

Criminal Justice Settings as Possible Sites for Early Detection of Psychotic Disorders and Reducing Treatment Delay

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Objective: Interventions to reduce the duration of untreated psychosis should target institutions and key figures that may interact with individuals who have emerging or untreated psychosis. These individuals may come into contact with criminal justice settings, such as jails and prisons. This study sought to determine the frequency of arrests and incarcerations during the duration of untreated psychosis. **Methods:** Retrospective data were collected from an urban, largely African-American group of 191 patients hospitalized for first-episode psychosis. **Results:** Thirty-seven percent of participants were incarcerated at some point during their duration of untreated psychosis. Patients who had been incarcerated during this period had a much longer treatment delay, more severe positive symptoms (specifically, hallucinations), and poorer pre-morbid academic adjustment. For this group, the mean number of incarcerations during the duration of untreated psychosis was 2.0 ± 1.5 , the median number of days detained was 30.5, and most were detained for nonviolent, often petty, crimes. **Conclusions:** Interventions to identify young people with untreated psychosis in jails and prisons and to refer these individuals to appropriate psychiatric care may reach some who would otherwise experience very long delays in treatment initiation. Crisis intervention team training of police officers could serve as one of several approaches for identifying these young people and diverting them into treatment. (*Psychiatric Services* 65:758–764, 2014; doi: 10.1176/appi.ps.201300206)

The duration of untreated psychosis, or time between emergence of the first psychotic symptom and initiation of adequate treatment, is an important focus of early-psychosis research because of its association with outcomes. Longer treatment delays are linked to greater severity of positive and negative

symptoms, poorer overall functioning, lower quality of life, and a lower likelihood of achieving remission (1,2). Outreach to individuals with untreated psychosis is possible, though complex and costly (3). Efforts to identify individuals with untreated psychosis and engage them in treatment must be tailored not only to the social

norms and attitudes of a setting, but early-detection teams must also target the institutions and key figures that are most likely to encounter young people who have an untreated psychotic disorder.

Numerous studies document the increasing role of the U.S. criminal justice system in housing individuals with serious, often chronic, mental illnesses (4). This trend holds true for adolescents as well as adults. The prevalence of mental illnesses is very high among young offenders in the United States and elsewhere (5,6), and the number of juvenile offenders has increased substantially in recent decades (7). Each factor (mental illness and criminal justice involvement) is a well-established risk factor for the other, as well as a host of poor health, social, educational, and economic outcomes (7–10).

We previously reported on the high prevalence of prior incarceration in a sample of 109 hospitalized first-episode patients (11). In a second cohort of first-episode patients, we found that prior incarceration was a predictor of longer duration of untreated psychosis (12). Although literature on the emergence of mental illnesses in relation to criminal justice system encounters is limited, both chronic mental illness and criminal justice recidivism are associated with substantial deleterious long-term outcomes, and these two factors in combination are particularly impairing. Interventions to reduce the chronicity and interconnectedness of

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both conditions would be beneficial from policy and clinical perspectives. One strategy for accomplishing this goal is to identify persons with emerging or untreated psychosis—who would benefit from early intervention services—in criminal justice settings. In our previous study, a history of incarceration among first-episode patients was associated with male gender, completion of fewer years of education, poorer premorbid academic functioning, earlier initiation of cannabis use, higher rates of cannabis and alcohol dependence, and more severe symptoms of general psychopathology (11).

This study of patients with first-episode psychosis who were admitted primarily to an inner-city public hospital had two objectives: first, to estimate the proportion who had interacted with the criminal justice system during their duration of untreated psychosis, and second, to create a symptom and demographic profile of these individuals, which could lead to the development of tools for clinicians and decision makers in criminal justice settings to identify those with untreated psychosis.

We hypothesized that patients who were incarcerated during their duration of untreated psychosis would have a longer overall treatment delay than those who were not incarcerated. In addition, we conducted an exploratory analysis to determine whether a similar pattern emerged among individuals who were incarcerated during their prodrome (the period between the onset of any behavioral changes or psychiatric symptoms and the onset of the psychotic episode). We expected that participants with an incarceration during their initial duration of untreated psychosis would have greater severity of positive symptoms and general psychopathology symptoms and poorer insight. Given our previous finding that premorbid academic functioning (but not social functioning) was associated with a history of incarceration among patients experiencing a first episode of psychosis, we conducted an exploratory analysis to ascertain whether premorbid academic functioning was more strongly associated with incarcerations during the premorbid period or the

duration of untreated psychosis. This study has implications for programs seeking to reduce the duration of untreated psychosis and for criminal justice policies.

Methods

The sample included English-speaking patients who were receiving initial treatment for a nonaffective psychotic disorder. Exclusion criteria included known or suspected mental retardation, a Mini-Mental State Examination (13) score of <24, inability to give informed consent, hospitalization for psychosis more than three months before the index hospitalization, and a history of taking antipsychotic medications for more than three months. Most patients had received no treatment before the index hospitalization.

Data were collected as part of an ongoing study of the impact of premorbid cannabis use on the early course of psychotic disorders. Individuals (N=191) were recruited from hospitals in two U.S. cities between August 2008 and April 2012. In Atlanta, Georgia, participants were enrolled at an urban, public-sector hospital (N=137), a suburban crisis stabilization unit (N=33), and a state psychiatric hospital (N=11). In Washington, D.C., individuals were recruited from a private university-affiliated hospital (N=7) and an urban community hospital (N=3). After receiving a complete description of the study and before participation, patients gave written informed consent. The study was approved by all relevant institutional review boards.

The assessment was typically administered during the participant's hospitalization, after initial stabilization. Demographic information and incarceration history were collected using a structured interview. Interviewers asked, "Have you ever been arrested?" and "Have you ever been incarcerated, or locked up?" Follow-up questions about the date, length, location, and reason for each incarceration were asked. Data were collected for up to six separate incarcerations. When available, one or two informants (family members or friends who had seen the participant regularly during the year before hospitali-

zation) were asked to provide the same information (such informant data were available for 128 of 191 participants).

After data were collected from all available sources, the research team met to derive consensus-based best estimates for several variables, including the number of arrests and incarcerations. In the few cases in which there were irreconcilable discrepancies in the reports of the participant and informants or the chart information, data were regarded as missing. If a participant reported having been incarcerated multiple times and was able to provide information about specific incarcerations that occurred after psychotic symptoms emerged but could not recall the dates of earlier incarcerations, the occurrence of an incarceration during the duration of untreated psychosis was recorded but the incarceration variables for the prodrome and premorbid period were regarded as missing. Research assessors asked participants to report the charges for which they served time and recorded these verbatim. Charges were later classified as violent (for example, assault, robbery, arson, any sexual offense, illegal threats, or intimidation) (14) or nonviolent (for example, possession of illicit substances, driving violations, shoplifting, jaywalking, loitering, or child neglect).

Data on diagnoses and symptoms were collected with widely used, valid, and reliable instruments. The Positive and Negative Syndrome Scale (PANSS) was employed for current and past-month positive, negative, and general psychopathology symptoms (15). After an in-depth, semi-structured interview, trained research assessors rated the severity of 30 symptoms on a scale from 1, absent, to 7, extreme. The PANSS has demonstrated criterion-related validity with concurrent and antecedent measures, predictive validity, and utility for dimensional and typological assessment (15).

The ages at onset of prodromal symptoms and of psychotic symptoms were determined in a standardized and rigorous method that used the Symptom Onset in Schizophrenia

Table 1

Characteristics of 191 patients with first-episode psychosis

Characteristic	Total N	N, median, or M±SD	% or range
Male	191	139	73
Race	191		
African American		163	85
Caucasian		16	8
Other		12	6
Single or never married	191	169	88
Living situation	191		
Alone		15	8
With family member or spouse		127	66
With friend or romantic partner		17	9
Homeless, in structured living arrangement, or other		32	17
Education	191		
Did not graduate from high school		80	42
Completed high school		33	17
Attended or completed education beyond high school		78	41
Diagnosis ^a	191		
Schizophrenia		113	59
Psychotic disorder, not otherwise specified		28	15
Schizoaffective disorder		23	12
Schizophreniform disorder		21	11
Other primary psychotic disorder		7	4
Age (M±SD years)	191	24.2±4.8	
Age at onset of psychosis (M±SD years)	180	21.2±5.4	
Age at onset of prodrome (M±SD years)	171	19.2±5.9	
Median duration of untreated psychosis (weeks)	180	45	6–145
Median duration of untreated illness, including prodrome (weeks)	171	122	41–320
Median delay before first professional help-seeking contact (weeks)	110	35	2–149
Reported a health care contact during the duration of untreated illness, including prodrome, prior to hospitalization	132	64	50
Reported a primary care contact before hospitalization	126	4	3

^a Diagnoses were made with the Structured Clinical Interview for DSM-IV Axis I Disorders.

(SOS) inventory (16). Participants' recollection of dates was enhanced through cross-referencing with memorable life events. Psychiatric diagnoses were determined with the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID) (17), which was completed after the in-depth PANSS and SOS interviews and after information was collected from participants' medical charts and informants.

Premorbid academic functioning was assessed with the Premorbid Adjustment Scale (18), rated by trained interviewers after a semistructured interview. Participants' scores during childhood (≤ 11 years), early adoles-

cence (12–15 years), and late adolescence (16–18 years) were based on their reported grades, social connections, and participation in extracurricular activities. Possible scores range from 0 to 6, with higher scores indicating poorer academic functioning. To conservatively ensure that truly premorbid, rather than prodromal, functioning was assessed, data for a time period were excluded if prodromal or psychotic symptoms emerged within one year of the period in question.

Independent-samples Student's *t* tests were used to examine bivariate associations between incarceration

during the duration of untreated psychosis, prodrome, or premorbid period and all linear variables of interest. Chi square tests were applied for categorical variables. On the basis of bivariate analyses, two predictors of poor insight (history of incarceration during the duration of untreated psychosis and severity of hallucinations) were entered into a stepwise multiple linear regression model. Analyses were conducted in SPSS, version 17.0, with $p < .05$ in two-tailed tests establishing statistical significance. Because the variables for duration of untreated psychosis and duration of untreated illness were highly right-skewed, statistical tests were performed with a log transformation of the variable. For interpretability, medians were reported rather than the log-transformed means.

Results

As shown in Table 1, this sample of 191 first-episode patients consisted primarily of single or never married (88%), African-American (85%), young-adult (mean age of 24.2) males (73%). A substantial portion (42%) did not graduate from high school, even though all were at least 18 years old. In the month before hospitalization, participants lived with family (66%), a friend or romantic partner (9%), or alone (8%), or they were homeless or in a structured living arrangement (17%). SCID diagnoses included schizophrenia (59%), psychotic disorder not otherwise specified (15%), schizoaffective disorder (12%), schizophreniform disorder (11%), delusional disorder (2%), and brief psychotic disorder (1%). The mean age at onset of psychosis was 21.2 years, and the median duration of untreated psychosis was 45 weeks.

Most participants (70%) reported a history of arrest, and a majority (59%) had been incarcerated at some point before the index hospitalization. As shown in Table 2, incarcerations occurred during the premorbid period for 22%, during the prodrome for 13%, and during the duration of untreated psychosis for 37%. Among those who had been incarcerated during the duration of untreated psychosis, the mean number of incarcerations during this period was 2.0,

the median number of days detained was 30.5, and three-fourths (76% of the 62 participants with available data on this variable) were detained for a nonviolent, often petty, crime. In a subgroup of participants incarcerated during the duration of untreated psychosis for whom help-seeking behaviors were recorded ($N=48$), 33% reported having any health care or help-seeking contacts in the period after prodromal or psychotic symptoms emerged but before their incarceration.

Comparisons of individuals incarcerated during the premorbid period, prodrome, or duration of untreated psychosis with individuals who were not incarcerated are presented in Table 3. The median treatment delay for the group incarcerated during their duration of untreated psychosis was more than two years longer than the delay for participants with no incarceration during this period (130.5 versus 12.0 weeks, $p<.001$). The proportion of males in the group with incarcerations during this period was larger and the severity of positive symptoms at initial hospitalization was greater than in the group with no incarceration during this period. A post hoc analysis of specific positive symptoms at the time of initial hospitalization indicated greater hallucination severity in the group with incarcerations during their treatment delay (PANSS score of 4.6 versus 4.0, $p=.010$); however, the severity of delusions and disorganization did not differ between the groups.

Participants who had been incarcerated after the onset of prodromal or frank psychotic symptoms had better illness insight than those who had not been incarcerated during this period. To clarify the associations between insight at the time of initial hospitalization, hallucination severity, and incarceration history, a multiple linear regression model was conducted with a history of incarceration during the duration of untreated psychosis (yes or no) and PANSS hallucinations score entered as predictors of participants' insight score. After stepwise elimination, hallucinations remained a statistically significant predictor of insight ($R^2=.079$, $df=172$, $p<.001$)—although accounting for lit-

Table 2

History of arrest and incarceration among 191 patients with first-episode psychosis, by time period

Variable	Total N	N, median, or $M\pm SD$	% or range
Total sample			
Arrest any time before index hospitalization	191	134	70
Incarceration any time before index hospitalization	191	113	59
Incarceration during premorbid period	165	44	22
Incarceration during prodromal period	164	25	13
Incarceration during the duration of untreated psychosis	177	72	37
Subsample of those with incarceration during the duration of untreated psychosis			
N of incarcerations during the duration of untreated psychosis ($M\pm SD$)	58	2.0 ± 1.5	
Days incarcerated during the duration of untreated psychosis (median)	56	30.5	10–91
Incarcerated for a violent crime during the duration of untreated psychosis	62	15	24
Contact with a health care professional for prodromal or psychotic symptoms before an incarceration during the duration of untreated psychosis	48	16	33

tle of the variance in insight—and incarceration history was no longer statistically significant. Individuals who were incarcerated during the prodrome did not have a longer duration of untreated psychosis than those who were not incarcerated during the prodrome; however, they did have a longer duration of untreated illness (inclusive of the prodrome) and better insight at the time of initial hospitalization. Poorer premorbid academic adjustment was associated with incarceration during the premorbid period and during the duration of untreated psychosis (Table 3).

Discussion

The past prevalence of incarceration in this sample was very high. More than one-third of participants (37%) were incarcerated during the duration of untreated psychosis, spending an average of one month in a criminal justice setting (most often a city or county jail or a juvenile justice setting). Those who had been incarcerated during this period had a much longer median duration of untreated psychosis (approximately two years, compared with three months for those with no incarceration during this period). Compared with those

with no incarcerations, those with incarcerations during the duration of untreated psychosis were more likely to be male, had more severe positive symptoms, and had better insight. At their first incarceration, two-thirds had previously had no help-seeking contacts after the onset of prodromal or frank psychotic symptoms.

Several factors might account for the high incarceration rate and for its association with a longer treatment delay. Of note, the sample comprised mostly young African-American males (63%). It is well known that this demographic group is disproportionately arrested and incarcerated—for reasons that are complex and beyond the scope of this report (19). It is possible that involvement with the criminal justice system delays treatment or that individuals with untreated psychosis are more likely to offend. It is also possible that symptom-related, cognitive, socioenvironmental, or other factors explain both treatment delay and risk of incarceration. It is noteworthy that few individuals in the sample were incarcerated for a violent crime, despite evidence suggesting that a substantial portion (35%) of individuals with first-episode psychosis commit some sort of violence (often minor)

Table 3

Associations between incarceration history and clinical and demographic characteristics among 191 patients with first-episode psychosis^a

Variable	Incarcerated during the period of interest				p
	Yes		No		
	N	%, median, or M±SD	N	%, median, or M±SD	
Incarceration during the duration of untreated psychosis					
Male	72	92	105	63	<.001
Duration of untreated psychosis (median weeks)	72	130.5	101	12.0	<.001
PANSS (M±SD score)					
Positive symptoms ^b	72	25.3±9.1	105	22.7±5.4	.020
General psychopathology symptoms ^c	72	47.4±9.5	105	45.3±10.3	.172
Insight (M±SD score) ^d	71	6.8±3.5	103	5.6±2.8	.014
PAS premorbid academic functioning (M±SD score) ^e					
Childhood	60	2.0±1.2	99	1.5±1.2	.008
Early adolescent	41	2.9±1.3	88	2.3±1.2	.015
Late adolescent	28	3.3±1.6	58	2.8±1.4	.150
Incarceration during prodrome					
Male	25	84	139	71	.164
Duration of untreated psychosis (median weeks)	25	53	135	30	.455
Duration of untreated illness, including prodrome (median weeks)	25	166	131	113	.003
Insight (M±SD score) ^d	25	7.5±3.5	136	5.7±3.0	.007
Incarceration during premorbid period					
Male	44	80	121	69	.200
PAS premorbid academic functioning (M±SD score) ^e					
Childhood	44	2.0±1.2	106	1.5±1.1	.032
Early adolescent	41	2.8±1.3	83	2.2±1.2	.012
Late adolescent	33	3.6±1.5	51	2.6±1.4	.001

^a Because the duration of untreated psychosis and duration of untreated illness variables were highly right-skewed, statistical tests were performed using a log transformation of the variable. For interpretability, medians are reported, rather than the log-transformed means.

^b PANSS, Positive and Negative Syndrome Scale. Possible scores range from 7 to 49, with higher scores indicating greater severity of positive symptoms.

^c Possible scores range from 16 to 112, with higher scores indicating greater severity of general psychopathology symptoms.

^d Measured with the Birchwood Insight Scale. Possible scores range from 0 to 12, with higher scores indicating better insight.

^e PAS, Premorbid Adjustment Scale. Possible scores range from 0 to 6, with higher scores indicating poorer academic functioning.

before their first contact with mental health providers (20). It is possible that individuals who exhibited more severe violence were excluded from our study because they were incarcerated for longer periods or were identified and treated for psychosis while still in jail or prison.

As motivation to reduce treatment delay for psychosis in the United States increases, we must consider strategies for reaching affected individuals through existing institutions.

Of 11 interventions designed to reduce duration of untreated psychosis that were recently reviewed, only two were successful: the TIPS campaign in Norway and the EPIP Project in Singapore (21). Both were multifocused campaigns, targeting the general public and specific groups to improve attitudes toward and knowledge of psychosis (21). Although neither focused on criminal justice settings, the EPIP Project found that during its campaign, patients were

less likely to be referred to mental health services by law enforcement, perhaps as a result of increased self-referral. Pathways to care traversed by first-episode patients and their families should be a focus of future research, as well as interventions to decrease negative experiences (such as contact with police), because these initial experiences can shape individuals' longer-term view of and engagement in services (21). Our data suggest that an outreach campaign to reduce treatment delay should include criminal justice settings. Patients in our sample were largely unemployed, not in school, and not receiving primary care services. Prisons and jails may be among the few institutions that come into contact with some individuals who have undiagnosed psychosis, especially those from low-income and socially disadvantaged communities.

The deleterious effects of incarcerating young people with serious mental illnesses and the moral, legal, and economic arguments for referring them to medical treatment are well established (22). However, creating an early intervention service for psychosis in jail and prison settings would present logistical challenges and ethical issues. Although prisons are coordinated at the state and federal levels, county and city jails, where a vast majority of the individuals who had been incarcerated in this sample had been detained, are operated and regulated at a local level in the United States, and each is governed differently. Current policies regarding involuntary treatment for mental illnesses require evidence of dangerousness to warrant involuntary hospitalization. Yet these laws appear to extend the duration of untreated psychosis (23), which is marked by economic, social, and educational decline, as well as by increased risk of harming others (24,25). Criminal offenses alone do not warrant compulsory treatment, and psychiatric symptoms do not automatically negate responsibility for illegal actions. However, it may be beneficial to the individuals in question and society at large if offenders are screened for mental illnesses and referred or diverted to services.

Prebooking jail diversion may follow the crisis intervention team model, in which officers are trained to recognize signs of mental illnesses and divert individuals to services rather than jail when appropriate (26), or the assisted outpatient treatment model, which involves court-ordered treatment for individuals who have a history of nonadherence, as a condition of their remaining in the community (27). In addition, although early intervention for individuals with undetected and untreated psychosis is warranted, this does not detract from the overwhelming need to improve services for individuals with chronic serious mental illnesses in criminal justice settings.

Several inherent methodological limitations must be acknowledged. First, although the research team has expertise in interview-based, retrospective measurement of key constructs preceding treatment seeking, data on arrests and incarcerations were obtained through self-report, which is subject to recall error. However, arrests and incarcerations are likely to have been underreported rather than overreported, and it is unlikely that a systematic bias influenced hypothesis tests in one direction over the other. Although state-level administrative criminal justice data could have been used, only arrests that warranted fingerprinting and that occurred within the state would have been reported, and details of incarcerations would not have been reliably available. Second, given our sample's sociodemographic characteristics (for example, predominantly African American, low-income, and socially disadvantaged) and clinical characteristics (hospitalized mainly in public-sector settings), generalizability is limited. Nonetheless, internal validity is likely high, and our findings in this understudied group contribute to new and important discussions about the role of criminal justice settings in early detection and early intervention efforts. Third, given the dearth of research on prior incarcerations among young people with emerging psychotic disorders, our hypotheses were grounded largely in our own experience and suppositions rather than on previous findings. However, this somewhat exploratory analysis sets the stage for further work.

Conclusions

Early detection and intervention for psychotic disorders has become a focus of research, clinical programs, and policy in recent years. Early intervention is now thought by many to represent an ethical imperative (to reduce the psychosocial impairment that comes with untreated psychosis), and it may also hold promise for improving outcomes (given some evidence that early intervention has long-lasting beneficial effects). We found a high prevalence of prior incarcerations among patients experiencing a first episode of psychosis (11), these incarcerations were associated with longer treatment delays (12), and more than a third of the individuals in our sample were incarcerated during their duration of untreated psychosis. These findings suggest that discussions of early intervention must extend to criminal justice settings. Young people with an emerging psychotic disorder, who are in a "critical period" (28) in terms of early initiation of evidence-based pharmacological and psychosocial treatments, are hidden not just in private homes, classrooms, and primary care settings but also in our jails and prisons. They have a right to receive care, and we have an obligation to develop effective means for early identification and engagement in treatment in this as in other settings.

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