

Use of Outpatient Care by Juvenile Detainees Upon Community Reentry: Effects of Mental Health Screening and Referral

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Objective: This study assessed rates of mental health care utilization among juvenile detainees upon community reentry and examined the impact of a mental health screening and referral program. **Methods:** A pre-post cohort design was used: 24 months before and after implementation of the program. The sample included 7,265 observations from 6,345 participants age 13 to 18 (first cohort, 4,812; second, 2,453). Outcomes included mental health care utilization (30 and 60 days post-detention) and recidivism (three and six months postdetention). **Results:** Logistic regression models of utilization at 30 days, controlling for cohort differences with propensity scores, found that males were less likely than females to have a mental health visit (odds ratio [OR]=.54, 95% confidence interval [CI]=.45–.64, $p<.01$); the likelihood was also lower among black (OR=.52, CI=.44–.62, $p<.01$) and Hispanic (OR=.12, CI=.07–.22, $p<.01$) youths, compared with white youths, and among older youths (OR=.53, CI=.50–.57, $p<.01$) (similar results at 60 days). No overall significant differences between cohorts were found in visits at 30 (first cohort, 14%; second, 16%) and 60 (17% and 19%, respectively) days postrelease. An age interaction with cohort indicated a cohort difference among adolescents in the middle tertile (14.6–16.5 years) in utilization at 30 (first cohort, 12%; second, 17%) and 60 (16% and 21%) days. Compared with the preimplementation cohort, the postimplementation cohort had higher recidivism rates at three (first cohort, 24%; second, 31%) and six (36% and 43%) months. **Conclusions:** Connection to services upon community reentry was poor among detained youths. A screening and referral program was not sufficient to increase utilization rates. (*Psychiatric Services* 63:997–1003, 2012; doi: 10.1176/appi.ps.201100550)

Epidemiological data regarding detained and incarcerated youths have consistently identified significant mental health needs (1). A recent review of 25 studies found that most adolescents in correctional facilities and detention centers

met criteria for at least one diagnosis of a mental disorder (2). However, rates of mental health care utilization are quite low (3). In one study, 6% of incarcerated youths received a mental health referral (4). In another study, 8% of detained youths received mental

health treatment on community reentry (3). Therefore, in this study we explored the overall rate of mental health care utilization and whether a mental health screening and referral program leads to increased mental health care utilization.

Mental health screening programs for detained and incarcerated youths have become increasingly common (5). Benefits of mental health screening include better identification of youths with mental health needs, improved care during detention, and increased communication between detention staff and youths (6). However, screening for mental health needs does not necessarily lead to engagement in mental health care and is not “sufficient to improve the effectiveness of rehabilitation efforts” (7).

A vast majority of adolescents released from correctional and juvenile justice facilities are rearrested (8). However, when youths get effective mental health treatment, such as multisystemic therapy and wraparound services, recidivism (the repetition of criminal behavior) is reduced (9–11). We explored the overall rate of mental health care utilization upon community reentry, the effect of a mental health screening and referral program on utilization, and how utilization affected recidivism.

Methods

On April 1, 2006, a mental health screening and referral program was initiated at a large Midwestern detention

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center. To assess the effect of the program, a pre-post cohort study design was used. The 24-month preimplementation period was April 1, 2004, to March 31, 2006. The 24-month postimplementation period was April 1, 2006, to March 31, 2008. Electronic juvenile court and mental health care records of participants 12 to 18 years old were accessed and linked by using individual identifiers and a probabilistic matching algorithm (12). Juvenile court records were extracted from the justice system's electronic database. Electronic outpatient records from Indiana Medicaid and from one of the hospitals and its affiliated clinics in Indianapolis were extracted from the Regenstrief Medical Record System of the Indiana Network for Patient Care (13). The study was approved by the Indiana University-Purdue University Indianapolis Institutional Review Board.

Study setting

Detention centers hold juveniles during the preadjudication period or the predisposition period (for example, before residential placement). A youth can be court ordered to detention if court personnel determine that the youth is a flight risk (will not appear before court) or in order to protect the community because of the seriousness of the charge (14). Detention stays are brief, averaging two weeks, with many youths remaining in detention for only a day or two. Thus detention centers are short-term holding facilities—not treatment facilities—with requirements to meet the immediate physical and mental health needs of youths (15,16).

Screening and referral program

When officials determined that an arrested youth would be detained, the youth completed the Massachusetts Youth Screening Instrument-2 (MAYSI-2), an electronic mental health screening tool created and validated with detained youths. The MAYSI-2 is a 52-item, dichotomous (yes-no) mental health screen that consists of seven subscales that have good internal consistency (Cronbach's alpha for the subscales varies from .61 to .86) (17-19). A youth is considered to be at "high risk" if the score on the

suicide ideation scale is in the caution or warning range or if scores on two or more subscales are in the warning range (20). On-site master's-level mental health staff conducted a follow-up mental health assessment that included an interview and administration of the Child and Adolescent Needs and Strengths (21) to determine diagnosis, level of functional impairment, and course of care during detention. The results of the assessment were shared with court staff, including probation officers, at the time of the case disposition. Probation officers included the diagnostic results of the assessment in the case disposition, which could influence juvenile court treatment orders or recommendations.

Measures

Criminal charges. A crime severity measure was developed by Marion County juvenile court personnel; felony cases (for example, murder and rape) were classified as most severe, followed by misdemeanors (less serious offenses, including theft and battery), probation violations (for example, failing drug screening and violating house arrest), warrant arrests (for example, failure to appear in court), and status offenses. When multiple charges were listed, the most severe was chosen. Crime severity scores range from the most severe (score of 1; for example, murder or attempted murder) to the least severe (score of 22; for example, runaway or incorrigibility); this scoring method is consistent with other offense severity scales for juveniles (22). Recidivism was defined as a new arrest charge (coded 1 for a new charge or 0 for no charge; probation violations were excluded) within three or six months postrelease.

Out-of-home placement. Out-of-home placements included state juvenile prison, residential facilities, and inpatient hospitalizations (1, placement; 0, no placement). Data were from the juvenile justice electronic files.

Court-ordered therapy. At the time of disposition of the juvenile court case, juveniles who returned to the community could be court ordered into three types of therapy (general

therapy, substance use therapy, and home-based therapy). These were collapsed into one category (1, court-ordered therapy; 0, no court-ordered therapy).

Mental health care utilization. Data on utilization of mental health care (outpatient or home-based services) were from Indiana Medicaid claims and from medical records of one of the hospitals and its affiliated clinics in Indianapolis. Dichotomous scoring (1, yes; 0, no) was used to indicate whether a mental health visit was made in the 30 days before detention or within 30 or 60 days after detention release.

Demographic information. During detention, data on gender, age, and self-reported race-ethnicity (white, black, Hispanic, or multiracial) are recorded.

Analysis

In each two-year cohort (before and after April 1, 2006), only the first detention for each participant was included. Thus participants who had detentions in both time frames had two observations in the data set. Participants who had an out-of-home placement on release were excluded from the analysis. Outcomes included outpatient mental health visits at 30 and 60 days and recidivism at three or six months postrelease.

Descriptive statistics were calculated at baseline. Continuous variables were compared between the two cohorts by using analysis of variance models with repeated measures to account for multiple observations per person (two possible observations). Logistic regression models with generalized estimating equations (GEE) were used to compare dichotomous categorical variables between the two cohorts, and cumulative logit models with GEE were used to compare categorical variables with more than two levels.

Propensity scores (23) were used to adjust for differences between participants in the first and second cohorts. A multivariate logistic regression model was developed in which cohort was the dependent variable and participant characteristics (gender, race, age at detention, crime severity, felony, days in detention, out-of-home placement,

and mental health visit in the 30 days before detention) were independent variables. The model was used to calculate a participant-specific propensity score reflecting the probability of being in the second cohort. Participants were stratified into 85 propensity score groups, based on the sample size and distribution of participant characteristics. Within each propensity score group, chi square tests were used to compare categorical characteristics, and t tests were used to compare continuous characteristics.

Logistic regression models were fitted to compare each outcome variable between the two cohorts, adjusting for propensity score groups and for participant characteristics (gender, race, age at first detention, and days in detention). The effect of the interaction between cohort and age at first detention was explored in each logistic regression model. On the basis of results of preliminary analyses, age at first detention was treated as a categorical variable by sample tertiles.

SAS software, version 9.2, was used for statistical analyses.

Results

The initial sample consisted of 7,137 participants (5,615 with a record in the first cohort and 2,768 with a record in the second cohort, including 1,246 participants with an observation in both cohorts). However, 461 of these participants were excluded because they did not return to the community (232 went to juvenile prison, two to an inpatient hospitalization, and 227 to a residential treatment facility). Also excluded were 38 participants with missing data on gender or race, 256 with missing data on crime severity level, and 363 whose age was outside the 12–18 age range (353 were under age 12, and ten were over age 18). Thus the data for the cohort characteristics analysis presented in Table 1 were from 6,345 participants (a total of 7,265 records, from 4,812 participants in the first cohort and 2,453 participants in the second cohort, including 920 participants with an observation in both cohorts).

The proportions of males and blacks were significantly larger in the second cohort than in the first cohort ($p < .01$) (Table 1). Participants in the second

cohort were significantly older at first detention, had less severe crimes, and had more days in detention ($p < .01$ for all). A larger proportion of adolescents in the second cohort were court ordered into therapy ($p < .01$), and a larger proportion had mental health visits 30 days before their detention ($p < .01$). The rate of felony offenses was similar in both cohorts.

After propensity scores were created and the cohorts were divided into 85 propensity score groups, only a few differences by cohort were found between the score groups. One of the propensity score groups was unbalanced; this group consisted of 25 detentions from the first cohort and two detentions from the second cohort. These 27 detentions (22 patients) were then excluded. After this step, the multivariable outcome analyses included data for 6,323 participants (a total of 7,238 records from 4,787 participants in the first cohort and 2,451 participants in the second cohort, including 915 participants with an observation in both cohorts).

Table 2 shows participant characteristics and the outcome models after adjustment for propensity scores. The two cohorts were not significantly different in mental health visits in

the 30 days after release (first cohort, 14%; second cohort, 16%). Significant differences in model covariates were found. Males were less likely than females to have had mental health visits (odds ratio [OR]=.54, 95% confidence interval [CI]=.45–.64, $p < .01$). Rates of mental health visits were lower for black youths (14%) and Hispanic youths (4%) than for white youths (16%) (black youths, OR=.52, CI=.44–.62, $p < .01$; Hispanic youths, OR=.12, CI=.07–.22, $p < .01$). For each increased year in age at the first detention, the youth was less likely to have a mental health visit within 30 days after release from detention (OR=.53, CI=.50–.57, $p < .01$). Length of stay in detention was not significantly associated with mental health visits. Results were similar for mental health visits at 60 days.

As shown in Table 2, 31% of the second cohort was rearrested within three months after release from detention, compared with 24% of the first cohort. This difference remained significant after adjustment for propensity score group, gender, race, age at detention, and number of days in detention (OR=1.42, $p < .01$). Females were less likely than males to be rearrested within three months (23%

Table 1

Characteristics indicated in 7,265 juvenile detainee records, by cohort^a

Characteristic	First cohort (N=4,812)		Second cohort (N=2,453)		p
	N	%	N	%	
Male	3,452	72	1,929	79	<.01
Race					<.01
Black	2,659	55	1,475	60	
Hispanic	224	5	125	5	
Mixed	167	4	101	4	
White	1,762	37	752	31	
Age at first detention (M±SD years) ^b	15.2±1.5		15.5±1.4		<.01
Crime severity (M±SD score) ^c	9.1±6.5		10.5±7.4		<.01
Felony	1,806	38	930	37	.75
Days in detention (M±SD)	8.8±13.5		11.7±15.1		<.01
Court-ordered therapy	409	9	276	11	<.01
Any mental health visits 30 days before detention	566	12	344	14	<.01

^a The two cohorts consisted of youths with at least one detention two years before and after April 1, 2006, when the screening and referral program was implemented. Data for 6,345 unique youths are presented—920 with an observation in both cohorts.

^b Age at which each youth was first detained within the follow-up period (that is, as a member of the cohort).

^c Possible scores range from 1, most severe, to 22, least severe.

Table 2

Postdetention mental health care utilization and recidivism as indicated in 7,238 juvenile detainee records, by cohort^a

Variable	First cohort (N=4,787)		Second cohort (N=2,451)		OR ^b	95% CI	p
	N	%	N	%			
Mental health visit within 30 days	654	14	387	16	1.08	.93–1.24	.31
Mental health visit within 60 days	833	17	474	19	1.03	.90–1.18	.64
Arrested within 3 months	1,157	24	757	31	1.42	1.27–1.59	<.01
Arrested within 6 months	1,733	36	1,063	43	1.37	1.23–1.52	<.01

^a The two cohorts consisted of youths with at least one detention two years before and after April 1, 2006, when the screening and referral program was implemented. Data for 6,323 unique youths are presented—915 with an observation in both cohorts. The analyses adjusted for propensity score group, age, gender, race, and days in detention.

^b Odds ratio for second versus first cohort

of females and 28% of males; OR=.80, CI=.70–.92, $p<.01$). Compared with white youths, black youths were more likely to be arrested within three months (23% of white youths and 29% of black youths; OR=1.21, CI=1.07–1.38, $p<.01$). Being older at the first detention was related to lower rates of rearrest within three months (OR=.82, CI=.78–.86, $p<.01$). The number of days in detention was not significantly associated with rearrest within three months. Results were similar for rearrest within six months.

We explored these models further by including an interaction between pre- and postimplementation cohorts

and age at first detention as a continuous variable. We observed an interaction for the rearrest outcome but not the mental health visit outcome. For ease in interpretation of the interaction and the limited age range, age at first detention was treated as a categorical variable by sample tertiles. This interaction was observed in the models for both rearrest and mental health visits.

Table 3 shows the results of the interaction effect of cohort and age at first detention on mental health care utilization. In the middle tertile (age 14.6–16.5 years), youths in the post-intervention cohort had a higher rate

of mental health visits (17%) than youths in the preintervention cohort (12%) (OR=1.36, $p<.01$). Mental health care utilization did not differ by cohort for youths in the youngest tertile (12–14.5 years) and the oldest tertile (16.6–18 years). In the middle tertile, youths in the second cohort were more likely than those in the first cohort to have mental health visits in the 60 days after release (OR=1.30, $p=.02$). For the younger and older tertiles, no significant between-cohort differences in mental health visits at 60 days were found.

Discussion

This study assessed rates of mental health care utilization on community reentry before and after implementation of a mental health screening and referral program at a juvenile detention center. The rate of outpatient mental health care utilization at 30 days was 14% for the preimplementation cohort and 16% for the post-implementation cohort. It is difficult to compare these results with results of previous research because the rate of mental health care utilization in published reports has varied widely—from a high of 42% (24) to a low of 4% (25). A comparable study (same geographical region and with a similar cohort) by Teplin and colleagues (3) of detained youths from Cook County, Illinois, found that 8% of

Table 3

Age at first detention as a predictor of postdetention mental health care utilization as indicated in 7,238 juvenile detainee records in two cohorts^a

Utilization and age tertile	First cohort (N=4,787)			Second cohort (N=2,451)			OR ^b	95% CI	p
	Total N	N	%	Total N	N	%			
Mental health visit within 30 days									
Young adolescent (12.0–14.5 years)	1,692	345	20	697	154	22	.85	.67–1.06	.15
Middle adolescent (14.6–16.5 years)	1,578	194	12	884	154	17	1.36	1.08–1.72	<.01
Older adolescent (16.6–18.0 years)	1,517	115	8	870	79	9	1.02	.75–1.39	.90
Mental health visit within 60 days									
Early adolescent (12.0–14.5 years)	1,692	426	25	697	188	27	.84	.68–1.04	.11
Middle adolescent (14.6–16.5 years)	1,578	251	16	884	188	21	1.30	1.05–1.61	.02
Late adolescent (16.6–18.0 years)	1,517	156	10	870	98	11	.93	.70–1.23	.62

^a The two cohorts consisted of youths with at least one detention two years before and after April 1, 2006, when the screening and referral program was implemented. Data for 6,323 unique youths are presented—915 with an observation in both cohorts. The analysis adjusted for propensity score group, race, and days in detention. No overall p value for interaction effect was reported from the logistic model with generalized estimating equations. Cohort difference on each outcome was reported by each age tertile.

^b Odds ratio for second versus first cohort

youths received mental health care in the community. That study used a longer timeline to assess mental health service use (when the “case was disposed by the judge or for 6 months, whichever came first”), included psychotropic medication visits as mental health care visits, and included only youths with major mental illnesses (major depressive episode, manic episode, or psychosis). Data on mental health visits in the analysis reported here were gathered only from Medicaid billing records and from electronic medical records of one of the hospitals and its affiliated clinics in Indianapolis. Therefore, these data underrepresent total utilization. However, most youths in this detention center are covered by Medicaid, and youths without Medicaid (or other coverage) have been found to utilize health care less regularly (26). Mental health care utilization was higher in this study than in the study by Teplin and colleagues, even though this study had a shorter time frame for measuring mental health service use (30–60 days). However, rates of mental health care utilization of 8%, or even 16%, are quite poor given the strikingly high rate of mental illness among detained youths (2).

The highest rate of mental health care utilization was among younger adolescents, followed by middle adolescents, and older adolescents. Other studies of detained youths at community reentry have found higher rates of mental health service use in younger age groups (3). Parents play a key role in enabling adolescents to get mental health care services (27,28). As adolescents age, they become increasingly autonomous, which may lead to a reduced role for parents in facilitating mental health care.

A consistent finding across studies of youths in juvenile justice, including this one, is that females and youths from nonminority groups are more likely to be referred to and to utilize mental health services (3,4,24,25). Previous research in the juvenile justice system has explored a number of potential explanations, including stigma associated with mental illness (29) and race attribution bias (such bias occurs when the behavior of African-American youths is attributed

to negative internal character while white youths' behavior is attributed to negative social environments) (30). In addition, youths from racial-ethnic minority groups are more likely to seek informal health care services from non-Medicaid-eligible entities (31). Informal mental health care services were not assessed in this study, because those data were not available. Future research should explore use of informal mental health services among youths in the juvenile justice system.

Effect on utilization of the screening and referral program

As this study demonstrates, increasing the use of mental health care on community reentry requires more than merely identifying and referring youths with mental illness. One model that deserves attention is Project Connect (32), whose goal was to link juvenile probationers to needed mental health and substance use services. The intervention consisted of mental health screening, cooperative agreements to share information between juvenile justice and mental health providers, and program material to facilitate referrals. In addition, a two-day in-service training was provided to probation officers that focused on how to help youths to engage in mental health care. In a pre-post intervention study, Project Connect was associated with an almost threefold increase in use of services.

In this study, adolescents in the 14.6- to 16.5-year age group had higher utilization of mental health care after implementation of the screening and referral program. This effect was consistent at 30 and 60 days after release from detention. Thus the screening and referral program appeared to be associated with increased utilization for a specific age group. The mechanism for this effect is unknown. It may be that youths in this middle-adolescent group are influenced by parents; if screening identifies a need for mental health care, parents may become activated to encourage utilization of mental health care (28).

Recidivism effects

We hypothesized that implementation of the screening and referral

program would lead to increased use of mental health care, which would lead to lower recidivism rates. However, the program did not increase use for all age groups, and the post-implementation cohort had a higher recidivism rate. The higher recidivism rate may be the result of an effort (starting in 2007) to limit the detention of low-risk youths (on the basis of the Juvenile Detention Alternatives Initiative) (16). This diversion program reduced the detention census significantly, and detained youths now have, on average, more serious criminal charges. Youths with more serious charges are more likely to be rearrested (33).

Limitations

To our knowledge, this is the first study to explore the effect of a mental health screening and referral program for detained youths on utilization of mental health services on community reentry. One limitation was that the only data analyzed for evidence of mental health care use were from Medicaid claims and from electronic medical records of one of the hospitals and its affiliated clinics in Indianapolis. Also, the study cohort was not limited to youths with Medicaid coverage at the time of detention. For these reasons, the utilization rates we report are underestimates. However, an analysis of a subsample of detained youths from the same center found that a majority (66%) were insured by Medicaid (18% had private insurance, and 17% had no insurance) (34); most of the mental health visit records in the study reported here were from Medicaid claims. Insurance status is an important predictor of health care utilization (35), and youths who were uninsured at the time of detention were probably less likely than those with Medicaid to have received follow-up mental health care.

A second limitation is the pre-post design. A group-based randomization would have controlled for trends in detention practices (such as the diversion program and the reduction in the detention center census) and for possible trends in mental health care utilization. We used propensity matching, which controlled for observed

differences between cohorts, and research during the same time frame did not find secular trends in use of outpatient mental health care (36). Although adjustment using propensity scores is a powerful analytical tool in nonrandomized studies, it cannot adjust for unmeasured differences between cohorts. A significant reduction was noted in the number of youths detained; however, an analysis of a subsample of youths from the same detention center found that the rate at which mental health screening identified youths with mental health concerns did not significantly change when low-risk youths were diverted from detention (37).

Future research

Three areas should be considered for future research. First, it would be useful to study Project Connect (32), perhaps in a randomized trial. Second, the role of parents in facilitating engagement in mental health care by youths in the juvenile justice system may be important, particularly in light of the age differences noted in this study; individual or family interventions to increase motivation to seek and engage in care may be necessary to increase use of mental health care on community reentry (38).

Conclusions

Youths in juvenile justice benefit from empirically based treatments for mental illness (39). However, this study found that few utilized mental health care services on community reentry. This finding is striking because most youths in our detention center population had Medicaid coverage and therefore would have some access to services. Implementing a mental health care screening and referral program for detained youths did not result in an overall increase in mental health care utilization. More intensive, multifaceted interventions, such as Project Connect (32), may enable a more effective handoff from the criminal justice system to mental health care services in the community.

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Submissions for Datapoints Column Invited

Submissions to the journal's Datapoints column are invited. Datapoints encourages the rapid dissemination of relevant and timely findings related to clinical and policy issues in psychiatry. National data are preferred. Areas of interest include diagnosis and practice patterns, treatment modalities, treatment sites, patient characteristics, and payment sources. The analyses should be straightforward, so that the figure or figures tell the story. The text should follow the standard research format to include a brief introduction, description of the methods and data set, description of the results, and comments on the implications or meanings of the findings.

Datapoints columns, which have a one-page format, are typically 350 to 400 words of text with one or two figures. Because of space constraints, submissions with multiple authors are discouraged; submissions with more than four authors should include justification for additional authors.

Inquiries or submissions should be directed to column editors Amy M. Kilbourne, Ph.D., M.P.H. (amy.kilbourne@va.gov), or Tami L. Mark, Ph.D. (tami.mark@truvenhealth.com).