Prevalence of and Gender Differences in Psychiatric Disorders Among Juvenile Delinquents Incarcerated for Nine Months

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Objective: This study examined prevalence rates of psychiatric disorders among young offenders after they were incarcerated for nine months. Methods: A total of 790 youths were surveyed, including a significant proportion of females (N=140, 18%), nine months after incarceration. The Structured Clinical Interview for DSM-IV with portions of the Diagnostic Interview for Children and Adolescents and the Structured Interview for DSM-IV Personality were used. Results: Even when conduct disorder and oppositional defiant disorder were excluded, 88% of males and 92% of females had a psychiatric disorder (including substance use disorder); more than 80% of offenders met criteria for some type of substance use disorder. Gender differences were found for anxiety disorders (males 26%, females 55%, p<.01), marijuana dependence (males 32%, females 24%, p=.04), marijuana abuse (males 19%, females 11%, p=.04), and stimulant dependence (males 25%, females 44%, p<.01). Conclusions: Despite nine months of incarceration, young offenders continued to show high levels of psychiatric and substance use disorders. (Psychiatric Services 60:838–841, 2009)

Studies in several countries and three continents (1–5) have repeatedly shown that young offenders have higher rates of psychiatric morbidity than youths in the community. Although findings of these studies vary, most recent studies have found that 65%–85% of youths in correctional facilities have a major psychiatric diagnosis, with 31%–45% having a substance use disorder (3–5). These numbers are significantly higher than those found for age-matched youths in the community (1,2,4,5). It is also well established that youths in the juvenile justice system have poorer general outcomes compared with youths in the community (6) and they also likely have an increased risk of recidivism when they have psychiatric disorders (7,8). In this brief report we examine the prevalence of psychiatric disorders in a population of youths nine months postincarceration.

The largest study to date, Teplin and colleagues’ (5) investigation of juveniles around the time of intake at a detention facility in Cook County, improved upon several of the methodological shortcomings of previous studies. She and her colleagues reported that more than 66% of males and 74% of females had a diagnosis of a mental illness other than a substance use disorder and that approximately half of their sample had a substance use disorder. However, because the young offenders were studied so close to the time of initial incarceration, the effects of differential adjudication status and adjustment to incarceration may have inflated or deflated the rates of psychopathology that were reported.

We set out to confirm Teplin and colleagues’ findings in a different setting—the California Department of Corrections and Rehabilitation, Division of Juvenile Justice (DJJ) (which was called the California Youth Authority at the time of our sampling)—and at nine months postincarceration. Our first hypothesis was that juveniles in our study who were interviewed after adjudication and after at least nine months of incarceration would have lower levels of psychopathology than those found by Teplin and colleagues.
because in our sample, inflating morbidity would not have an influence on sentencing. Second, we believed that the opportunity for treatment afforded by nine months of incarceration would also further reduce psychopathology from the levels that Teplin and colleagues found. Third, we were also cognizant of the fact that the process of incarceration can be stressful and that this might also increase psychiatric morbidity if the milieu is not perceived by the youth as protective and therapeutic. Thus examining this interval postincarceration would be important in determining how youths experience psychiatric morbidity in the juvenile justice system.

Methods
This study was conducted at the DJJ, one of the largest juvenile correctional agencies in the United States. The DJJ’s Research Project Approval Committee and an independent institutional review board, Independent Review Consulting, Inc., reviewed and approved the project protocols, including the consent and assent procedures and human subject protections. Males admitted to the DJJ between October 1998 and February 1999 and females admitted between October 1997 and June 1999 were recruited after they had been incarcerated for nine months. The time point of nine months was selected for two reasons: first, to allow sufficient time for youths to have completed their intake process and to be assigned to a program institution and, second, to allow time for youths to settle in and adjust to their new environment. Eligible youths included those who were admitted to the DJJ for the first time and who were able and willing to provide assent or informed consent. Individuals were informed of the confidentiality of their participation, which was limited by California state law mandating the report of information related to potential harm to self or others, potential child abuse, and unadjudicated crimes. Youths who chose to participate voluntarily consented or assented and received $5 toward their “canteen fund.”

A total of 1,012 youths met the study criteria. Fourteen refused to participate, 156 were released or paroled from the DJJ before their interviews could be scheduled, and 48 could not be interviewed because of scheduling problems. Diagnostic interviews were initiated with 794 participants and were completed with 790 participants. These 790 participants included 140 females (18%), and the participants ranged in age from 13 to 22 years (mean±SD=16.8±1.2 years). The sample was ethnically diverse and was representative of the broader DJJ population: 224 (28%) were African American, 374 (47%) were Hispanic, 130 (16%) were non-Hispanic white, and 62 (8%) were of other ethnicities, including Asian American, Native American, Filipino American, and Pacific Islander. A total of 430 youths (54%) were committed for violent offenses, 227 (29%) for property offenses, 50 (6%) for drug offenses, and 83 (11%) for other offenses. Before entering the DJJ, males in the sample had an average of 9.4±3.5 arrest charges and females had an average of 6.4±2.3, for an average of 8.9±2.9 in the total study population.

In assembling the assessment package, we took into account our extensive clinical experience with this population. We anticipated encountering difficulties with the juveniles’ comprehension of psychiatric questions secondary to potential language limitations and learning disabilities. We also anticipated both defensive responding, driven by attempts to minimize symptoms in order to appear tough, and symptom exaggeration, to engage the interviewer. For these reasons, we wanted to preserve the raters’ abilities to probe participants’ comprehension of the questions and the accuracy of their responses.

We expected extensive and often long-standing psychiatric morbidity that would require lengthy clinical assessment. Because such assessment is difficult in a population that has problems with persistence, patience, and constancy of purpose, we selected instruments that allow more interaction with participants. Thus the instruments described below seemed to best serve our purposes.

The Structured Clinical Interview for DSM-IV (SCID-IV) (9) was used to make diagnoses of substance use, mood, anxiety, and personality disorders. The SCID-IV has good overall reliability (κ=0.61), but the reliability varies with particular diagnoses that have been studied (10). The overall validity is considered to be strong, and this instrument is routinely used in major research studies. We also used the specific modules of the Diagnostic Interview for Children and Adolescents (DICA) (11) to determine the presence of oppositional defiant disorder, attention-deficit hyperactivity disorder, and separation anxiety disorder, because these disorders are not captured by the SCID-IV. Joint reliability of the DICA is estimated to be between .78 and .90 (10). The Structured Interview for DSM-IV Personality (SIDP-IV) (12) was used to determine the presence of conduct disorder. Because of the complexities of diagnosing personality disorders and related diagnoses, accurate psychometrics for the SIDP-IV are not available. Nevertheless, it has been determined to have good reliability and validity in measuring conduct disorder and antisocial personality disorder (13).

Diagnostic interviews were conducted as soon as they could be scheduled after nine months of incarceration. Participants were pulled from regular programming to learn about the study, and consent or assent was obtained. All interviews were conducted in English, and in rare instances when the youth did not have sufficient command of English, he or she was excluded from participating in this study. Two trained raters were involved with each interview—one read the questions from booklets while the other recorded the responses or answers on the answer sheet. After the sessions, both raters conferred, reviewed the information obtained, and arrived at a consensus of which ratings best represented the answers given by the participants. To further assess reliability, a portion of interviews were randomly selected for recording and were later reviewed by the senior researcher to ensure accuracy and fidelity to the assessment battery.

Prevalence rates of psychiatric disorders were reported for males and females. Comparison of prevalence rates between males and females was conducted with chi square analyses.
The significance level was set at .05. Effect size was measured using number needed to take (NNT), which we used to determine the number of females, over the number of males, that would have to be sampled to find one more case of the disorder (14). NNT is calculated by 1/(prevalence among females – prevalence among males). If the value is positive, the disorder is more common among females, and if the value is negative, the disorder is more common among males. The nearer the value is to zero, the stronger the discrimination between females and males.

Results
Demographic characteristics of the sample are described above. The prevalence rate of several psychiatric disorders is listed for males and females in Table 1, and the results of chi square tests and NNT comparing them are indicated. Excluding disruptive behavior disorders (oppositional defiant disorder and conduct disorder), 88% of males and 92% of females in our sample had a psychiatric disorder (including substance use disorder). The majority of both males (86%) and females (84%) had a substance use disorder. Significant differences were found between males and females in several diagnostic clusters. Females were found to have higher rates of almost all diagnoses. The greatest degree of discrimination between males and females based on NNT was found in any affective disorder (8% for males versus 29% for females), dysthymic disorder (5% versus 20%), any anxiety disorder (26% versus 55%), separation anxiety disorder (12% versus 37%), other anxiety disorder (10% versus 21%), and stimulant dependence (25% versus 44%). Males had higher rates for only marijuana abuse (19% versus 11%) and marijuana dependence (32% versus 24%), although the effect sizes were not as high as they were for the disorders listed previously.

Discussion and conclusions
We found that the prevalence of psychiatric illness was extremely high among juveniles incarcerated at the California DJJ, which is similar to findings of previous studies examining juvenile detention facilities across the nation. We found that conduct disorder was nearly ubiquitous among both males and females in detention. This is not surprising because the average number of arrest charges in our sample was 8.9, indicating a substantial history of criminal behavior, and thus the diagnosis does not offer any unique clinical information for treatment of juveniles in detention. Of critical importance are the high rates of other psychiatric disorders, such as substance use and anxiety disorders. Juvenile detention facilities must evaluate patients for these disorders and incorporate adequate treatment into the rehabilitation plan for their wards.

Our study showed that females had significantly more mental health problems than males, including dysthymic disorder, separation anxiety disorder, attention-deficit hyperactivity disorder, and stimulant dependence. The exact relationship between the higher prevalence of mental ill-
ness in this population and specific disorders that disproportionately affect females is unclear and warrants further investigation. It is already clear that gender-specific attention to mental health issues is essential to appropriately address the needs of juvenile delinquents.

Comorbidity was high in this sample. The vast majority of both females (120 of 140 females, 86%) and males (552 of 650 males, 85%) in the sample had three or more diagnoses. This analysis includes both conduct disorder and oppositional defiant disorder, for which almost all of these youths met criteria before they entered the justice system. The identification of the high rates of multiple psychiatric diagnoses is testimony to the severity of illness in this population, and it leads us to anticipate that mental illness has an impact on several domains of functioning for these juveniles. Although not necessarily surprising, given the high rates of conduct disorder and oppositional defiant disorder, the presence of multiple psychiatric diagnoses is of particular concern in this juvenile population and should be attended to by the juvenile justice mental health system and be investigated with further study.

This study found significantly higher rates of psychiatric morbidity than prior studies (15) and notably higher rates than those reported by Teplin and colleagues (5). There are several possible explanations for this finding. First, it is likely that our methodology allowed for increased self-disclosure of psychiatric symptoms. The circumstances of both having completed adjudication and having had a period of time to adjust to incarceration would allow youths to feel more secure in their disclosures than they would have felt in a preadjudication setting. In addition, the instruments we selected allowed for probing questions and enabled the better development of rapport with the participant. Second, the DJJ may have youths who have more morbidity than youths who have been studied in other settings. The structure of the juvenile justice system in California is two-tiered, with county-level juvenile halls making referrals of their most recidivist offenders to the DJJ. Such a structure might create a situation where the DJJ absorbs a higher proportion of psychiatrically morbid youth. Third, it is possible that the process of incarceration produces an effect of increasing psychosocial stress and thereby increasing psychiatric morbidity.

The strengths of this study include the large sample and the broad representation along age, gender, and ethnic parameters. Our sample largely reflects the population in the DJJ and California more generally. The use of the SCID-IV not only allowed us to examine issues in this postadjudication population in a rigorous and probing manner, but it enables us to look at this cohort longitudinally and examine the future outcomes for these youths. Our study provides an important contribution to the literature, because study participants were interviewed after nine months of incarceration.

We are also aware that the reality of incarceration may be a factor in this analysis. We expect that the rates of anxiety and mood symptoms could be affected by being held in an institutional setting. Institutions can provide healing and rehabilitation. And these same institutions can create or exacerbate psychopathology. These data were collected ten years ago. The California system has in recent years significantly reorganized the health and mental health care provided to those who are incarcerated, and we plan to reexamine prevalence rates after the system has had an opportunity to implement new standards of practice and treatment. The findings of this study and others should serve as a call for all juvenile justice systems to expand services for young offenders, especially given the limitations and obstacles to care after release.

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