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**Aftercare Services for Juvenile Parolees with Mental Disorders**

**A Collaboration Between the Ohio Department of Youth Services (DYS) and  
Columbus Children's Research Institute**

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**FINAL REPORT**

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### **Abstract**

The purpose of this study was to examine aftercare services available to juvenile parolees after release from correctional facilities. Youth (162) assigned to a mental health caseload were interviewed and assessed within 60 days of release. A declining number were also interviewed at one (60), three (38), and six (24) months post release. About two thirds of youth met criteria for one or more disorder diagnoses prior to release. About 40% of the initial sample were rearrested within six months of release. About two thirds of those interviewed had received some sort of mental health services one month after release.

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## **EXECUTIVE SUMMARY**

### **Purpose of the Present Study**

Mental disorders among adolescents remanded to juvenile correctional facilities are common, disabling, and expensive. While access to mental health care within youth correctional facilities has improved in certain locales, the linkage of juvenile correctional facility care with community-based services upon release remains anecdotally problematic throughout the nation. This is a critical issue for youths with mental disorders released into the community, as inadequate or interrupted care may lead to abrupt cessation of medications or psychotherapy and thereby increase rates of recidivism. The present study examines the aftercare services juvenile parolees with mental disorders receive as they transition from correctional facilities to the community.

Our three objectives were as follows. First, we assessed rates of recidivism for juvenile parolees with mental disorders. Second, we examined the type and frequency of mental health care received in the community by youths on parole. Third, we investigated the relationship between parolees' recidivism and functional outcomes with their utilization of mental health care. Our ultimate goal is the improvement of treatment services for youths with mental disorders through research on aftercare for youths released from correctional facilities.

### **Methodology for the Present Study**

We conducted a prospective cohort study to examine recidivism, adaptive functioning and mental health services for juvenile parolees from the mental health caseload who were released from juvenile correctional facilities. The sample came from the Ohio Department of Youth Services (DYS). Study inclusionary criteria for youths were as follows: (a) 12-19 years of age, (b) had a presumptive release date within the next 60 days, and (c) placement on the mental health caseload. One hundred eighty-seven eligible youths were approached for participation, and 162 (86%) agreed to participate and completed the baseline assessment. Our sample's mean age was 17.1 years. Ninety percent were male, and ten percent were female. Sixty-six percent were Caucasian, 27% were African-American, 2% were Hispanic American, 1% were Native American, and 3% were other (e.g., multiracial).

We sought to collect data from youths at four time points: one month pre-release, one month post-release, three months post-release, and six months post-release. A variety of standardized measures were completed, including the Voice Diagnostic Interview Schedule for Children-IV (psychopathology), the Columbia Impairment Scale (adaptive functioning), and the Service Assessment for Children & Adolescents (mental health service utilization). All statistical analyses were completed using SPSS for Windows 14.0 and SAS Version 9.1.3.

One hundred eighty-seven eligible youths were approached for participation, and 175 (94%) agreed to participate. One hundred sixty-two youths completed the initial pre-release telephone interview and Voice DISC-IV. Sixty youths completed the 1-month post-release interview. Thirty-eight youths completed the 3-month post-release interview. Twenty-four youths completed the 6-month post-release interview. The

modest rates of post-release data collection may limit the generalizability of the findings described below.

### **Major Findings Regarding Youths from the Mental Health Caseload Released Into the Community**

1. During the pre-release interview, one third of the sample met criteria for 0 disorders, 25.3% met criteria for 1 disorder, and 41.4% met criteria for more than 1 disorder. These figures are probably an underestimate of psychiatric diagnoses in this population, given that we did not include conduct disorder and substance use disorders as part of our computerized diagnostic interview. Separation Anxiety Disorder, Obsessive Compulsive Disorder, Major Depressive Disorder, and Oppositional Defiant Disorder were among the most common disorders.

2. Forty percent of youths were re-arrested or absent from parole during the six months after release into the community.

3. Thirty-seven (62.7%) out of 60 youths reported receiving some type of mental health service in the community at the 1-month interview. Community mental health centers, home based therapists/counselors, and primary care providers were among the most common service providers. However, a noteworthy percentage (32.3%) of youths reported receiving no mental health care at the 1-month interview. Moreover, nearly 20% of our overall sample could not complete 1 and/or 3 month post-release interviews due to absence from parole or re-arrest, and we speculate that this group in particular was unlikely to have followed a treatment plan in the community. In summary,

undertreatment of mental health problems for juvenile parolees with mental disorders appears quite common in the community.

4. None of three service parameters at 1-month predicted re-arrest/absence from parole during the six month period. These three parameters were: (1) Did the youth receive any type of mental health service?; (2) Number of mental health visits; and (3) Was the youth compliant with his/her psychotropic medication regimen? Given the substantial amount of missing service utilization data at 1 month, we conducted analyses with imputed data and still found that none of the three parameters of service utilization predicted re-arrest/absence from parole.

5. Similarly, when average Columbia Impairment Scale scores at 1-month were used as our dependent variable, none of the three service utilization parameters were predictive.

6. We did find that higher levels of youth-reported internalizing symptoms (e.g., anxiety, depression) at 1-month were positively predictive of re-arrest/absence from parole during the six-month post-release period. Juvenile parolees with symptoms of anxiety and depression in the community may require special assistance.

7. We found that 24.6%, 38.9%, and 27.3% of youths lacked any form of health insurance coverage at 1, 3, and 6 months respectively.

### **Overall Implications for Policy, Practice, and Research**

Juvenile parolees with mental health concerns require substantial assistance based upon (a) their high rates of psychiatric disorders prior to release, (b) their noteworthy rates of re-arrest within six months of being released, (c) their substantial lack of health insurance

in the community, and (d) their frequent lack of receiving any mental health care in the community. Although mental health care, as assessed through post-release interviews, did not reduce recidivism as originally predicted, this null finding should be considered preliminary and should be interpreted with caution. The use of a single state and the considerable amount of missing data could limit the generalizability of the major findings. Nevertheless, we speculate that the nearly 20% of youths who could not complete a 1 and/or 3-month post-release interview due to absence from parole or re-arrest were unlikely to have followed a community treatment plan that might have reduce their rates of recidivism. Future research using other states and other methodologies (e.g., claims data) should be conducted to study the utilization-recidivism relationship. Furthermore, future research should incorporate additional adolescent delinquency risk factors (e.g., parental monitoring) when examining this relationship to help specify the types of multifaceted interventions likely needed to reduce recidivism in this population.

## **FULL TECHNICAL REPORT**

### **Introduction**

Mental disorders among adolescents remanded to juvenile correctional facilities are common, disabling, and expensive. Their care consumes a greater portion than ever of correction facility budgets, with a large part of those devoted to the growing demand for psychotropic drugs. While access to mental health care within youth correctional facilities has improved in certain locales, the linkage of juvenile correctional facility care with community-based services upon release remains anecdotally problematic throughout the nation. This is a critical issue for youths with mental disorders released into the community, as inadequate or interrupted care may lead to abrupt cessation of medications or psychotherapy and thereby increase rates of recidivism. The present study examines the aftercare services juvenile parolees with mental disorders receive as they transition from correctional facilities to the community.

#### *Literature Review of the Mental Health Needs of Adolescent Parolees*

In this section, we describe 1) the prevalence of mental disorders among youths in correctional systems, 2) common barriers in the transition to community-based mental health services, and 3) the potential consequences of unmet mental health care needs for this subpopulation.

Prevalence of mental disorders among juvenile justice populations.

Approximately 150,000 youths in the juvenile justice system meet criteria for at least one behavioral or emotional disorder (Cocozza, 1992). In fact, the prevalence of mental disorders appears much higher for those youths involved in the juvenile justice system relative to those adolescents in the general population (Otto, 1992). Vermeiren (2003) reviewed over 20 published studies from 1980 to 2000 and concluded these youths have heightened rates of a diverse array of mental disorders.

Confirming elevated levels of mental disorders, more recent data on the epidemiology of psychiatric disturbance among juvenile justice samples have become more reliable and valid due to the use of standardized assessments. Domalanta, Risser, Roberts, and Risser (2003) recently reported that 41% of their sample of incarcerated adolescents suffered from drug abuse and 27% suffered from alcohol abuse. Given that conduct disorder reflects a repetitive pattern of antisocial acts such as stealing, starting fights, and truancy, the vast majority of adolescent detainees undoubtedly meet criteria for this disorder as well.

Nevertheless, elevated rates exist for many other mental disorders besides substance abuse and conduct disorder, the disorders we would naturally expect in a juvenile justice sample. Teplin et al. (2002) recently found that roughly 60% of juvenile detainees met criteria for one or more psychiatric disorders besides conduct disorder. For example, they found that over one fifth of both male and female juvenile detainees met criteria for a mood disorder, such as depression. These authors also reported that 11% of males and 16% of females in their sample met the criteria for Attention Deficit Hyperactivity Disorder (ADHD). In addition, Steiner, Garcia, and Matthews (1997)

found that half of incarcerated adolescents met full or partial criteria for Post Traumatic Stress Disorder (PTSD). Similarly, Wasserman and colleagues (2002) recently found that nearly one in eight incarcerated juveniles met criteria for an anxiety disorder. In summary, the rates of diagnosable mental disorders are alarmingly high in juvenile justice samples, even for those disorders whose diagnostic criteria do not reflect antisocial or illegal acts.

Barriers in the transition to community-based mental health services. Multiple barriers have existed for adolescents in the general population seeking mental health care. For example, Owens et al. (2002) noted that structural barriers (e.g., waiting lists, transportation problems) and attitudinal barriers (e.g., perceptions that treatment would not help or that problems were not severe) have often interfered with mental health service utilization. In addition, juvenile parolees have faced unique challenges in locating mental health services in the community.

First, substantial financial barriers have existed. Most youths paroled from correctional facilities have been disenrolled from Medicaid, which prohibited federal financial participation for any person involuntarily incarcerated in a public institution. Therefore, to avoid penalties and conflicts, many states and counties disenrolled inmates from Medicaid upon admission to correctional facilities. States justified this termination of benefits by citing Code of Federal Regulations (CFR) § 416.211, which forbade federal financial participation of Medicaid benefits for any month throughout which an individual is a resident of a public institution. Therefore, youths leaving on parole required reenrollment in Medicaid if they were still eligible. These youths were likely to be discharged without insurance coverage into communities for a substantial period of

time. Given the high costs of psychiatric drugs and mental health services, this lack of coverage left many juvenile parolees without mental health care.

Second, Roskes, Feldman, Arrington, and Leisher (1999) speculated that this subgroup has had difficulty seeking or locating services due to a “double stigma” that reflects having both a criminal background and a mental disorder. In fact, Stewart and Trupin (2003) found that youths with high versus low levels of mental health problems were less eligible for programs that assisted in the transition from incarceration to the community.

Third, treatment providers have been wary about providing certain services for this population. For example, many juvenile offenders suffer from ADHD, but physicians have been hesitant to medicate this population for this condition. Many of the preparations of the most scientifically supported treatment option—psychostimulant medication—are subject to abuse through crushing and snorting. Physicians have been concerned about putting such substances into the hands of juvenile parolees. In summary, juvenile parolees with mental disorders have encountered unique barriers to care.

Potential consequences of unmet mental health care needs for this subpopulation.

Although mental health services have expanded for youths in correctional facilities, almost nothing is published on mental health services routinely received by juveniles paroled or otherwise released to the community following incarceration. The sparse literature on mental health utilization for juvenile parolees has focused on care received prior to or during incarceration (e.g., Pumariega et al., 1999), not after release.

The dearth of information on aftercare for juvenile parolees with mental disorders is striking, given that adolescent psychopathology is a significant predictor of juvenile recidivism (Cottle et al., 2001). Various psychosocial characteristics of adolescent parolees from mental health caseloads may explain their elevated rates of recidivism. This subgroup often suffers from ADHD, whose central feature appears to be impulsivity (Barkley, 1997; Quay, 1997). Poor impulse control results in risk-taking and poor decision making, factors that increase the likelihood of committing offenses and getting arrested. In fact, Vermeiren et al. (2002) recently found that ADHD was a predictor of adolescent recidivism. Even those with mild cases of ADHD who do not require stimulant medication in correctional facilities may need these psychostimulants upon release due to their placement in less structured environments (Thomas and Penn, 2002). In addition, juvenile parolees often suffer from depression, whose diagnostic criteria include low self-esteem. Benda, Corwyn, and Toombs (2001) found self-depreciation was one of the leading psychological predictors of adolescent offenders moving into adult correctional facilities.

Adolescent parolees from mental health caseloads may also have elevated rates of recidivism due to the cessation of mental health services they received while incarcerated. Many adolescents with mental problems may either stop taking or run out of medication shortly after release. This medication withdrawal may exacerbate psychiatric symptoms and hence precipitate recidivism.

Considering that there are evidenced-based treatments for many of the common mental disorders suffered by this subgroup, one could speculate that consistent mental health treatment might reduce recidivism. Furthermore, given that many of the factors

that predict recidivism are difficult or impossible to modify (e.g., number of prior incarcerations), the mental health of this subgroup may represent one of the more viable and alterable targets to prevent re-arrests and reconviction. As Veimeiren (2003) so pointedly stated about adolescent delinquents with mental disorders, “Adequate intervention may prevent recidivism, reduce psychosocial torment, and decrease the material and emotional burden antisocial behavior posits on society” (pg. 308). Of course, multiple domains (e.g., education, vocational training) in addition to mental health care may need to be addressed in order to produce the greater reductions in recidivism (Altschuler & Armstrong, 1994).

In summary, mental disorders are common among youths reentering the community, but many barriers to care exist. Utilization of mental health services could conceivably ameliorate some of the high levels of recidivism for this unique population.

#### *Goals of the Present Study*

Our three objectives were as follows. First, we assessed rates of recidivism as well as functional outcomes for juvenile parolees with mental disorders. Second, we examined the type and frequency of mental health care received in the community by youths on parole. Third, we investigated the relationship between parolees’ recidivism and functional outcomes with their utilization of mental health care. As an exploratory aim, we identified common barriers that influence youth utilization of mental health services. Our ultimate goal is the improvement of treatment services for youths with mental disorders through research on aftercare for youths released from correctional facilities.

## **Method**

## *Participants*

We conducted a prospective cohort study to examine recidivism, adaptive functioning and mental health services for juvenile parolees from the mental health caseload who are released from juvenile correctional facilities. We obtained our sample from the Ohio Department of Youth Services (DYS). *DYS* is the state agency charged with the custody, rehabilitation, care, and protection of youths ages 10-21 sentenced to correctional care for the 88 Ohio counties. Study inclusionary criteria for youths were as follows: (a) 12-19 years of age, (b) had a presumptive release date within the next 60 days, and (c) placement on the mental health caseload. To be placed on the mental health caseload, youths were deemed to require the care of a mental health professional and were typically diagnosed with a disorder other than conduct disorder, oppositional defiant disorder, and substance abuse. In other words, while most youths in juvenile correctional facilities meet criteria for conduct disorder, oppositional defiant disorder, and/or substance abuse, those disorders by themselves often did not lead to formal mental health care during Ohio *DYS* incarceration. Placement on the mental health caseload usually required at least one separate diagnosis (e.g., ADHD, depression). In terms of exclusionary criteria, we excluded those youths not residing in Ohio upon release due to difficulties in collecting data from these youths and collateral informants. We also excluded youths with moderate to profound mental retardation and those for whom adequate language translation services could not be provided. These exclusions were made to ensure that all participating youths could understand and complete our measures.

One hundred eighty-seven eligible youths were approached for participation, and 175 (94%) agreed to participate. This high participation rate is comparable to published

studies of incarcerated youths (e.g., Wasserman et al., 2002). Our sample's mean age was 17.1 years ( $SD = 1.2$ ). Ninety percent were male, and ten percent were female. Sixty-six percent were Caucasian, 27% were African-American, 2% were Hispanic American, 1% were Native American, and 3% were other (e.g., multiracial). On average, youths had a history of 11.6 prior arrests ( $SD = 8.9$ ) and were incarcerated in a juvenile correctional facility for 16.3 months ( $SD = 8.5$ ).

### *Procedure*

Recruitment procedures. A research team member contacted a designated DYS official on a weekly basis to receive a list of youths who met eligibility requirements. Youths were then sent an invitation letter from the study team. Eligible participants received follow-up phone calls from the research team inviting them to participate. This process was developed after discussions with various stakeholders who suggested that direct contact from the research team would be preferable to recruitment by state officials to avoid the appearance of coercion.

Permission to participate was then obtained from interested youths. Youths over the age of 18 or who are emancipated provided consent. Youths under the age of 18 provided assent. While youths were incarcerated, DYS provided permission for the youths to participate. However, upon release, for adolescents ages 12 to 17, consent from parents/guardians was obtained for the youths to complete their post-release interviews. All procedures were approved by the Columbus Children's Hospital Human Subjects Committee and DYS officials before the study commenced.

Data collection procedures. All data from youths and parents/guardians were collected by a Columbus Children's Hospital research assistant over the telephone. Data

were collected from youths at four time points: one month pre-release, one month post-release, three months post-release, and six months post-release. Parents of children 18 and over were not contacted for this study. However, we collected data from parents/guardians (hereafter referred to as “caregivers”) of youths under 18 at three time points: one month post-release, three months post-release, and six months post-release. Six months was selected as our last data collection point, as criminologists have identified the first six months post-release as the time period during which re-arrest is most likely.

DYS did not receive any type of per participant gift/incentive for youths to complete the interviews. However, youths over 18 received a \$40 gift card for each completed interview (maximum total of \$160). Youths under 18 received a \$20 gift card for each completed interview (maximum total of \$80), while their caregivers received a \$20 gift card for each completed interview (maximum total of \$60). Excepted where noted below, youths and caregivers completed the same measures during each post-release interview.

### *Measures*

Psychopathology. Just prior to release, youths completed the Voice Diagnostic Interview Schedule for Children-IV (DISC-IV), Present State Version. Considered one of the premier psychopathology instruments, the DISC-IV is a computerized, structured interview covering all major psychiatric disorders. However, the sections reflecting conduct disorder and substance use disorders were not administered to reduce respondent burden. Moreover, these items were unlikely to be applicable for incarcerated youths

who presumably had minimal opportunities to engage in these illegal behaviors over the last few months, the time frame specified by Present State DISC-IV.

Computerized interviewing ensured uniform administration and did not require the presence of a trained interviewer. This reliable and valid interview has been used successfully with juvenile justice samples (Wasserman et al., 2002). Questions were presented over headphones to ensure privacy and to assist those who struggle with reading. Youths who met criteria for 0 disorders could still continue study participation.

A key limitation of the DISC-IV is that youths often underreport the externalizing symptoms of ADHD and oppositional defiant disorder. Therefore, parents were asked about the lifetime presence of symptoms of these disorders during the one-month post-release interview. Parents were not asked about symptoms of other psychiatric disorders, due to the difficulties of administering a long interview over the telephone and the need to assess multiple other domains.

We also collected the youth's responses to the Massachusetts Youth Screening Instrument (MAYSI-2; Grisso et al., 2001), a measure of psychopathology that the youths completed at admission to DYS. While it did not yield diagnoses the way the DISC-IV does, this 52-item measure took only 10 minutes to complete and is widely recognized as a self-report behavioral questionnaire specifically designed for juvenile justice samples.

Re-arrest information for the six-month post-release period. DYS collected information on re-arrests and recidivism from parole officers throughout Ohio. When possible, we collected information from DYS on these variables, including whether or not a youth was absent from parole but not formally re-arrested, for the six-month post-release period. Data on re-arrest, as opposed to re-incarceration, was our dependent

measure, as the adjudication of a juvenile offender can take several months after an arrest is made and therefore often occurred outside of our study's time frame.

Functional outcomes and mental health symptoms in the community. During each post-release interview, informants completed 12 of 13 items from the Columbia Impairment Scale (CIS; Bird, Shaffer, Fisher, Gould, Staghezza, Chen, and Hoven, 1993), one of the gold standard measures of adaptive functioning for a mental health population. We omitted the one item regarding “getting into trouble” because we felt that youths would be less likely to complete the interviews and/or be less forthcoming if they were asked questions reflecting illegal activities.

In addition, during each post-release interview, informants completed two subscales—emotions and hyperactivity/inattention—from the Strengths and Difficulties Questionnaire (Bourdon, Goodman, Rae, Simpson, and Koretz, 2005). The two subscales reflected internalizing symptoms and ADHD symptoms respectively.

Mental health service utilization. During each interview, we utilized portions of the Service Assessment for Children & Adolescents (SACA; Arnold et al., 1997) that focused on inpatient/residential services, drug/alcohol services, outpatient services, and psychotropic medication usage. Excellent reliability has been reported for both parent and youth versions (Horwitz et al., 2001). Moreover, Stiffman and colleagues (2000) noted that “the SACA has better adult-youth correspondence than any service use questionnaire with published data, indicated that both adult and youth reports are not needed for all research on mental health services. This is especially encouraging news for researchers working with high-risk youth populations, in which a parent figure is often not available” (pg. 1032).

Other possible predictors of re-arrest. To examine if mental health service utilization predicts re-arrest above and beyond other known risk factors for recidivism, we collected data on two other variables of interest. First, we collected information from DYS regarding the youth's legal history up to their pre-release interview. Specifically, we collected number of previous arrests and total number of months that the youth had ever been incarcerated in a correctional facility. Second, during the post-release interviews, informants were asked nine questions about the youth's recent association with deviant/antisocial peers based upon the work of Ferguson, Swain-Campbell, and Horwood (2002). Association with deviant peers has been previously linked with criminal behavior (Ferguson & Horwood, 1996; Woodward, Ferguson, & Horwood, 2002).

Barriers to aftercare mental health services. We speculated that lack of insurance would be a key barrier to receiving mental health services in the community for this population. Therefore, we administered the insurance and public program participation questions from the National Survey of American Families to assess coverage during each post-release interview. In addition, during each post-release interview, we administered questions from the Experience of Caregiving Inventory (ECI; Szmukler, Burgess, Herrman, and Benson, 1996). We utilized five subscales assessing stigma-related concerns regarding obtaining mental health services, difficulties interacting with health care providers, negative effects of the mental illness on the family, the need for the family to provide backup assistance to the youth, and the youth's overall dependency on the family.

#### *Data analytic plan*

Frequencies or means/standard deviations were computed to characterize the sample and to achieve Aims 1 and 2. Logistic regressions (using whether or not the youth was re-arrested/absent from parole as the dependent variable) and linear regressions (using the youth's 1-month post-release Columbia Impairment Scale as the dependent variable) were conducted to achieve Aim 3. All analyses were completed using SPSS for Windows 14.0 and SAS Version 9.1.3.

## **Results**

### *Participation Rates for Various Stages of the Study*

We sought to collect data from youths at four different time points: 1 month pre-release, 1 month post-release, 3 months post-release, and 6 months post-release. Table 1 presents the actual number of youths who completed the interviews at these time points as well as reasons interviews were not completed. Interviews were not completed primarily because (a) youths could not be reached in the community for a particular interview or (b) youths were re-arrested or absent from parole before an interview could be completed.

One hundred sixty-two youths completed the initial pre-release telephone interview and Voice DISC-IV. Sixty youths completed the 1-month post-release interview. Thirty-eight youths completed the 3-month post-release interview. Twenty-four youths completed the 6-month post-release interview.

### *Pre-Release Characteristics of Participants*

Psychopathology. Table 2 shows the results from the computerized psychiatric interview—the Voice DISC-IV—that was completed shortly before the youth was release. One hundred sixty-two out of 175 youths completed the DISC-IV. 33.3% of the

sample met criteria for 0 disorders, 25.3% met criteria for 1 disorder, and 41.4% met criteria for more than 1 disorder. Separation Anxiety Disorder, Obsessive Compulsive Disorder, Major Depressive Disorder, and Oppositional Defiant Disorder were among the most common disorders.

In addition, 31 caregivers answered questions about lifetime presence of ADHD and ODD symptoms for these youths during the 1-month post-release interview. 64.6% of these caregivers reported 4 or more symptoms of Oppositional Defiant Disorder, 38.7% of these caregivers reported 6 or more symptoms of ADHD, Predominantly Inattentive Type, and 45.2% of these caregivers reported 6 or more symptoms of ADHD, Predominantly Hyperactive-Impulsive Type for their child.

Table 3 presents information collected from the youths' MAYSI-2 responses at admission to their most recent incarceration at DYS. 73.7% of youths were in the caution zone of at least one subscale, suggesting appropriate initial placement on the mental health caseload. An admission MAYSI-2 was available for 40 out of the 54 youths who did not meet criteria for a mental health disorder shortly before release according to the Voice DISC-IV. Twenty-eight out of these 40 youth were in at least one caution or warning zone of the MAYSI-2, suggesting that the majority of these youths were appropriately placed on the mental health caseload at entry into a DYS facility.

*Aim 1: Description of re-arrest rates, functional outcomes, and mental health symptoms for six-month post release period*

We collected information from DYS on 128 youths regarding whether or not they had been re-arrested or absent from parole during the six-month post release period. 40% of youths had been re-arrested or absent from parole during this interval.

Table 4 presents youth and caregiver mean scores for the Columbia Impairment Scale during the 1-month, 3-month, and 6-month interviews. Scores suggested a low to moderate degree of impairment. Also included in Table 4 are youth and caregiver mean scores for the internalizing and ADHD subscales of the Strengths & Difficulties questionnaire for each interview. At 1-month, based upon normative data provided by Bourdon, Goodman, Rae, Simpson, and Koretz (2005), 26% of caregivers reported at least moderate levels of youth internalizing symptoms and 42% of caregivers reported at least moderate levels of youth ADHD symptoms.

*Aim 2: Description of the type and frequency of mental health services.*

Tables 5 and 6 present youth and caregiver report on the type of mental health service received at each interval. Community mental health centers, home based therapists/counselors, and primary care providers were among the most common service providers. Of particular note, only 37 (62.7%) out of 60 youths reported receiving any mental health service in the community at the 1-month interview. For youths reporting receiving any service, a median number of 5 total visits for mental health issues occurred between pre-release and the 1 month interview.

Table 7 presents youth self-report of class of medication received at each interview. Each class of medication was used at comparable rates during the pre-release interview versus post-release interviews. Roughly 20% of youths reported missing at least one dose of psychiatric medication between release and the 1-month interview.

*Aim 3: Investigating the relationship between mental health service utilization, re-arrest, and adaptive functioning*

Because we wanted to see if mental health care prospectively predicted subsequent re-arrest/absence from parole, we selected three parameters of service utilization from the youth's one-month post-release interview. These three parameters were: (1) Did the youth receive any type of mental health service?; (2) Number of mental health visits; and (3) Was the youth compliant with his/her psychotropic medication regimen? Regarding the third parameter, youths were considered noncompliant only if they were reporting missing at least one dose of a prescribed psychotropic medication. Logistic regressions revealed that none of the three parameters predicted re-arrest/absence from parole (all  $p > .05$ ). Similarly, when average Columbia Impairment Scale scores at 1-month were used as our dependent variable, none of the three service utilization parameters were predictive (all  $p > .05$ ). Finally, given the substantial amount of missing service utilization data at 1 month, we conducted analyses with imputed data and still found that none of the three parameters of service utilization predicted re-arrest/absence from parole (all  $p > .05$ ).

We subsequently conducted some exploratory logistic regressions using six predictor variables that have been previously found to predict recidivism: psychopathology at pre-release (i.e., Did the youth meet criteria for at least one VDISC diagnosis), age at first incarceration, total previous incarceration time, association with deviant peers at 1-month, ADHD symptoms at 1-month, and internalizing symptoms at 1-month. Only internalizing symptoms at 1-month were found to be predictive of re-arrest/absence from parole ( $p < .05$ ).

*Exploratory Aim: Identification of key barriers to youth's mental health service utilization*

We found that 24.6%, 38.9%, and 27.3% of youths lacked health insurance coverage at 1, 3 and 6 months respectively. In addition, we conducted a non-parametric Friedman test to examine differences in the subscales from the Experience of Caregiving Inventory. The overall model was significant,  $p < .01$ . Pairwise comparisons indicated that concerns regarding stigma and difficulties with services were less common relative to the other sets of challenges (e.g., the youth's dependency on the family).

## **Discussion**

### *Synopsis of Key Findings*

Three key findings emerged from the present study. First, youths on the mental health caseload have substantial rates of psychiatric diagnoses shortly before release in the community. While a sizeable portion of youths no longer met criteria for a mental disorder, suggesting that mental health services may not be necessary for some parolees in the community or some parolees were minimizing symptoms, the majority of youths from the mental health caseload still met criteria for at least one disorder as they transitioned out of juvenile correctional facilities. In fact, we likely underestimated the rates of psychiatric diagnoses in this population, given that we did not include conduct disorder and substance use disorders as part of our computerized diagnostic interview. In summary, this high-risk population frequently needs mental health aftercare services during their parole.

Second, undertreatment of mental health problems appears quite common. While most youths reached for the 1-month post-release interview received some type of mental health service, just over one-third of these youths had received no mental health service during their first month in the community. Furthermore, 20% of youths reported missing

at least one dose of psychotropic medication during their first month post-release interview, indicating that medication noncompliance is a common issue for a substantial portion of youths. Finally, nearly 20% of our overall sample could not complete 1 and/or 3 month post-release interviews due to absence from parole or re-arrest, and we speculate that this group in particular was unlikely to have followed a treatment plan in the community.

Third, approximately two in five youths were re-arrested or absent from parole within only six months of being released. This rate appears slightly higher than the 36% six month recidivism rate for the overall Ohio juvenile correctional system for a time period before the present study was conducted. The frequency of mental health care did not predict re-arrest or recidivism, suggesting that community mental health care by itself may not be sufficient to promote optimal post-release functioning. However, youths with greater internalizing (e.g., anxiety and depression) symptoms at 1 month were at heightened risk for re-arrest during the six month post-release period. This result is consistent with Benda, Corwyn, and Toombs (2001), suggesting that youths reporting these symptoms may need greater assistance during the post-release period to prevent recidivism.

#### *Limitations of the Present Study*

Three limitations of our study are worth noting. First, data were collected from a single state in 2005 and 2006; therefore results may not generalize to other states or other time periods. Second, while data on multiple recidivism predictors (e.g., association with deviant peers) were collected, other variables (e.g., availability of mental health providers in certain locales, community mental health treatment's explicit inclusion as a parole

condition) might have been important predictors and should be incorporated in future studies.

Third, and most importantly, a considerable amount of data was missing for the post-release interviews. The investigative team utilized multiple strategies to maximize data collection, including (1) the collection of contact information regarding relatives who were likely to know the youth's whereabouts about release, (2) calling during a variety of daytime, evening, and weekend hours to increase the chances of reaching participants, and (3) the use of financial incentives for participation. Despite these considerable efforts, we had modest rates of post-release data collection, and others (e.g., Ko, Wasserman, McReynolds, and Katz, 2004) have similarly reported substantial difficulties with missing data when interviewing informants in the community for juvenile justice studies. Of course, the fact that youths were frequently re-arrested or absent from parole before particular interviews could be completed was also a major reason for our missing data. Missing data may have interfered with our ability to support the study's major hypothesis—mental health care in the community would reduce recidivism. However, our imputed data analyses imply that higher rates of data collection would likely not have allowed for the support of this major hypothesis.

#### *Overall implications for policy, practice, and research*

Juvenile parolees with mental health concerns require substantial assistance based upon (a) their high rates of psychiatric disorders prior to release, (b) their noteworthy rates of re-arrest within six months of being released, (c) their substantial lack of health insurance in the community, and (d) their frequent lack of receiving any mental health care in the community. Although mental health care, as assessed through post-release

interviews, did not reduce recidivism as originally predicted, this null finding should be interpreted with caution. In particular, we speculate that the nearly 20% of youths who could not complete a 1 and/or 3-month post-release interview due to absence from parole or re-arrest were unlikely to have followed a community treatment plan that might have reduced their rates of recidivism.

Future research using other states and other methodologies (e.g., claims data, face-to-face interviews to establish a more personal relationship with participants, collection of parole officer impressions regarding youths' utilization of mental health care) should be conducted to study the utilization-recidivism relationship. However, these alternative methodologies are not without their own limitations. For example, claims data typically features enrollees with one type of insurance coverage (e.g., Medicaid) but not enrollees with other types of insurance coverage (e.g., specific private insurance plan). Furthermore, future research should incorporate additional adolescent delinquency risk factors (e.g., parental monitoring) when examining this relationship to help specify the types of multifaceted interventions likely needed to reduce recidivism in this population. In particular, integrated case management that focuses on domains besides mental health care (e.g., education, job training) may be needed to prevent re-arrest for these youths.

Table 1: Participation Status for Various Stages of the Study

<u>Study Status</u>	<u>Frequency (%)</u>
Completed All four assessments (including 6-month interview)	24(14%)
3-Month interview completed; 6-month interview could not be completed because:	
Youth absent from parole/re-arrested prior to completion of interview	4 (2%)
Youth could not be reached	8 (5%)
Further participation declined	1(1%)
Other (e.g., exclusionary criteria were met)	2 (1%)
1-Month interview completed; 3-month interview could not be completed because:	
Youth absent from parole/re-arrested prior to completion of interview	13(7%)
Youth could not be reached	6(3%)
Further participation declined	1(1%)
Other (e.g., exclusionary criteria were met)	1(1%)
Pre-Release interview completed; 1-month interview could not be completed because:	
Youth absent from parole/re-arrested prior to completion of interview	20(11%)
Youth could not be reached	40(23%)
Further participation declined	17(10%)
Other (e.g., exclusionary criteria were met)	24(14%)
Voice DISC not completed during incarceration	10(6%)
Pre-Release interview started, but youth declined to finish interview:	3(2%)

Table 2: Prevalence of Mental Disorders according to the Voice DISC-IV

Name of Disorder	Number (%) meeting criteria	Number (%) not meeting criteria
Separation Anxiety Disorder	64(39.8 %)	97(60.2%)
Specific Phobia	28(17.3%)	134(82.7%)
Obsessive-Compulsive Disorder	26(16.0%)	136(84%)
Oppositional Defiant Disorder	23(14.2%)	139(85.8%)
Social Phobia	23(14.2%)	139(85.8%)
Selective Mutism	21(13.4%)	136(86.6%)
Agoraphobia	20(12.3%)	142(87.7%)
Major Depressive Disorder	19(11.7%)	143(88.3%)
Attention Deficit/Hyperactivity Disorder	12(8.1%)	136(91.9%)
Chronic Motor or Vocal Tic Disorder	11(6.8%)	151(93.2%)
Generalized Anxiety Disorder	9(5.6%)	153(94.4%)
Panic Disorder	9(5.6%)	153(94.4%)
Post Traumatic Stress Disorder	8(4.9%)	154(95.1%)
Hypomania	6(3.7%)	156(96.3%)
Transient Tic Disorder	4(2.5%)	158(97.5%)
Mania	2(1.2%)	160(98.8%)
Bulimia Nervosa	2(1.2%)	159(98.8%)

Enuresis (diurnal)	1(.6%)	161(99.4%)
Dysthymic Disorder	1(.6%)	161(99.4%)
Encopresis	0(0%)	162(100%)
Tourette's Disorder	0(0%)	162(100%)
Anorexia Nervosa	0(0%)	162(100%)
Enuresis (nocturnal)	0(0%)	162(100%)

Table 3: MAYSI-2 Scores at Most Recent Admission to Juvenile Correctional Facility

Subscale	Frequency (% caution zone)	Frequency (% warning zone)	Frequency (% safe zone)
Alcohol/Drug Use	35(30.7%)	15(13.2%)	64(56.1%)
Angry/Irritable	31(27.2%)	10(8.8%)	73(64%)
Depression/Anxious	37(32.5%)	10(8.8%)	67(58.7%)
Somatic Complaints	41(36%)	12(10.5%)	61(53.5%)
Suicide Ideation	13(11.4%)	18(15.8%)	83(72.8%)
Thought Disturbance	30(26.3%)	21(18.4%)	63(55.3%)

**Table 4: Functional Outcomes (Columbia Impairment Scale) & Mental Health Symptoms (Strengths and Difficulties Questionnaire) in the Community<sup>a</sup>**

<u>Subscale</u>	Number of 1 month Respondents	Mean (SD) at 1 month	Number of 3 month Respondents	Mean (SD) at 3 months	Number of 6 month Respondents	Mean(SD) at 6 mo.
CIS-youth	60	7.8(8.2)	38	9.3(8.5)	24	10.0(7.5)
CIS-caregiver	31	13.4(10.0)	21	15.9(9.7)	15	17.9(9.4)
Internalizing-youth	60	1.8(2.2)	38	1.6(2.2)	24	2.1(2.3)
Internalizing-caregiver	31	2.1(2.1)	21	2.3(1.9)	15	2.8(2.1)
ADHD-youth	60	3.2(2.7)	38	3.0(2.7)	24	3.1(2.1)
ADHD-caregiver	31	4.6(2.8)	21	5.6(3.0)	15	4.5(3.0)

<sup>a</sup> Scores for the Columbia Impairment Scale can range from 0-28, scores for the Internalizing scale of the Strengths and Difficulties Questionnaire can range from 0-10, and scores for the ADHD scale of the Strengths and Difficulties Questionnaire can range from 0-10. For all scales, higher scores indicated greater difficulties.

Table 5: Youth Self-Report of Mental Health Service Utilization

Percentage of Youths who Used Mental Health Services Between:

Type of Service	Pre-Release & 1-month Interviews (n=60)	1-month& 3-month Interviews (n=38)	3-month& 6-month Interviews(n=24)
<b>Inpatient Services</b>			
Hospital	0	0	0
Drug/Alcohol Treatment Center	0	0	0
Residential Treatment Center	5.0	2.6	0
Group Home	0	0	0
Foster Home	1.7	0	0
Emergency Shelter	0	0	0
<b>Outpatient Services</b>			
Community Mental Health Center	18.3	10.5	8.3
Psychologist/Psychiatrist/Social Worker	16.7	21.1	41.7
Partial Hospitalization/Day Treatment	5.0	0	4.3
Drug/Alcohol Clinic	10.0	2.6	0
Home Based Therapist/Counselor	21.7	15.8	20.8
Emergency Room	5.0	0	8.3
Pediatrician/Family Doctor	6.7	2.6	4.2
Clergy	1.7	0	0

Self-Help	23.3	15.8	0
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Table 6: Caregiver Report of Youth Mental Health Service Utilization

Percentage of Youths who Used Mental Health Services Between:

Type of Service	Pre-Release & 1-month Interviews (n=31)	1-month & 3-month Interviews (n=21)	3-month & 6-month Interviews (n =15)
<b>Inpatient Services</b>			
Hospital	0	0	0
Drug/Alcohol Treatment Center	3.2	0	0
Residential Treatment Center	0	0	0
Group Home	0	0	0
Foster Home	3.2	0	0
Emergency Shelter	0	0	0
<b>Outpatient Services</b>			
Community Mental Health Center	32.3	42.9	46.7
Psychologist/Psychiatrist/Social Worker	12.9	33.3	33.3
Partial Hospitalization/Day Treatment	9.7	0	0
Drug/Alcohol Clinic	3.2	9.5	0
Home-Based Therapist/Counselor	25.8	23.8	20.0
Emergency Room	6.5	0	0
Pediatrician/Family Doctor	12.9	14.3	6.7

Clergy	3.3	9.5	6.7
Self-Help	12.9	14.3	0

Table 7: Percentages of Youth self-report of Psychotropic Medication Usage

Medication Class	History of Taking class (n=166)	Taking Class at pre-release interview (n=166)	Taking Class at 1 month interview (n=60)	Taking class at 3 month interview (n=38)	Taking Class at 6 month interview (n=24)
Psychostimulants/ Stimulants	49.4	7.8	6.7	13.2	13.0
Mood Stabilizers/ Anticonvulsants	27.7	15.1	23.3	13.2	21.7
Antidepressants	43.6	21.1	20	10.5	13.0
Antipsychotic	34.9	15.7	15	10.5	17.4
Anti-anxiety/ Anxiolytics/ Benzodiazepines	2.4	1.2	0	0	0
Other	10.2	3.0	1.7	0	0
Strattera	4.8	5.4	8.3	0	4.3

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