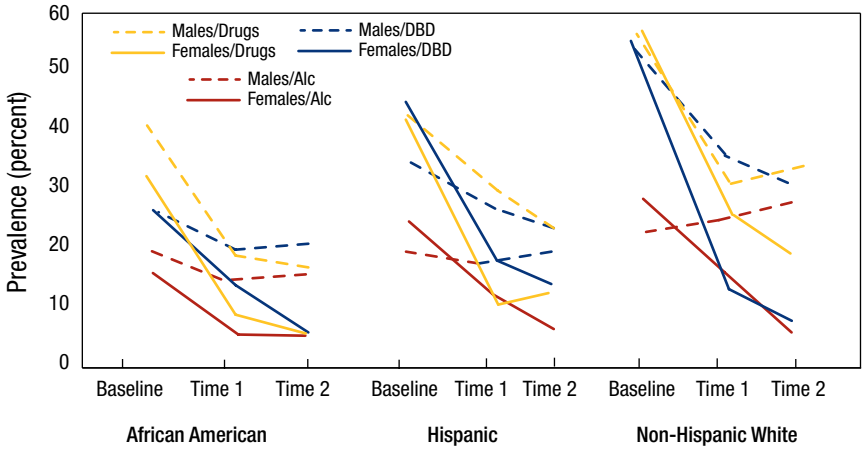
Persistence

To assess persistence of disorders in diagnosed youth, the authors examined the proportion that still had the disorder at time 1 or time 2 (see table 5). For most disorders, rates of persistence were higher at time 1 than at time 2.

Gender differences. Approximately one in five participants (regardless of gender) had a mood disorder that persisted to time 2. Substance use disorders were among the most persistent disorders for both males and females, but were significantly more likely to persist among males than females. The existence of any disruptive behavior disorder was also among the most persistent disorders in males and, at time 2, was significantly more likely to persist in males than in females.

Racial/ethnic differences. There were no significant racial/ethnic differences in the persistence of disorders among males; however, there were several significant differences among females. At time 1, any substance use disorder and its subcategory, alcohol use disorder, were more likely to persist among non-Hispanic whites and Hispanics than among African Americans. At time 2, drug use disorders were also more likely to persist among non-Hispanic whites than among African Americans.

Figure 2. Past-Year Prevalence of Substance Use and Disruptive Behavior Disorders



Alc = alcohol disorder, DBD = disruptive behavior disorder.

Table 5. Persistence of Disorders From Baseline to Time 1 and From Baseline to Time 2, by Gender

Disorder	Males (Percent)			Females (Percent)		
	Disorder Present at Baseline (*n*)	Percent Persisting		Disorder Present at Baseline (*n*)	Percent Persisting	
		Time 1	Time 2		Time 1	Time 2
Any Disorder[1]	335	52.1	48.7	233	54.0	34.9
Any Mood Disorder	163	28.0	18.9	144	30.4	20.9
Any major mood disorder	127	18.8	17.3	124	25.9	19.2
Mania	16	*	*	8	*	*
Major depression	116	20.0	15.7	118	25.3	17.9
Hypomania	16	*	*	2	*	*
Dysthymia	98	1.6	0.0	87	3.8	3.9
Any Anxiety Disorder[1]	50	6.3	14.8	58	19.3	17.3
Generalized anxiety disorder	34	18.8	0.0	35	9.4	10.4
Panic disorder	3	*	*	7	*	*
Posttraumatic stress disorder[1]	37	5.8	4.0	42	4.5	5.4
Any Disruptive Behavior Disorder	388	36.6	31.1	230	30.7	10.5
Any Substance Use Disorder	517	38.0	34.3	266	30.5	18.2
Alcohol disorder	219	30.4	29.3	127	16.2	12.3
Drug disorder	482	28.4	23.1	246	22.6	13.6

*Rates of persistence are not presented for disorders with fewer than 20 cases at baseline.

Note: Rates of persistence are weighted to adjust for sampling design and reflect the demographic characteristics of the Cook County Juvenile Temporary Detention Center. Persistence is presented for disorders assessed with impairment criteria except for hypomania, which has no impairment criteria for diagnosis. The authors do not present rates of persistence for disorders specific to juveniles or adults (attention-deficit/hyperactivity disorder, conduct disorder, oppositional defiant disorder, or antisocial personality disorder).

[1]Assessed at baseline on participants who were interviewed after the DISC–IV posttraumatic stress disorder module became available (541 males and 374 females).

Discussion of Findings

Although the prevalence rates of most psychiatric disorders declined over time, a substantial proportion of delinquent youth continue to have disorders as they age. For some youth, detention may coincide with a period of crisis that subsequently abates. Many youth, however, continue to struggle: 5 years after detention, when participants were ages 14 to 24 years, nearly 50 percent of males and nearly 30 percent of females had one or more psychiatric disorders, with their associated impairments.

Substance use and disruptive behavior disorders continued to be the most common disorders. For many delinquent youth (especially males), externalizing disorders were not limited to adolescence. These disorders (such as conduct disorder and attention-deficit/hyperactivity disorder), which show up in the youth's outward behavior, often continue into adulthood. Five years after baseline, males had two to three times the odds of having substance use and disruptive behavior disorders compared with females, a disparity that increased for males over time. Males were also more likely than females to persist with substance use disorders and disruptive behavior disorder.

"Over time, females had higher rates of any mood disorder than males."

The observed gender differences in externalizing disorders are consistent with those in the general population, where males are as many as 10 times more likely than females to continue antisocial behavior from childhood into adulthood (Moffitt et al., 2002). Males may fare worse than females for a number of reasons. First, delinquent males are less likely to receive mental health and substance abuse services than females, which may exacerbate these differences (Teplin et al., 2005). Second, they may have fewer opportunities to assume age-appropriate social roles (e.g., jobs, postsecondary schooling)—all turning points that might reduce problem behaviors (Sampson and Laub, 1992). Third, males are incarcerated more frequently and for longer periods of time than females, thus decreasing the amount of time available for building a stable life (Massoglia and Uggen, 2010). Finally, early entry into adult social roles, such as parenthood, may be associated with worse outcomes for males than for females (Hope, Wilder, and Watt, 2003; Kreager, Matsueda, and Erosheva, 2010; Thornberry et al., 2000).

As in the general population, females had higher rates of internalizing disorders (e.g., depression, panic disorder) than males. The persistence of mood disorders (about 20 percent) was similar for both genders.

Rates of substance use disorders and disruptive behavior disorders were lower in African Americans than in non-Hispanic whites. These findings may reflect underlying racial/ethnic disparities in the legal system (Minton, 2011; Sickmund, Sladky, and Kang, 2014; West, 2010) and the different pathways by which non-Hispanic whites and racial/ethnic minorities enter the juvenile detention system. The researchers found racial/ethnic differences in substance use disorders even after taking into account that African Americans spend more time in correctional facilities, where access to alcohol and drugs is restricted (Sickmund, Sladky, and Kang, 2014).

These findings add to the growing debate about how the "war on drugs" has affected the disproportionate incarceration of African Americans. The study findings are consistent with the views of many researchers—that disproportionate minority confinement for drug offenses is due, in part, to disparate enforcement of drug laws in African American communities rather than higher rates of drug use or dealing (Beckett, Nyrop, and Pfingst, 2006; Kakade et al., 2012; Moore and Elkavich, 2008).

Differences in the instruments used and in the sample's demographics limit meaningful comparisons to most general population studies. The National Comorbidity Survey Replication (NCS–R) provides data that are most comparable to the time 2 interview. Although NCS–R used different (and often less stringent) criteria for impairment and did not assess the same disorders (e.g., antisocial personality disorder), it provides *DSM–IV* diagnoses for a sample of similar ages (18–24 years) (Harvard Medical School, 2005a, 2005b). The most marked discrepancies between the study findings and NCS–R were for drug use disorders, regardless of gender and race/ethnicity. For example, about 20 percent of males in the study had a drug use disorder, compared with about 7 percent in NCS–R; nearly 14 percent of Hispanic females and nearly 25 percent of Hispanic males had a drug use disorder, compared with less than 5 percent of Hispanics in NCS–R.

Changes in the prevalence of a disorder over time mirror those in the general population for most disorders. As summarized in the recent literature review by Costello, Copeland, and Angold (2011), many disorders in the general population decrease from adolescence to young adulthood except for panic disorders and substance use disorders, which increase (Jaffee et al., 2002; Kessler and Walters, 1998; Moffitt et al., 2007); findings on depression have been equivocal (Jaffee et al., 2002; Kessler and Walters, 1998; Moffitt et al., 2007). As mentioned previously, the youth studied here are most notably different from the general population regarding substance use disorders and the decreased rates over time. Perhaps substance abuse peaks earlier in delinquent youth, coinciding with the general course of delinquent behavior (Hirschi and Gottfredson, 1983; Moffitt,

1993). In contrast, youth in the general population may experience events that increase the likelihood of substance abuse as they age (Arnett, 2005; White and Jackson, 2004), including living in college dormitories, freedom from social controls, and delays in assuming adult responsibilities such as parenting—all events that delinquent youth are less likely to experience (Berzin and De Marco, 2010).

In terms of persistence, the most recent comparable investigation (Copeland et al., 2009) conducted in the United States using a sample of similar age and DSM-based criteria (albeit different measures) found lower rates of persistence of depression and disruptive behavior disorders than in the study sample. (Persistence of substance use disorders cannot be compared because the two studies' definitions of this disorder differed; Copeland and colleagues used more liberal criteria to identify impairment and included nicotine use.)

Study Limitations

The data reported in this bulletin are subject to the limitations of self-reporting. Moreover, it was not feasible to study more than one jurisdiction and the prevalence of psychiatric disorders may vary across jurisdictions (Fazel and Danesh, 2002; Fazel, Doll, and Långström, 2008; Wasserman et al., 2010), limiting whether and how much the results can be generalized to apply to other areas of the country. Researchers do not know if psychiatric disorders increase the likelihood of arrest and detention, or vice versa. Findings might have been marginally different if identical measures and time frames had been used at the baseline and followup interviews. Rates would likely have been higher if the juveniles' caretakers had been available for interviews at baseline (Teplin et al., 2002). When researchers conducted the followup interviews, it was not possible to interview many of the previous caretakers because the participants were older than age 17 or no longer living with a caretaker. Although retention rates were high, participants who missed interviews might be more likely to have had disorders than those who were located and thereby interviewed. The study findings also do not take into account mental health services that these youth and young adults might have received. Despite these limitations, the findings have implications for future research and mental health policy.

Directions for Future Research

Retain incarcerated persons in longitudinal studies of psychiatric disorders. Most large-scale longitudinal studies of the general population (such as the National Epidemiologic Survey on Alcohol and Related Conditions (Bridget Grant, National Institute on Alcohol Abuse and Alcoholism, personal communication, August 13, 2010)) do not retain persons who become incarcerated by the time followup is conducted or they reinterview too few subjects to allow for a proper analysis (such as the Epidemiologic Catchment Area Study; William Eaton, Johns Hopkins University, personal communication, August 11, 2010). Thus, these samples are biased; they systematically exclude persons who, as this study suggests, are likely to have psychiatric disorders and poor outcomes. Excluding incarcerated persons will bias prevalence rates, especially for African American males. At any given time, nearly one in nine African American males ages 25 to 34 are incarcerated (West, 2010). To address health disparities, researchers must include the correctional population, which was estimated to be 1.5 million people in 2012 (Carson and Golinelli, 2013).

Add variables on incarceration history to general population studies. Although many studies examine the prevalence of psychiatric disorders in incarcerated populations, few focus on the effect of incarceration on psychiatric disorders. The researchers suggest that epidemiologic surveys of the general population include the following variables: number of incarcerations, age at time of incarceration, length of incarcerations, and experiences in community corrections (parole, probation, and community supervision). This strategy would generate information regarding how disproportionate confinement

"Disorders persist in a substantial proportion of delinquent youth."

of racial/ethnic minorities affects health disparities in psychiatric disorders and the outcomes of these disorders.

Include females in longitudinal studies of delinquents. Gender differences observed in the study underscore the fact that findings for males may not generalize to females. Yet, most longitudinal studies of delinquents exclude females or sample too few to analyze gender differences. Future studies must include females and collect data on pregnancy, childbirth, and childrearing. This will provide the requisite empirical foundation for improving gender-specific mental health services, which is especially important because females now make up an increasing proportion of juvenile arrests (29 percent) (Puzzanchera, 2013).

Examine variables that affect trajectories of disorder in high-risk youth. Few studies of high-risk youth examine the trajectories of disorders; still fewer examine how potentially modifiable risk and protective factors predict trajectories of disorder. Future studies should investigate how social, cognitive, and biological factors interact to affect these trajectories. For example, advances in neuroscience research provide unique opportunities for investigating how developmental differences in emotion regulation interact with "turning points" to alter these trajectories (Drabant et al., 2009; Feder, Nestler, and Charney, 2009; Wager et al., 2008).

Conclusion

Although prevalence rates of most psychiatric disorders decline as youth age, the study results show that disorders persist in a significant proportion of delinquent youth. To bolster youth's chances of success upon reentry, the authors offer the following recommendations for mental health policy.

Focus on delinquent males. In recent years, innovative programs that the Office of Juvenile Justice and Delinquency Prevention has funded—such as the Girls Study Group (Zahn et al., 2008), GIRLS LINK (Schaffner, 2002), and Girl Scouts in Detention Centers—addressed the needs of delinquent females (Office of Juvenile Justice and Delinquency Prevention, 1998, 2010; Sherman, 2005). The mental health system must now improve services for males, who account for 71 percent of juvenile arrests and 85 percent of youth in correctional facilities (Puzzanchera, 2013; Sickmund et al., 2013). The study findings demonstrate that interventions for substance use and disruptive behavior disorders are especially needed. Comprehensive interventions, such as functional family therapy (Gordon et al., 1988), multidimensional treatment foster care (Chamberlain, Leve, and DeGarmo, 2007), and multisystemic therapy (Henggeler et al., 2002) can be effective. Continued development and dissemination of these programs can further reduce illegal behaviors and provide cost-effective alternatives to incarceration (Aos et al., 2001).

Assess and treat substance use disorders in correctional facilities and after release. Regardless of gender or race/ethnicity, alcohol and drug use disorders were among the most common and persistent disorders; the need for services far exceeds their availability. Approximately one-half of youth in juvenile correctional facilities (Mulvey, Schubert, and Chung, 2007; Sedlak and McPherson, 2010) and approximately three-quarters of youth in adult jails and prisons who need substance abuse treatment do not receive it (Mulvey, Schubert, and Chung, 2007). Incarcerated adults fare much worse—a study published in the *Journal of the American Medical Association* concluded that 80 to 85 percent of adult prisoners who needed treatment for drug abuse did not receive it (Chandler, Fletcher, and Volkow, 2009). When individuals reenter their communities after release, services may be difficult to obtain. The Substance Abuse and Mental Health Services Administration reports, for example, that fewer than 10 percent of juveniles and adults with an alcohol use problem received specialty services in the past year (Office of Applied Studies, 2010).

Despite the promise of the Patient Protection and Affordable Care Act and the healthcare reform it will bring, the law may not improve mental health services for persons such as those who participated in this study, who may frequently cycle through correctional facilities (Congressional Budget Office, 2012). Incarceration

disrupts community treatment and Medicaid benefits (Freudenberg et al., 2008). Therefore, services must be improved both in correctional facilities and in the community, where the majority of detainees will eventually return.

For More Information

This bulletin was adapted from Teplin, L.A., Welty, L.J., Abram, K.M., Dulcan, M.K., and Washburn, J.J. 2012. Prevalence and persistence of psychiatric disorders in youth after detention: A prospective longitudinal study. *Archives of General Psychiatry* 69(10):1031–1043.

References

Abram, K.M., Teplin, L.A., Charles, D.R., Longworth, S.L., McClelland, G.M., and Dulcan, M.K. 2004. Posttraumatic stress disorder and trauma in youth in juvenile detention. *Archives of General Psychiatry* 61(4):403–410.

Abram, K.M., Teplin, L.A., McClelland, G.M., and Dulcan, M.K. 2003. Comorbid psychiatric disorders in youth in juvenile detention. *Archives of General Psychiatry* 60(11):1097–1108.

American Psychiatric Association. 1987. *Diagnostic and Statistical Manual of Mental Disorders, 3rd edition, revised* (*DSM–III–R*). Washington, DC: American Psychiatric Association.

American Psychiatric Association. 1994. *Diagnostic and Statistical Manual of Mental Disorders, 4th edition* (*DSM–IV*). Washington, DC: American Psychiatric Association.

Aos, S., Phillips, P., Barnoski, B., and Lieb, R. 2001. *The Comparative Costs and Benefits of Programs to Reduce Crime*. Olympia, WA: Washington State Institute for Public Policy.

Arnett, J.J. 2005. The developmental context of substance use in emerging adulthood. *Journal of Drug Issues* 35: 235–253.

Beckett, K., Nyrop, K., and Pfingst, L. 2006. Race, drugs, and policing: Understanding disparities in drug delivery arrests. *Criminology* 44(1):105–137.

Berzin, S.C., and De Marco, A.C. 2010. Understanding the impact of poverty on critical events in emerging adulthood. *Youth Society* 42(2):278–300.

Buu, A., DiPiazza, C., Wang, J., Puttler, L.I., Fitzgerald, H.E., and Zucker, R.A. 2009. Parent, family, and neighborhood effects on the development of child substance use and other psychopathology from preschool to the start of adulthood. *Journal of Studies on Alcohol and Drugs* 70(4):489–498.

Canino, G., Shrout, P.E., Rubio-Stipec, M., Bird, H.R., Bravo, M., Ramirez, R., Chavez, L., Alegría, M., Bauermeister, J.J., Hohmann, A., Ribera, J., García, P., and Martínez-Taboas, A. 2004. The DSM–IV rates of child and adolescent disorders in Puerto Rico: Prevalence, correlates, service use, and the effects of impairment. *Archives of General Psychiatry* 61:85–93.

Carson, E.A., and Golinelli, D. 2013. *Prisoners in 2012—Advance Counts*. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

Chamberlain, P., Leve, L.D., and DeGarmo, D.S. 2007. Multidimensional treatment foster care for girls in the juvenile justice system: Two year follow-up of a randomized clinical trial. *Journal of Consulting and Clinical Psychology* 75(1):187–193.

Chandler, R.K., Fletcher, B.W., and Volkow, N.D. 2009. Treating drug abuse and addiction in the criminal justice system: Improving public health and safety. *Journal of the American Medical Association* 301(2):183–190.

Cohen, P., Chen, H., Crawford, T.N., Brook, J.S., and Gordon, K. 2007. Personality disorders in early adolescence and the development of later substance use disorders in the general population. *Drug and Alcohol Dependence* 88:S71–S84.

Compton, W.M., and Cottler, L.B. 2004. The Diagnostic Interview Schedule (DIS). In *Comprehensive Handbook of Psychological Assessment,* vol. 2, edited by M. Hilsenroth and D.L. Segal. Hoboken, NJ: John Wiley & Sons, pp. 153–162.

Congressional Budget Office. 2012. Estimates for the Insurance Coverage Provisions of the Affordable Care Act Updated for the Recent Supreme Court Decision. Available online: www.cbo.gov/sites/default/files/cbofiles/attachments/43472-07-24-2012-CoverageEstimates.pdf.

Copeland, W.E., Shanahan, L., Costello, J., and Angold, A. 2009. Childhood and adolescent psychiatric disorders as predictors of young adult disorders. *Archives of General Psychiatry* 66(7):764–772.

Costello, E.J., Copeland, W., and Angold, A. 2011. Trends in psychopathology across the adolescent years: What changes when children become adolescents, and when adolescents become adults? *Journal of Child Psychology and Psychiatry* 52:1015–1025.

Craig, T.K.J., and Hodson, S. 2000. Homeless youth in London: II. Accommodation, employment and health outcomes at 1 year. *Psychological Medicine* 30(1):187–194.

Dembo, R., Jainchill, N., Turner, C., Chunki, F., Farkas, S., and Childs, K. 2007. Levels of psychopathy and its correlates: A study of incarcerated youths in three states. *Behavioral Sciences & the Law* 25(5):717–738.

Dixon, A., Howie, P., and Starling, J. 2004. Psychopathology in female juvenile offenders. *Journal of Child Psychology and Psychiatry* 45(6):1150–1158.

Douglas, K.S., Epstein, M.E., and Poythress, N.G. 2008. Criminal recidivism among juvenile offenders: Testing the incremental and predictive validity of three measures of psychopathic features. *Law and Human Behavior* 32(5):423–438.

Drabant, E.M., McRae, K., Manuck, S.B., Hariri, A.R., and Gross, J.J. 2009. Individual differences in typical reappraisal use predict amygdala and prefrontal responses. *Biological Psychiatry* 65(5):367–373.

Fazel, S., and Danesh, J. 2002. Serious mental disorder in 23,000 prisoners: A systematic review of 62 surveys. *The Lancet* 359(9306):545–550.

Fazel, S., Doll, H., and Långström, N. 2008. Mental disorders among adolescents in juvenile detention and correctional facilities: A systematic review and metaregression analysis of 25 surveys. *Journal of the American Academy of Child & Adolescent Psychiatry* 47(9):1010–1019.

Feder, A., Nestler, E.J., and Charney, D.S. 2009. Psychobiology and molecular genetics of resilience. *Nature Reviews Neuroscience* 10(6):446–457.

Fisher, P.W., Shaffer, D., Piacentini, J., Lapkin, J., Kafantaris, V., Leonard, H., and Herzog, D. 1993. Sensitivity of the Diagnostic Interview Schedule for Children, 2nd edition (DISC–2.1) for specific diagnoses of children and adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry* 32(3):666–673.

Fothergill, K.E., Ensminger, M.E., Green, K.M., Crum, R.M., Robertson, J., and Juon, H.S. 2008. The impact of early school behavior and educational achievement on adult drug use disorders: A prospective study. *Drug and Alcohol Dependence* 92(1):191–199.

Freudenberg, N., Daniels, J., Crum, M., Perkins, T., and Richie, B.E. 2008. Coming home from jail: The social and health consequences of community reentry for women, male adolescents, and their families and communities. *American Journal of Public Health* 98 (Supp. 1):S191–S202.

Gordon, D.A., Arbuthnot, J., Gustafson, K.E., and McGreen, P. 1988. Home-based behavioral-systems family therapy with disadvantaged juvenile delinquents. *American Journal of Family Therapy* 16(3):243–255.

Gover, A.R. 2004. Childhood sexual abuse, gender, and depression among incarcerated youth. *International Journal of Offender Therapy and Comparative Criminology* 48(6):683–696.

Harrington, R.C., Kroll, L., Rothwell, J., McCarthy, K., Bradley, D., and Bailey, S. 2005. Psychosocial needs of boys in secure care for serious or persistent offending. *Journal of Child Psychology and Psychiatry* 46(8):859–866.

Harvard Medical School. 2005a. National Comorbidity Survey: Diagnosis. Available online: www.hcp.med.harvard.edu/ncs/diagnosis.php.

Harvard Medical School. 2005b. National Comorbidity Survey: NCS and NCS–R data. Available online: www.hcp.med.harvard.edu/ncs/ncs_data.php.

Henggeler, S.W., Clingempeel, W.G., Brondino, M.J., and Pickerel, S.G. 2002. Four-year follow-up of multisystemic therapy with substance-abusing and substance-dependent juvenile offenders. *Journal of the American Academy of Child & Adolescent Psychiatry* 41(7):868–874.

Hirschi, T., and Gottfredson, M.R. 1983. Age and the explanation of crime. *American Journal of Sociology* 89(3):552–584.

Hiscoke, U.L., Långström, N., Ottosson, H., and Grann, M. 2003. Self-reported personality traits and disorders (DSM–IV) and risk of criminal recidivism: A prospective study. *Journal of Personality Disorders* 17(4):293–305.

Hope, T.L., Wilder, E.I., and Watt, T.T. 2003. The relationships among adolescent pregnancy, pregnancy resolution, and juvenile delinquency. *The Sociological Quarterly* 44(4):555–576.

Jaffee, S.R., Moffitt, T.E., Caspi, A., Fombonne, E., Poulton, R., and Martin, J. 2002. Differences in early childhood risk factors for juvenile-onset and adult-onset depression. *Archives of General Psychiatry* 59:215–222.

Kakade, M., Duarte, C.S., Liu, X., Fuller, C.J., Drucker, E., Hoven, C.W., Fan, B., and Wu, P. 2012. Adolescent substance use and other illegal behaviors and racial disparities in criminal justice system involvement: Findings from a US national survey. *American Journal of Public Health* 102(7):1307–1310.

Karnik, N.S., Soller, M., Redlich, A., Silverman, M., Kraemer, H.C., Haapanen, R., and Steiner, H. 2009. Prevalence of and gender differences in psychiatric

disorders among juvenile delinquents incarcerated for nine months. *Psychiatric Services* 60(6):838–841.

Kessler, R.C., McGonagle, K.A., Zhao, S., Nelson, C.B., Hughes, M., Eshleman, S., Wittchen, H.U., and Kendler, K.S. 1994. Lifetime and 12-month prevalence of DSM–III–R psychiatric disorders in the United States: Results from the National Comorbidity Survey. *Archives of General Psychiatry* 51(1):8–19.

Kessler, R.C., and Walters, E.E. 1998. Epidemiology of DSM–III–R major depression and minor depression among adolescents and young adults in the National Comorbidity Survey. *Depression and Anxiety* 7:3–14.

King, K.M., and Chassin, L. 2007. A prospective study of the effects of age of initiation of alcohol and drug use on young adult substance dependence. *Journal of Studies on Alcohol and Drugs* 68(2):256–265.

King, K.M., and Chassin, L. 2008. Adolescent stressors, psychopathology, and young adult substance dependence: A prospective study. *Journal of Studies on Alcohol and Drugs* 69(5):629–638.

Kreager, D.A., Matsueda, R.L., and Erosheva, E.A. 2010. Motherhood and criminal desistance in disadvantaged neighborhoods. *Criminology* 48(1):221–258.

Mason, W.A., Kosterman, R., Hawkins, J.D., Herrenkohl, T.I., Lengua, L.J., and McCauley, E. 2004. Predicting depression, social phobia, and violence in early adulthood from childhood behavior problems. *Journal of the American Academy of Child & Adolescent Psychiatry* 43(3):307–315.

Massoglia, M., and Uggen, C. 2010. Settling down and aging out: Toward an interactionist theory of desistance and the transition to adulthood. *American Journal of Sociology* 116(2):543–582.

Meyer, S.E., Carlson, G.A., Youngstrom, E., Ronsaville, D.S., Martinez, P.E., Gold, P.W., Hakak, R., and Radke-Yarrow, M. 2009. Long-term outcomes of youth who manifested the CBCL-Pediatric Bipolar Disorder phenotype during childhood and/or adolescence. *Journal of Affective Disorders* 113(3):227–235.

Minton, T.D. 2011. *Jail Inmates at Midyear 2010—Statistical Tables.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

Moffitt, T.E. 1993. Adolescent-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review* 100:674–701.

Moffitt, T.E., Caspi, A., Harrington, H., and Milne, B.J. 2002. Males on the life-course-persistent and adolescence-limited antisocial pathways: Follow-up at age 26 years. *Development and Psychopathology* 14(1):179–207.

Moffitt, T.E., Harrington, H., Caspi, A., Kim-Cohen, J., Goldberg, D., Gregory, A.M., and Poulton, R. 2007. Depression and generalized anxiety disorder: Cumulative and sequential comorbidity in a birth cohort followed prospectively to age 32 years. *Archives of General Psychiatry* 64:651–660.

Moore, L.D., and Elkavich, A. 2008. Who's using and who's doing time: Incarceration, the war on drugs, and public health. *American Journal of Public Health* 98:782–786.

Mulvey, E.P., Schubert, C.A., and Chung, H. 2007. Service use after court involvement in a sample of serious adolescent offenders. *Children and Youth Services Review* 29:518–544.

Nigg, J.T., Wong, M.M., Martel, M.M., Jester, J.M., Puttler, L.I., Glass, J.M., Adams, K.M., Fitzgerald, H.E., and Zucker, R.A. 2006. Poor response inhibition as a predictor of problem drinking and illicit drug use in adolescents at risk for alcoholism and other substance use disorders. *Journal of the American Academy of Child & Adolescent Psychiatry* 45(4):468–475.

Office of Applied Studies. 2010. *Results From the 2009 National Survey on Drug Use and Health, Volume 1: Summary of National Findings.* Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies.

Office of Juvenile Justice and Delinquency Prevention. 1998. *Guiding Principles for Promising Female Programming: An Inventory of Best Practices.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention. Available online: www.ojjdp.gov/pubs/principles/contents.html.

Office of Juvenile Justice and Delinquency Prevention. 2010. *Girls' Delinquency.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Pastore, A.L., and Maguire, K. 2000. *Sourcebook of Criminal Justice Statistics, 1999.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

Perron, B.E., and Howard, M.O. 2008. Prevalence and correlates of traumatic brain injury among delinquent

youths. *Criminal Behaviour and Mental Health* 18(4):243–255.

Piacentini, J., Shaffer, D., Fisher, P.W., Schwab-Stone, M., Davies, M., and Gioia, E. 1993. The Diagnostic Interview Schedule for Children–Revised Version (DISC–R): III. Concurrent criterion validity. *Journal of the American Academy of Child & Adolescent Psychiatry* 32(3):658–665.

Puzzanchera, C. 2013. *Juvenile Arrests 2011.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Randall, J., Henggeler, S.W., Pickrel, S.G., and Brondino, M.J. 1999. Psychiatric comorbidity and the 16-month trajectory of substance-abusing and substance-dependent juvenile offenders. *Journal of the American Academy of Child & Adolescent Psychiatry* 38(9):1118–1124.

Robins, L.N., Cottler, L.B., Bucholz, K.K., and Compton, W.M. 1995. *Diagnostic Interview Schedule for DSM–IV* (DIS–IV). St. Louis, MO: Washington University.

Rohde, P., Mace, D.E., and Seeley, J.R. 1997. The association of psychiatric disorders with suicide attempts in a juvenile delinquent sample. *Criminal Behaviour and Mental Health* 7:187–200.

Sampson, R.J., and Laub, J.H. 1992. Crime and deviance in the life course. *Annual Review of Sociology* 18:63–84.

Schaffner, L. 2002. *A Study of GIRLS LINK Collaborative, Part One: The Evaluation of the GIRLS LINK Collaborative.* Chicago, IL: Cook County Bureau of Public Safety and Judicial Coordination.

Schwab-Stone, M., Fisher, P.W., Piacentini, J., Shaffer, D., Davies, M., and Briggs, M. 1993. The Diagnostic Interview Schedule for Children–Revised Version (DISC–R): II. Test-retest reliability. *Journal of the American Academy of Child & Adolescent Psychiatry* 32(3):651–657.

Schwab-Stone, M.E., Shaffer, D., Dulcan, M.K., Jensen, P.S., Fisher, P., Bird, H.R., Goodman, S.H., Lahey, B.B., Lichtman, J.H., Canino, G., Rubio-Stipec, M., and Rae, D.S. 1996. Criterion validity of the NIMH Diagnostic Interview Schedule for Children Version 2.3 (DISC–2.3). *Journal of the American Academy of Child & Adolescent Psychiatry* 35(7):878–888.

Sedlak, A.J., and McPherson, K.S. 2010. *Youth's Needs and Services: Findings From the Survey of Youth in Residential Placement.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Shaffer, D., Fisher, P., Dulcan, M.K., Davies, M., Piacentini, J., Schwab-Stone, M.E., Lahey, B.B., Bourdon, K., Jensen, P.S., Bird, H.R., Canino, G., and Regier, D.A. 1996. The NIMH Diagnostic Interview Schedule for Children Version 2.3 (DISC–2.3): Description, acceptability, prevalence rates, and performance in the MECA Study. *Journal of the American Academy of Child & Adolescent Psychiatry* 35(7):865–877.

Shaffer, D., Fisher, P., and Lucas, C. 2003. The Diagnostic Interview Schedule for Children (DISC). In *Comprehensive Handbook of Psychological Assessment* (vol. 2), edited by M.J. Hilsenroth and D.L. Segal. Hoboken, NJ: John Wiley & Sons, pp. 256–270.

Shaffer, D., Fisher, P., Lucas, C.P., Dulcan, M.K., and Schwab-Stone, M.E. 2000. NIMH Diagnostic Interview Schedule for Children Version IV (NIMH DISC–IV): Description, differences from previous versions, and reliability of some common diagnoses. *Journal of the American Academy of Child & Adolescent Psychiatry* 39(1):28–38.

Shaffer, D., Schwab-Stone, M., Fisher, P.W., Cohen, P., Piacentini, J., Davies, M., and Reiger, D. 1993. The Diagnostic Interview Schedule for Children–Revised Version (DISC–R): I. Preparation, field testing, interrater reliability, and acceptability. *Journal of the American Academy of Child & Adolescent Psychiatry* 32(3):643–650.

Sherman, F.T. 2005. *Pathways to Juvenile Detention Reform: Detention Reform and Girls.* Baltimore, MD: The Annie E. Casey Foundation.

Sickmund, M., Sladky, A., and Kang, W. 2014. Easy Access to Juvenile Court Statistics: 1985–2011. Available online: www.ojjdp.gov/ojstatbb/ezajcs.

Sickmund, M., Sladky, T.J., Kang, W., and Puzzanchera, C. 2013. Easy Access to the Census of Juveniles in Residential Placement: 1997–2011. Available online: www.ojjdp.gov/ojstatbb/ezacjrp.

Smedley, B.D., Stith, A.Y., and Nelson, A.R. 2003. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care.* Washington, DC: Institute of Medicine of the National Academies.

Snyder, H.N., and Sickmund, M. 2006. *Juvenile Offenders and Victims: 2006 National Report.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Teplin, L.A., Abram, K.M., McClelland, G.M., Dulcan, M.K., and Mericle, A.A. 2002. Psychiatric disorders in youth in juvenile detention. *Archives of General Psychiatry* 59(12):1133–1143.

Teplin, L.A., Abram, K.M., McClelland, G.M., Washburn, J.J., and Pikus, A.K. 2005. Detecting mental disorder in juvenile detainees: Who receives services. *American Journal of Public Health* 95(10):1773–1780.

Teplin, L.A., Welty, L.J., Abram, K.M., Dulcan, M.K., and Washburn, J.J. 2012. Prevalence and persistence of psychiatric disorders in youth after detention. *Archives of General Psychiatry* 69(10):1031–1043.

Thornberry, T.P., Wei, E.H., Stouthamer-Loeber, M., and Van Dyke, J. 2000. *Teenage Fatherhood and Delinquent Behavior.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Timmons-Mitchell, J., Brown, C., Schulz, S.C., Webster, S.E., Underwood, L.A., and Semple, W.E. 1997. Comparing the mental health needs of female and male incarcerated juvenile delinquents. *Behavioral Sciences and the Law* 15:195–202.

U.S. Census Bureau. 2000. Census 2000 Profiles of General Demographic Characteristics: National Summary & Special Packages. Available online: www.census.gov/mp/www/cat/decennial_census_2000/census_2000_profiles_of_general_demographic_characteristics_national_summary_special_packages.html.

U.S. Census Bureau. 2001. The Hispanic Population: 2000. Washington, DC: U.S. Department of Commerce, U.S. Census Bureau. Available online: www.census.gov/prod/2001pubs/c2kbr01-3.pdf.

U.S. Census Bureau. 2014. "Population" in The 2012 Statistical Abstract. Washington, DC: U.S. Department of Commerce, U.S. Census Bureau. Available online: www.census.gov/compendia/statab/cats/population.html.

U.S. Department of Health and Human Services. 2011. Healthy People 2010. Available online: www.cdc.gov/nchs/healthy_people/hp2010.htm.

U.S. Department of Health and Human Services. 2014. Healthy People 2020. Available online: www.healthypeople.gov/2020/default.aspx.

Wager, T.D., Davidson, M.L., Hughes, B.L., Lindquist, M.A., and Ochsner, K.N. 2008. Prefrontal-subcortical pathways mediating successful emotion regulation. *Neuron* 59(6):1037–1050.

Wareham, J., and Dembo, R. 2007. A longitudinal study of psychological functioning among juvenile offenders: A latent growth model analysis. *Criminal Justice and Behavior* 34(2):259–273.

Wasserman, G.A., McReynolds, L.S., Craig, S.S., Keating, J.M., and Jones, S.A. 2010. Psychiatric disorder, comorbidity, and suicidal behavior in juvenile justice youth. *Criminal Justice and Behavior* 37(12):1361–1376.

Wasserman, G.A., McReynolds, L.S., Lucas, C.P., Fisher, P., and Santos, L. 2002. The voice DISC–IV with incarcerated male youths: Prevalence of disorder. *Journal of the American Academy of Child & Adolescent Psychiatry* 41(3):314–321.

West, H.C. 2010. *Prison Inmates at Midyear 2009—Statistical Tables.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

White, H.R., and Jackson, K. 2004. Social and psychological influences on emerging adult drinking behavior. *Alcohol Research and Health* 28:182–190.

Zahn, M.A., Hawkins, S.R., Chiancone, J., and Whitworth, A. 2008. *The Girls Study Group—Charting the Way to Delinquency Prevention for Girls.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Acknowledgments

Linda A. Teplin, Ph.D., is the Owen L. Coon Professor and Vice Chair for Research in the Department of Psychiatry and Behavioral Sciences at the Feinberg School of Medicine, Northwestern University, Chicago, IL, as well as Director of the Department's Program in Health Disparities and Public Policy.

Leah J. Welty, Ph.D., is Associate Professor in the Department of Preventive Medicine and the Department of Psychiatry and Behavioral Sciences at the Feinberg School of Medicine.

Karen M. Abram, Ph.D., is Associate Professor and Associate Director, Health Disparities and Public Policy, in the Department of Psychiatry and Behavioral Sciences at the Feinberg School of Medicine.

Mina K. Dulcan, M.D., is a Professor in both the Department of Psychiatry and Behavioral Sciences and the Department of Pediatrics at the Feinberg School of Medicine. She is also the Head of the Department of Child and Adolescent Psychiatry at the Ann & Robert H. Lurie Children's Hospital of Chicago.

Jason J. Washburn, Ph.D., ABPP, is Assistant Professor and Director of Education and Clinical Training in the Division of Psychology, Department of Psychiatry and Behavioral Sciences at the Feinberg School of Medicine. He is also Director of the Center for Evidence-Based Practice at Alexian Brothers Behavioral Health Hospital, Hoffman Estates, IL.

Kathleen McCoy was a postdoctoral psychology fellow in the Health Disparities and Public Policy Program in the Department of Psychiatry and Behavioral Sciences at the Feinberg School of Medicine.

Marquita L. Stokes, M.S., is a doctoral candidate in the Health Disparities and Public Policy Program in the Division of Psychology, Department of Psychiatry and Behavioral Sciences at the Feinberg School of Medicine. She is also a psychology extern at the Institute for Juvenile Research's Pediatric Mood Disorders Program at the University of Illinois-Chicago.

The authors thank all of their agencies for their collaborative spirit and steadfast support. They also thank the research participants for their time and willingness to participate and the Cook County Juvenile Temporary Detention Center, Cook County Department of Corrections, and Illinois Department of Corrections for their cooperation.

The research described in this bulletin was supported in part by grants 1999–JE–FX–1001, 2005–JL–FX–0288, and 2008–JF–FX–0068 from the Office of Juvenile Justice and Delinquency Prevention (OJJDP), U.S. Department of Justice.

Points of view or opinions expressed in this document are those of the authors and do not necessarily represent the official position or policies of OJJDP or the U.S. Department of Justice.

Please direct comments and/or questions to:

National Criminal Justice Reference Service
P.O. Box 6000
Rockville, MD 20849–6000

800–851–3420
301–240–5830 (fax)
E-mail: responsecenter@ncjrs.gov
Web: www.ncjrs.gov

The Office of Juvenile Justice and Delinquency Prevention is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance; the Bureau of Justice Statistics; the National Institute of Justice; the Office for Victims of Crime; and the Office of Sex Offender Sentencing, Monitoring, Apprehending, Registering, and Tracking.

U.S. Department of Justice
Office of Justice Programs
Office of Juvenile Justice and Delinquency Prevention
8660 Cherry Lane
Laurel, MD 20707-4651

Official Business
Penalty for Private Use $300

PRESORTED STANDARD
POSTAGE & FEES PAID
DOJ/OJJDP/GPO
PERMIT NO. G – 26