

Prevalence of Mental Illness and Substance Abuse Disorders Among Incarcerated Juvenile Offenders in Mississippi

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ABSTRACT: The prevalence of psychiatric disorders among incarcerated juveniles in Mississippi was examined. A total of 482 adolescents completed a diagnostic questionnaire and a subset ($N = 317$) was assessed with face-to-face semi-structured interview. Most of the study participants met criteria for one mental disorder, 71–85% depending on assessment method, one-third have co-occurring mental health and substance abuse disorders. Gender and placement site differences in rates of some psychiatric disorders were also noted. Routine mental health screening should be performed on all juveniles placed in secure detention facilities to identify those who need treatment services.

KEY WORDS: juvenile delinquents; mental disorders; substance abuse.

The prevalence and types of mental health disorders among youth in the juvenile justice system have not been adequately determined due to a scarcity of research in this area.^{1–3} Existing studies suggest that mental health disorders are a serious problem for incarcerated youth compared to the general population of youth. Between 14% and 20% of youth in the general population have a diagnosable mental disorder,⁴ and the estimated rate of serious emotional disturbance (SED) among youth is 9–13%.⁵ The prevalence rate of SED is estimated to be at least twice as high for youth in the juvenile justice system, which suggests that one out of every five youth in the

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juvenile justice system has serious mental health disorders.² Additionally, 56% of all persons with a mental or addictive disorder have at least one other co-occurring disorder,⁶ and substance use disorders and disruptive behavior disorders tend to co-occur in adolescents,^{7,8} particularly in the delinquent population.⁴ Juvenile offender studies suggest that there is substantial overlap of serious delinquency with drug use, problems in school, and mental health problems.⁹

The Mississippi Department of Mental Health (MDMH) has estimated that there are 27,489 to 35,342 youth ages 9–17 years with severe mental health problems in this state. Using very conservative estimation procedures, Howell and colleagues,¹⁰ estimated that in Mississippi over 7,000 public school students in grades 6 to 12 and 2,234 school dropouts under the age of 18 years are in need of substance abuse treatment. In 1998 Mississippi Youth Courts handled 21,706 cases involving 17,032 juveniles. Most of the cases (83.5%) were referred for a delinquent offense (i.e., in 1998, 16,144 juveniles committed an illegal offense that could result in confinement). Also in 1998, 4,710 Mississippi youth were placed in detention centers pending case disposition and there were 1,762 commitments to one of the state's two training schools. If CMHS estimates of 9–13% prevalence of SED among youth are applied to the 1998 Mississippi delinquent population (16,144), then between 1,453–2,099 juvenile offenders likely require mental health services. The actual prevalence of mental health and substance abuse disorders among Mississippi juvenile offenders is unknown.

Many of the existing studies contain methodological flaws, such as inconsistent definitions of mental illness, biased samples, use of retrospective case report data, and use of non-standardized measures.^{2,3} Thus, studies that examine the prevalence of mental health disorders among incarcerated youth are desperately needed in order to gain some understanding of the extent of juvenile psychiatric problems confronting the juvenile system.

The primary purpose of this study was to determine the point prevalence of mental health, substance abuse and co-occurring mental health and substance abuse disorders of juveniles held in Mississippi detention centers and training schools. A secondary goal was to determine the types and severity of problems by gender. Finally, another goal was to examine the geographic differences and similarities in mental health and substance abuse disorders among incarcerated youth in Mississippi compared to other states (i.e., Maryland, Virginia, Georgia, and South Carolina). The results of this study can aid administrations of juvenile justice and mental

health agencies in planning and providing mental health and substance abuse treatment services for juvenile offenders.

Methods

Participants

Youths, ages 12–18 years, incarcerated at two long-term juvenile correctional facilities called training schools and nine juvenile detention centers during a 6-month period in 2000 were eligible for participation in the study. Mississippi youths are placed at training schools for up to 1 year for committing delinquent or criminal offenses. Columbia training school houses younger males, ages 10–14, and females ages 10–18. Older males, ages 15–18, are housed at Oakley training school. Juvenile detention centers are similar to adult jails, but detain young males and females, ages 10–18, for short periods of time (from a few hours to 30 days). The eleven research sites are located throughout the state; eight sites are located in rural communities and three are located in large cities or metropolitan statistical areas.

Researchers had limited access to juveniles at the training school so potential participants were approached in groups, whereas potential participants were approached individually at the detention centers. A total of 578 youth were approached to be in the study, and 482 youths volunteered to participate in the study: 317 in juvenile detention centers and 165 in training schools. Refusal rates varied by data collection site. At Columbia training school, none of the boys who were approached refused to participate in the study, but 20.5% of the females did. At Oakley training school, which houses only older males, the refusal rate was 11.5%. The refusal rate for the nine detention centers was 15.2%. The overall refusal was 16.6%, thus 83.4% of those approached participated in the study. There were no differences between participants and those who chose not to participate based on demographic characteristics.

The demographic characteristics of the participants were: 64.3% male ($n = 292$), 65.4% African American ($n = 297$), 31.7% Caucasian ($n = 144$), and 2.9% other racial/ethnic groups including Hispanic, Asian, and Native Americans. The average age for participants was 15.3 years ($SD = 1.35$). No information was available on the socioeconomic status (SES) of study participants. However, approximately half of the families of children and youth involved in the Mississippi juvenile justice system receive public assistance, indicating lower SES.

Procedure

Data collection procedures were different at the detention centers and training schools. At detention centers, Master's level mental health counselors visited each facility on a weekly basis, approached newly detained adolescents, and collected measures from consenting youths on an individual basis. The Adolescent Psychopathology Scale (APS),^{11,12} a standardized

diagnostic questionnaire, and the Juvenile Detention Interview¹³ were collected. In addition, the counselor/interviewer answered 16 "mental status" indicators based on their observations of the adolescent. Interviewers then noted their clinical impressions, including cognitive functioning, and treatment service recommendations.

At the training schools, groups of 20–25 youths were brought to a classroom by security personnel. Two researchers explained the purpose of the study, and administered the APS to those who chose to participate. Adolescents requiring assistance with reading were helped individually. The Juvenile Detention Interview and clinical observations were not conducted at the training schools due to time constraints.

Measures

Adolescent Psychopathology Scale (APS). The APS is a 346 item self-report measure of adolescent psychopathology that directly evaluates the severity of symptoms associated with specific *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*¹⁴ Axis I Clinical disorders and Axis II Personality disorders. In addition, the APS assesses behaviors (such as suicidal behavior and aggression) that interfere with successful psychosocial adaptation and personal competence. The APS has a third grade reading level and is designed for administration to youth 12–19 years of age either individually or in groups. The APS is composed of 20 Clinical Disorder, 5 Personality Disorder, 11 Psychosocial Problem Content, and 4 Response Style Indicator scales.

The psychometric properties of the APS are detailed in the *APS Psychometric and Technical Manual*.¹¹ Internal consistency reliability of APS scales was examined across clinical and school-based adolescents. The APS has acceptable to high internal consistency reliability coefficients (Cronbach alphas ranging from .71 to .95). The validity of the APS was examined by correlations with the MMPI and other self-report measures of psychopathology, factor analysis, and contrasted-groups validity, i.e., examining differences in APS scales scores between school-based and clinical samples. Content validity was established with item-with-total scale correlations. The item-with-total scale correlation coefficients were generally high, with the majority in the .40 to .70 range. The intercorrelations among the 20 Clinical Disorder scales are moderate in magnitude (correlation coefficients ranging from .30 to .69). Overall, the moderate magnitude of the intercorrelations of the Clinical Disorder scales supports the validity of the individual scales. The absence of high correlations among all scales indicates that the APS measures distinct psychological disorders, rather than nonspecific general psychological distress.

Although the APS does not provide a formal diagnosis, it does provide an indication of severity of symptoms and problems and was developed to be consistent with the *DSM-IV* symptom specification.¹² Clinical scale scores are reported as T scores (i.e., standard scores with a mean of 50 and a standard deviation of 10) that are based on a standardization sample of 1,827 adolescents. T scores below 60 are considered to be in the normal range, while scores of 60–64 indicate sub-clinical levels and are relevant only for disorders with relatively high base rates in the general population,

such as Substance Abuse, Conduct and Anxiety disorders. Scores of 65–69 are in the mild clinical range, 70–79 are in the moderate range, and scores 80 or above are in the severe clinical range. For this study, a criterion for the presence of a psychiatric disorder is a score in the moderate or higher range on an APS Axis I Clinical scale, thus increasing confidence that these juveniles are experiencing a level of mental, behavioral, and/or emotional problems likely to result in a formal *DSM-IV* diagnosis.

Juvenile Detention Interview

The Juvenile Detention Interview is a 30–45 min face-to-face semi-structured interview that records psychosocial history and includes alcohol and other drug use, mental health problems, and a number of risk factors associated with delinquency involvement and criminal recidivism.¹³ Master's level clinicians collected information on reason-for-admission to juvenile detention, youth education/employment history, home/living situation, gang membership, alcohol/other drug use, family history, mental and medical treatment history. The Juvenile Detention Interview also includes 16 mental status questions that were completed by the interviewer based on observations of the juvenile during the interview process (see Appendix A). The psychometric properties of the Juvenile Detention Interview have not been determined.

A standardized instrument, such as the DICA, would have been preferable to the Juvenile Detention Interview. However, time and access constraints imposed by juvenile justice administrators prohibited the use of lengthy diagnostic interview instruments. The Juvenile Detention Interview was developed as a mental health and substance abuse screening and triage form specifically for use in juvenile detention centers. The advantages of the Juvenile Detention Interview are that it does not require special training to administer, could be administered in the time allotted, and provides a basis for initial clinical impressions and service needs.

Data Analysis

Univariate descriptive statistics were conducted on demographic and family characteristics, reason(s) for incarceration, APS Clinical scales, substance use, treatment history, and interviewers' diagnostic judgments. To evaluate whether there were any significant gender or site differences, chi-square tests for categorical data and analysis of variance (ANOVA) for continuous data were used.

Results

APS Response Style Indicators provide a formal assessment of the validity and veracity of respondents' answers. The APS Response Style Indicators consists of three scales: the Lie Response scale

evaluates the respondent's openness and willingness to give honest answers; the Consistency Response scale screens for random responding, inattention or low literacy; and the Infrequency Response scale checks for atypical responding, that is, items that are rarely endorsed by non-adjudicated adolescents. For example, three Infrequency Response items, i.e., fighting, use of weapons, and arson, are also part of the Conduct Disorder scale. These items had very low endorsement by the sample used to standardize the APS scales, but were frequently endorsed by the study participants. Because information was collected in a confidential manner, participants were probably reporting their delinquent behavior honestly. Thus an upward adjustment was made to the APS Infrequency Response invalidity criterion as defined in the APS manual¹² to account for behaviors that are common in this sample and the reason for incarceration in some cases. Essentially this adjustment allowed the participants to endorse one additional Infrequency Response item before invalidating their APS. The data of 28 offenders were considered invalid based on APS Response Style Indicators, and were eliminated from analyses. Thus, a sample of 454 adolescents provided a valid APS assessment, and for 306 youths, there were clinical impressions based on both clinician/interviewers' judgment and highest APS scores.

Characteristics of Juvenile Offenders

The adolescents participating in this study were incarcerated for a wide variety of offenses ranging from manslaughter to truancy. Although only a small percentage (2% overall, 1.8% female, 1.9% male) were incarcerated for the most serious offenses, such as manslaughter or aggravated assault, 52% (37.7% female, 59.7% male) were incarcerated for a serious offense (i.e., robbery, grand larceny, DUI, and drug sales), 16.8% (15.6% female, 18.8% male) for a minor to moderate offense (i.e., joyriding, malicious mischief, and trespassing) and 29.3% (44.9% female, 19.5% male) for a status or non-delinquent offense (i.e., running away, incorrigible, and truancy).

Most incarcerated youth had a history of involvement in the juvenile justice system, ranging from less than 1 year to a maximum of 9 years. The average age of first contact with the juvenile justice system was 13.6 years ($SD = 1.82$). Significant differences in legal factors were evident between the two sites. The length of involvement in the juvenile justice system and the severity of their crimes were significantly different. Compared to juveniles in detention cen-

ters, youth committed to the state training schools have longer histories with the juvenile justice system (1.9 years vs 1.5 years) and a greater percentage of them were incarcerated for a serious offense (63.0% vs 49.2%). These factors, legal history and severity of current offense, are consistently associated with recidivism and thus are among the more important determinants of institutional placement rather than community-based alternative sanctions and treatments.¹⁵⁻¹⁷

Twenty percent of the sample reported gang affiliations. Males overwhelmingly reported involvement with gangs or gang activities while females only comprised approximately 5% of those reporting gang ties. Nearly 85% of the participants reported having been suspended from school. Thirty-eight percent of juveniles reported running away from home (51.6% of females and 32.4% of males) and 20% reported being put out of their primary residence by a caretaker.

Over half (59.2%) of the adolescents reported that they had seen a mental health professional in the past, and 25.8% reported a psychiatric hospitalization. Thirty-one percent reported that they had intentionally hurt themselves in the past, and 8.6% were currently suicidal. Although most admitted to alcohol (66%) and marijuana use (69%) in the year prior to incarceration, only 15% reported a history of substance abuse treatment.

Prevalence of Psychiatric Disorders According to APS Clinical Scales

Most (85.2%) study participants scored in the moderate or severe range on at least one APS clinical scale, and 70% scored in the moderate or higher range on two or more APS scales. About half of the study participants met diagnostic criteria according to the APS for one or more psychiatric disorders other than a substance abuse disorder, and one-third met diagnostic criteria according to the APS for co-occurring mental disorder and substance abuse disorder. The percentage of juveniles scoring in the moderate or severe clinical range on each of the 20 APS Clinical scales is reported by gender in Table 1.

Not surprisingly, externalizing disorders were most prevalent in the study population. Almost half (46.6%) of the incarcerated youths had a conduct disorder based on the APS scores. In addition, 38.6% of the participants had an adjustment disorder, and 35.9% had a substance abuse disorder. The prevalence of anxiety disorders ranged from 13 to 39%, and 58.5% of the study participants met APS diagnostic criteria for one or more anxiety disorders. Separation

Table 1
 Percentage of Confined Juvenile Offenders Scoring in the Moderate Severe Range on APS Clinical Scales^a by Gender

<i>APS Clinical Scales</i>	<i>Female % (#/N)^b</i>	<i>Male % (#/N)^b</i>	<i>Total %</i>
Attention Deficit Disorder**	28.0 (45/161)	11.7 (34/290)	17.5
Conduct Disorder*	39.4 (63/160)	50.5 (147/290)	46.6
Oppositional Defiant Disorder*	25.0 (40/160)	14.1 (41/291)	18.0
Adjustment Disorder**	51.6 (83/161)	31.4 (91/291)	38.6
Substance Abuse Disorder**	27.7 (44/159)	40.4 (116/290)	35.9
Anorexia Nervosa**	17.8 (28/157)	2.4 (7/289)	7.9
Bulimia Nervosa*	20.8 (33/159)	13.2 (38/286)	15.9
Sleep Disorder*	38.9 (61/157)	28.2 (81/288)	32.0
Somatization Disorder**	41.3 (66/160)	22.4 (65/287)	29.1
Panic Disorder**	43.8 (70/160)	25.6 (74/290)	32.1
Obsessive Compulsive Disorder	19.4 (31/160)	19.2 (55/289)	19.3
Generalized Anxiety Disorder**	30.6 (49/160)	11.1 (32/286)	18.0
Social Phobia	15.6 (25/160)	11.7 (34/289)	13.1
Separation Anxiety Disorder**	51.9 (82/158)	32.2 (93/290)	39.1
Post Traumatic Stress Disorder**	41.0 (66/161)	18.0 (52/289)	26.2
Major Depression**	31.0 (49/158)	12.6 (36/285)	19.2
Dysthymic Disorder**	33.5 (54/161)	8.3 (24/289)	17.3
Mania*	23.1 (37/160)	14.5 (42/289)	17.6
Depersonalization Disorder	29.4 (47/160)	21.6 (63/291)	24.4
Schizophrenia	30.6 (49/160)	29.5 (85/288)	29.9

Notes: ^aGender differences based on χ^2 tests; * $p \leq .05$, ** $p \leq .01$. ^bN varies per group and scale due to missing data. The number of cases per APS scales varies because some adolescents did not answer all questionnaire items, and therefore some scale scores could not be computed.

Anxiety (39.1%) and panic (32.1%) disorders were the most prevalent of the APS anxiety disorder scales among incarcerated juveniles. Sleep (32.0%) and somatization (29.1%) disorders were also prevalent among study participants. Mood disorders were present among 17–19% of the juveniles according to APS scores. Prevalence rates for depersonalization disorder and schizophrenia were 24.4% and 29.9% respectively.

Gender differences were significant for 16 of the 20 APS clinical scales. There were no statistically significant gender differences for the prevalence of Obsessive-Compulsive Disorder, Social Phobia, Depersonalization Disorder, or Schizophrenia. Where gender differences were evident, prevalence of a disorder based on APS score was greater for females than males on all disorders except Substance Abuse and Conduct Disorders.

We also observed statistically significant differences between sites in mean APS scale scores. Juveniles confined at the two state train-

Table 2
 Average Scores of Confined Juvenile Offenders on APS Clinical Scales
 by Data Collection Site

<i>APS Clinical Scales</i>	<i>Detention center</i>	<i>Training School</i>	<i>F statistic</i>
Attention Deficit Disorder	56.20	57.35	1.378
Conduct Disorder***	64.15	70.27	25.259
Oppositional Defiant Disorder**	56.87	59.36	6.937
Adjustment Disorder***	61.46	64.60	11.809
Substance Abuse Disorder***	58.94	70.62	36.761
Anorexia Nervosa	49.90	51.28	2.194
Bulimia Nervosa	54.15	56.06	1.717
Sleep Disorder	59.45	59.23	0.026
Somatization Disorder***	56.47	60.83	12.161
Panic Disorder*	59.33	62.70	5.270
Obsessive Compulsive Disorder**	56.29	59.90	9.926
Generalized Anxiety Disorder*	56.29	58.69	6.003
Social Phobia	51.72	52.65	0.782
Separation Anxiety Disorder*	62.27	65.71	5.827
Post Traumatic Stress Disorder	57.79	59.22	2.090
Major Depression	56.46	57.09	0.369
Dysthymic Disorder	56.14	56.75	0.448
Mania***	53.85	57.54	10.903
Depersonalization Disorder	56.14	58.41	3.294
Schizophrenia*	57.83	60.59	4.858

Note: Site differences in mean APS scale scores based on *F* test **p* ≤ .05,
 p* ≤ .01, *p* ≤ .001.

ing schools obtained significantly higher average scores on eleven APS Clinical scales. Youths in training schools had higher scores on all externalizing disorders except for Attention Deficit Disorder; had higher scores on four out of the six anxiety scales; and higher scores for Somatization, Mania, and Schizophrenia APS scales. Mean scores by site are presented in Table 2.

Prevalence of Psychiatric Disorders According to Interviewer Judgment

Interviewer's diagnostic opinions were based on participant responses to the Juvenile Detention Interview and interviewer observations during the interview process. The interviewers were unable to determine a diagnosis for 61 youths or about 20% of those interviewed. Mental retardation was the primary diagnosis for four juveniles and a secondary diagnosis for two others. Using broad diagnostic

Table 3
Comparison of Diagnoses based on Interviewer Diagnostic Impression
and Highest APS Score

<i>Disorder category</i>	<i>Interviewer Impression</i>		<i>Highest APS score</i>
	<i>With Diagnosis</i> % (#) N = 247 ^a	<i>Primary Diagnosis</i> % (#) N = 306	<i>Primary Diagnosis</i> % (#) N = 306
No Disorder	34.4 (85)	29.1 (89)	17.6 (54)
Unable to Diagnose	—	19.9 (61)	—
ADHD/Disruptive Behavior Disorders	35.2 (87)	22.5 (69)	19.6 (60)
Substance Abuse Disorder	31.6 (78)	10.1 (31)	12.4 (38)
Adjustment Disorder	12.9 (32)	4.6 (14)	4.2 (13)
Anxiety Disorder	6.9 (17)	2.0 (6)	19.9 (72)
Mood Disorder	21.9 (54)	11.1 (34)	0.6 (02)
Eating, Sleeping, and Somatization Disorders	—	—	15.4 (47)
Schizophrenia	0.8 (2)	0.7 (02)	3.3 (10)
Mental Retardation	2.4 (6)		
Personality Disorder	1.6 (4)		

Notes: ^a162 of the 247 juveniles with a diagnostic determination were given at least one diagnosis, 88 were given two diagnoses, and 30 had three diagnoses. Therefore, percentages will not add to 100%.

categories, 162 of the juveniles interviewed received at least one diagnosis, 88 received two, and 33 juveniles received three diagnoses. Interviewers were able to make a determination on 247 juveniles; 35.2% were judged by interviewers to have a disruptive behavior disorder (e.g., ADHD, Conduct Disorder, Oppositional Defiant Disorder), 31.6% a substance abuse disorder, 21.9% a mood disorder, 12.9% an adjustment disorder, and 6.9% an anxiety disorder (see Table 3, column 1). Two juveniles were diagnosed as psychotic based on clinical judgment of the interviewer.

Comparison of Interviewer Clinical Judgment and APS Scores

To compare psychiatric disorder prevalence rates for the two assessment methods, we assigned the APS Clinical Scale with the highest score as the primary APS diagnosis and grouped APS disorders into the same categories as used by the interviewers. The comparison of primary diagnostic impression based on interviewer

clinical judgment and highest APS score is presented in Table 3 in the second and third columns.

The APS identified more juvenile offenders with a DSM Axis I disorder compared to interviewers. The two methods produced similar results for prevalence rates of externalizing disorders among incarcerated juveniles. The percentage of juveniles with a primary diagnosis of a disruptive behavior disorder (ADHD, Conduct Disorder, Oppositional Defiant Disorder) was 19.6% based on highest APS score and 22.5% based on interviewer judgment. There was also agreement between interviewers and the APS for adjustment disorders (4.6% based on interviewer judgment and 4.2% based on APS score) and substance abuse disorders (10.1% based on interviewer judgment and 12.4% based on APS score).

For all other disorder categories, there were stark contrasts between the two methods. Interviewers diagnosed only 2% of juveniles with a primary diagnosis of an anxiety disorder, while 19.9% of juveniles obtained an anxiety disorder based on their highest APS scale score. In contrast, interviewers identified 11% of the juveniles as having a mood disorder compared to less than 1% based on the APS. However, eating, sleep, and somatization disorders accounted for 15.4% of primary APS disorders, all of which are associated features of major depression.¹⁴ Interviewers did not assess a single juvenile with an eating, sleeping, or somatization disorder. Finally, almost five times as many incarcerated juveniles were assessed as schizophrenic based on the APS than by interviewers.

Discussion

The findings of this study support previous research indicating that incarcerated juvenile offenders have high rates of mental disorders and substance abuse disorders. Most study participants (71–82%) were categorized as having a *DSM-IV* Axis I disorder. These results are consistent with other state studies of incarcerated youth that found mental illness prevalence rates between 53% and 77%,^{18–21} and a nationally representative survey of juvenile correctional facilities where 73% of the youth reported mental health problems during screening.²² For example, only 13.7% of the females and 23.2% of the males in detention homes in Virginia had no mental illness.²¹

Disruptive behavior disorders (e.g., ADHD, Conduct Disorder, Oppositional Defiant Disorder) are common among juvenile offenders.

In fact, conduct disorder is the most prevalent diagnosis for juvenile offenders, with rates ranging from 50% to 90%.^{2,3} Thus, it was not surprisingly that approximately half of the participants in this study met criteria for a conduct disorder based on the APS, and 35.2% were diagnosed with a disruptive behavior disorder by interviewers. Similar rates of disruptive behavior disorders have been found for juvenile offenders in Virginia,²¹ South Carolina,¹⁸ and Georgia,¹⁹ respectively reported as 52%, 43%, and 35%.

Substance abuse is also a problem among youth involved with the juvenile justice system. A majority of the incarcerated youths in our study admitted to alcohol and marijuana use, and about one-third (31% to 36%) were assessed with a substance abuse disorder. In a previous study, approximately one-third of juveniles arrested or detained tested positive for at least one illegal drug.²³ Similarly, 20% of the youth in South Carolina,¹⁸ 30% in Georgia,¹⁹ and 37% in Maryland²⁰ were diagnosed with substance abuse disorders.

Depending on the method, we found that between 17% and 22% of participants in the current study had a mood disorder. The prevalence of depressive disorders among adolescents from the general population is 10% to 20%.^{24,25} In comparison, the prevalence of depression and other mood disorders ranged from 17% in Virginia, to 19% in Georgia, and 24% in South Carolina.^{18,19,21} In a review of the literature on the prevalence of mental disorder among incarcerated youth, Otto and his colleagues,² noted that studies employing clinical interviews with youth found rates of mood disorder as high as 78%.

We found varying rates of anxiety disorders depending on assessment method. Only 7% of the youths in our study have an anxiety disorder based on interviewers' clinical judgment, yet 58.5% of study participants endorse significant, anxiety symptoms on the APS. Anxiety disorders typically range from 5.7% to 17.7% in the 6–17 year age group of the general population.²⁶ Estimates of the prevalence of anxiety disorders among youths in the juvenile justice system range from 30% in Georgia¹⁹ to 58% in Maryland.²⁰ Separation Anxiety Disorder is the most prevalent (39%) of the six anxiety disorders assessed by the APS in our population. The rate observed for Separation Anxiety Disorder may reflect acute anxiety generated by conditions of confinement rather than a true rate of the disorder. Likewise endorsement of APS items from the Panic, Sleep, and Somatization Disorder scales may reflect symptoms of anxiety and depression as a result of incarceration.

Consistent with other literature, 26% of our sample met APS scoring criteria for PTSD. A study of incarcerated juveniles in California found a PTSD prevalence rate of 32%.²⁷ Exposure to physical and sexual abuse, neglect, criminal victimization, violence and other traumatic events is well documented among delinquents.²⁸⁻³⁰ Thus, we are more confident in the accuracy of PTSD prevalence among our sample than for the other APS anxiety scales.

APS prevalence rates for Depersonalization Disorder (24.4%) and Schizophrenia (29.9%) may seem high, although 45% of the incarcerated youth in the South Carolina study had psychotic symptoms.¹⁸ Juvenile offenders may be responding affirmatively to items on the Depersonalization Disorder and Schizophrenia scales based on experiences while under the influence of alcohol and other drugs or as a reaction to severe stressors and trauma. Lifetime prevalence of schizophrenia and other psychotic disorders in the general population is 0.5% to 1.0%.¹⁴ Higher prevalence rates for psychotic disorders (1% to 6%) are found among incarcerated youths.² Depending on the assessment method, between 0.7% and 3.3% of our sample were diagnosed with schizophrenia as the primary disorder.

Gender Differences

Gender differences identified in this study for several APS clinical disorders are consistent with gender differences in the psychiatric disorder prevalence rates for the general population. According to the National Comorbidity Study,⁶ men are much more likely to have substance use disorders and Antisocial Personality Disorder (i.e., the adult version of Conduct Disorder) than women, while women are much more likely to have affective disorders and anxiety disorders than men. Females in this study were 2.5 to 4 times more likely than males to score in the moderate to severe range on Major Depression and Dysthymic Disorder scales and were 1.4 times more likely than males to meet the criteria for an anxiety disorder. We found that females were twice as likely as males to meet APS scoring criteria for PTSD. Conduct Disorder and Substance Abuse Disorder were the only APS Clinical scales where males had higher rates than females. Half of the males and 39% of the females met APS criteria for a Conduct Disorder. Although ADHD is generally diagnosed more frequently in males,¹⁴ 28.0% of incarcerated females in this study had APS scores that suggested ADHD compared to 11.7% of the incarcerated males. Our results are also consistent with research showing greater mental

health service needs of female juvenile offenders than their male counterparts.^{31,32}

There are several limitations of this study. First, because research cannot be conducted with youths involved in the Mississippi juvenile justice system without Youth Court Judges written permission, we were unable to access offenders in all 15 detention centers nor were we able to approach all juveniles committed to the state training schools. In addition, study participation was strictly voluntary. Thus our findings may not be truly representative of the Mississippi incarcerated youth population because we were unable to use systematic, random sampling techniques. However, we assessed youth incarcerated in both types of facilities, from rural and metro areas, and from every region of the state. In addition, most of the juveniles approached to be in the study agreed to participate (overall participation rate = 83.4%).

A second limitation is the different data collection methods at training schools and detention centers. Due to logistical and time constraints imposed by facility administrators, the APS was group administered at the training schools and individually administered to youths in detention facilities. These different administration methods were necessary because we were allowed a limited number of days to assess youth in the training schools.

Researchers collecting data at the training schools estimated that 12% of the older males had difficulty reading the questionnaires. Difficulty reading, restlessness, and short attention span were much more evident for the younger males. No estimates of reading comprehension were made for juveniles in detention. However, even if the levels of reading comprehension were similar across sites, the individual assistance provided to study participants in juvenile detention centers might have increased the reliability and validity of their responses to the APS. The percentage of invalid APS protocols by study site was not statistically significant.

Finally, comparison of APS scores of juveniles in detention and in state training schools showed that the two groups have similar demographic characteristics, but are different in terms of legal factors and mental health problems. Offenders in training schools met APS criteria for more disorders, and had higher scores on several APS clinical scales (e.g., more severe problems) than offenders in juvenile detention centers. Given that the function of training schools in Mississippi is long-term institutional placement of adjudicated delinquents, who usually have more serious offenses, it is not surprising that training school study participants have higher

levels of disruptive behavior problems. However, youths committed to Mississippi training schools also reported more substance abuse problems, physical complaints, and symptoms of anxiety, agitation, and thought disturbance than juveniles held in detention centers.

Implications

Unmet needs, particularly mental health and family problems, increase the risk of delinquency, recidivism, and incarceration.^{33,34} Factors that were related to later institutional placement included more multi-system needs, chronic school truancy, prior outpatient substance abuse or mental health treatment, poor adjustment to past trauma or abuse, and prior use or possession of a firearm.³³

Unfortunately, the juvenile justice system has become the default placement for many children and youth with mental health disorders.³⁵ This is particularly true for minority youth. Mentally ill African American youth are more likely to be placed in a juvenile justice facility, and mentally ill Caucasian youth are more likely to be placed in a psychiatric hospital.³⁶ Given the evidence that a substantial proportion of incarcerated adolescents have one or more psychiatric disorders, the first step in responding to the needs of youths in the juvenile justice system is the identification of their problems. A study of Youth Courts in Tennessee found that only 3% of offenders were referred to formal mental health services in spite of the fact that the majority of the judges held positive attitudes towards mental health treatment.³⁷

Mental health screening and assessment helps identify which juveniles are in need of mental health intervention. Those youths who would benefit from interventions, including social skills training, anger management training, substance abuse treatment, medication evaluation and treatment, closer observation to prevent self-harm, can and should receive these interventions in the secure environment of the detention center or training school. In addition to alleviating problematic behaviors or symptoms, these interventions would increase juvenile and staff safety in juvenile justice facilities related to aggression and suicidal behavior.³⁵ Routine mental health screening is needed for all juveniles as they enter detention facilities.

Summary

This study examined the prevalence of mental health/substance abuse disorders among Mississippi incarcerated youth held in detention centers and state training schools. Youth in juvenile correctional facilities commonly meet criteria for psychiatric diagnoses that may contribute to the problematic behaviors that lead to placement in these facilities. Identification of these youth at the time of admission to detention facilities can insure improved service delivery, increased safety, and decreased recidivism. Thus, screening and assessment of juvenile offenders entering the detention centers should be a high priority. The need for mental health services to incarcerated juveniles is evident; therefore study of mental health service delivery in juvenile correctional facilities is warranted.

Appendix A

MENTAL HEALTH INFORMATION

(Appearance/Presentation Based primarily on observations)

	Yes	No	Comments
1. Does the client appear alert?			
2. Are there observable speech problem?			
3. Is there anything unusual about the client's appearance?			
4. Are there any observable problems with body movement (difficulties or unusual movements)?			
5. Is the client's mood and affect unusual?			
6. Is the client's activity level unusual?			
7. Does the client seem to have insight into his current problems?			
8. Does the client demonstrate capability of good judgment?			
9. Is client oriented to:			
person?			
place?			
time?			
10. Is there any evidence of hallucinations?			
11. Is there any evidence of delusion?			
12. Does the client have unusual fears?			
13. Does the client have trouble thinking and expressing his thoughts?			
14. Does the client exercise appropriate impulse control?			
15. Does the client appear depressed?			
16. Is there evidence of other bizarre behavior?			

From Prototype Screening/Triage Form For Use In Juvenile Detention Centers by Richard Dembo, University of South Florida, published in Center for Substance Abuse Treatment (CSAT) (1995). *Screening and Assessment of Alcohol- and Other Drug-Abusing Adolescents*. Rockville, MD: US Department of Health and Human Services, Substance Abuse and Mental Health Administration, Center for Substance Abuse Treatment.

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