

Prevalence of Involvement in the Criminal Justice System During Severe Mania and Associated Symptomatology

Paul P. Christopher, M.D.

Patrick J. McCabe, M.P.H.

William H. Fisher, Ph.D.

Objective: This study sought to determine the prevalence of criminal justice involvement during episodes of mania and to identify whether specific manic symptoms contribute to this risk. **Methods:** Data from the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions, a nationally representative sample of noninstitutionalized U.S. adults (N=43,093), were analyzed to determine the rate of legal involvement (being arrested, held at the police station, or jailed) of individuals with bipolar I disorder during the most severe lifetime manic episode. **Results:** Among the 1,044 respondents (2.5%) who met criteria for having experienced a manic episode, 13.0% reported legal involvement during the most severe manic episode. Unadjusted analyses found legal involvement more likely among those with episode-specific symptoms of increased self-esteem or grandiosity, increased libido, excessive engagement in pleasurable activities with a high risk of painful consequences, having six or more criterion B manic symptoms, and having both social and occupational impairment. The risk was lower among those with hypertalkativeness or pressured speech. When analyses adjusted for other manic symptoms and static variables, males, those with a first episode at age 23 or younger, and persons with mania-associated social indiscretions, excessive spending or reckless driving, and both social and occupational impairment were at greater risk. **Conclusions:** A large percentage of persons experience legal involvement during a manic episode, and it is associated with specific symptoms of mania. Efforts to reduce such involvement among persons during manic episodes may be enhanced by focusing attention and resources on this high-risk group. (*Psychiatric Services* 63:33–39, 2012)

Compared with persons in the general population, individuals with serious mental illness are at greater risk of arrest for virtually every type of crime (1). In the United States, as many as 15% of male and 31% of female jail inmates (2) and an estimated 15%–20% of prisoners have serious mental illness (3). Such high rates of involvement in the crim-

inal justice system are of concern to policy makers, clinicians, and advocates alike, in part because mental health treatment in correctional settings is often inadequate (4) and because having a criminal record can restrict access to housing, employment, and other domains necessary to achieve recovery (5).

Persons with bipolar disorder, in

particular, are more than twice as likely as the general population to commit violent crimes (6) and nearly five times as likely to be arrested, jailed, or convicted of an offense other than drunk driving (7). Those with co-occurring substance use disorders are eight times more likely than those bipolar disorder alone to have prior criminal justice problems (8) and are six times more likely than the general population to have committed a violent crime (6). Data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) suggest that the incidence of violence (not necessarily resulting in justice involvement) among persons with bipolar disorder is significantly higher than in the general population only for those with a co-occurring substance use disorder (9).

Intuitively, a number of symptoms of mania (for example, grandiosity and excessive engagement in risky activities) suggest that persons with bipolar disorder may be more likely to engage in criminal behaviors during this phase of their illness than in other phases (10). Indeed, one study found that among correctional inmates with bipolar disorder, most (74%) reported being in a manic or mixed state when arrested (11), and more frequent manic episodes and psychiatric hospitalizations have been shown to predict much of the lifetime risk of arrest among persons with bipolar disorder (12,13). In a recent study nearly 16% of inpatients hospitalized for mania engaged in criminal behavior during a seven- to 12-year follow-up period (14,15). Further-

The authors are affiliated with the Department of Psychiatry, University of Massachusetts Medical School, 55 Lake Ave. N., Worcester, MA 01655 (e-mail: paul.christopher@umassmed.edu).

more, violent or aggressive behavior by inpatients with bipolar disorder was found to be greater among those with grandiosity, impulsivity, and psychosis (16) and during manic episodes with accompanying psychosis (17) and hostile-suspiciousness (18). Among adults who committed criminal offenses, including those with nonviolent charges, grandiosity (19) and hypersexuality (20) were found to be significant features of mania. On the other hand, one study found that patients with bipolar disorder were no more likely to commit violent crimes during manic episodes than during depressive episodes or during psychotic episodes than during nonpsychotic episodes (6).

Few studies have focused on understanding whether specific psychiatric symptomatology (as opposed to diagnoses alone) might be related to criminal justice involvement during exacerbations of psychiatric illnesses (19–22). This investigation sought to identify the prevalence of criminal justice involvement during serious manic episodes in an epidemiological sample and to assess whether specific symptoms of mania were more likely to contribute to the risk of such involvement.

Methods

Sample

Data for this study were obtained from the NESARC, the largest U.S. epidemiologic survey to assess psychiatric disorders according to the *DSM-IV* criteria. The NESARC assessed the same respondents with in-person interviews in two waves: wave 1, 2001–2002, and wave 2, 2004–2005 (23,24). The sample was representative of the U.S. adult (18 years and older), noninstitutionalized, civilian population, including the District of Columbia and all 50 states. Residents in noninstitutional group quarters (for example, boarding houses, dormitories, and shelters) were included, as were military personnel living off base (23). Prisons, jails, and hospitals were not sampled. The sample was weighted to represent the U.S. population and adjusted for nonresponse. The study reported here used wave 1 data (N=43,093), the overall response rate

for which was 81% (25). Because this analysis of deidentified NESARC data did not involve direct interaction with human subjects, it was deemed exempt from review by the University of Massachusetts Medical School Institutional Review Board.

Measures

The NESARC used the Alcohol Use Disorder and Associated Disabilities Interview Schedule–*DSM-IV* Version (AUDADIS) (26), a structured diagnostic interview, to generate *DSM-IV* diagnoses (27) for major axis I and axis II (personality) disorders.

To define our cohort of individuals meeting *DSM-IV* criteria for a manic episode, we used responses from the manic episode section of the AUDADIS. Criterion A required endorsement of either a week or more of “extremely excited, elated or hyper mood” that caused others concern or that they thought was uncharacteristic of the respondent or a week or more of irritable mood.

Criterion B symptoms were assessed relative only to the episode during which the respondent’s mood was the most elevated or irritable (referred to here as “most severe episode”). Consistent with *DSM-IV* we required endorsement of three or more criterion B symptoms for those endorsing elevated mood and at least four symptoms for those only endorsing irritable mood. Because the AUDADIS does not systematically assess for mixed episodes, criterion C was not applied. However, we included mixed-episode features: having experienced at least a week of mood alternating between elevated and depressed-anhedonic for any (or all) manic episodes. [A table listing AUDADIS questions and the related criterion B symptoms is available in an online appendix at ps.psychiatryonline.org.]

AUDADIS uses five questions to assess social and occupational impairment (criterion D) relative to the most severe episode: whether the respondent was uncomfortable or upset by his or her symptoms (distressed); had any serious problems getting along with other people (social impairment); had any serious problems with responsibilities such as working,

doing schoolwork, or caring for home or family (occupational impairment); had trouble getting things done (difficulty completing tasks); and had any legal trouble, such as being arrested, held at the police station, or put in jail (legal involvement). Consistent with *DSM-IV*, for this study criterion D was met by the endorsement of either social or occupational impairment as described above or the endorsement of hospitalization for any lifetime manic episode.

To be excluded under criterion E, all lifetime manic episodes had to be substance- or illness-induced. Episodes were illness-induced if a health professional told the respondent that all manic events were related to a medical condition or illness. Respondents who were told that any, but not all, manic episodes were related to a medical condition were coded as “any manic events illness-induced.” To fail criterion E for substance use (alcohol, medication, or drug) a respondent would need to report that all episodes followed substance use or withdrawal, report stopping substance use or not experiencing withdrawal symptoms for at least a month, and report that manic symptoms did not continue after the cessation of substance use or withdrawal symptoms for all episodes. Respondents who endorsed substance-induced episodes for some but not all manic episodes were identified as “any manic events substance-induced.” In summary, our cohort included respondents who met *DSM-IV* manic episode criteria A, B, D, and E as described above and for whom information about legal involvement was available.

Other variables

Mania-related variables included age at onset of first manic episode, number of lifetime manic episodes (separated by more than two months of normal mood), duration of longest manic episode, and onset of any mania after increased use of or withdrawal from alcohol, a medication, or a drug. Service use variables included ever having seen a mental health professional for mania, ever having been to an emergency room for mania, and ever having been prescribed medication for mania. “Self-medicated” was

defined as having used alcohol, drugs, or nonprescribed medicines to calm down or feel better when manic.

Other lifetime clinical variables included alcohol, cannabis, or other substance abuse or dependence (opioids, methamphetamine, cocaine, hallucinogens, or another illicit drug or a prescription drug), psychotic illness or episode (diagnosed by health professional), dysthymia, any anxiety disorder (agoraphobia, panic disorder, social phobia, specific phobia, and generalized anxiety disorder), antisocial personality disorder, conduct disorder (without subsequent antisocial personality disorder) and other personality disorders (paranoid, schizoid, avoidant, dependent, obsessive-compulsive, and histrionic). Lifetime severity of *DSM-IV* major depressive episode symptoms was captured with two count indicators (five or more and eight or more symptoms).

Demographic variables included gender, age, race and ethnicity, personal income, education, urbanicity, census region, and marital status.

Primary outcome

Legal involvement (from the criterion D question set on social and occupational impairment described above) was defined as being arrested, held at the police station, or put in jail, during the manic episode that the respondent identified as the most severe in his or her lifetime.

Statistical analyses

Design effects and subpopulation selection considerations in standard error estimation were addressed with Stata's "svy, subpop" procedure. Taylor series linearization method was used for standard error estimation with strata with a single primary sampling unit being centered at the overall mean. All estimates are weighted, and all confidence intervals account for the design effects and the subpopulation nature of our cohort. Bivariate logistic regression was used to assess the association of legal involvement with all variables. A multivariate logistic regression model of risk of arrest was constructed and included episode-specific symptoms and static factors present on or before the inci-

dent manic episode (gender, race, and age of first manic episode onset). Stata, version 10.1, was used for all analyses (28).

Results

Prevalence

Among NESARC wave 1 respondents (N=43,093), a total of 42,079 (97.7%) had valid responses to the questions in the mania section and, of these, 1,044 (2.5%) met specified criteria for having experienced at least one episode of mania. Of these, 135 persons (13.0%, 95% confidence interval [CI]=10.5–15.5) had legal involvement during the episode that

they identified as the most severe in their lifetime.

Bivariate analyses

Demographic characteristics of respondents with and without legal involvement during their most severe lifetime episode of mania are shown in Table 1. Characteristics associated with elevated risk were being male ($p<.001$) and unmarried ($p=.02$).

Legal involvement during the most severe episode was more likely among respondents with episode-specific symptoms of inflated self-esteem or grandiosity, increased libido, excessive engagement in pleasurable

Table 1

Demographic characteristics of respondents who reported a lifetime manic episode, by legal involvement during the most severe episode^a

Characteristic	All (N=1,044)		With legal involvement (N=135)		Without legal involvement (N=909)	
	N	%	N	%	N	%
Male gender ^b	425	46.2	93	75.7	332	41.8
Age						
18–25	237	23.0	39	29.0	198	22.1
26–35	242	23.9	27	25.1	215	23.7
36–45	236	22.2	27	18.8	209	22.7
≥46	329	30.9	42	27	287	31.5
Race-ethnicity						
White	612	72.4	71	66.9	541	73.2
Hispanic or Latino	183	9.8	24	10.7	159	9.6
Black	189	10.7	28	13.9	161	10.3
American Indian, Alaska Native, Asian, Hawaiian, or Pacific Islander	60	7.1	12	8.5	48	6.9
Personal Income (quartile, in dollars)						
≤6,500	313	33.7	39	29.4	274	34.4
6,501 to ≤15,000	272	22.6	44	33.0	228	21.1
15,001 to ≤30,000	266	25	30	22.8	236	25.3
≥30,001	193	18.7	22	14.8	171	19.3
Education						
Less than high school	198	18.8	36	25.5	162	17.8
High School or GED	329	31.4	38	29.1	291	31.8
Some college or associate degree	365	36.1	46	36.6	319	36.0
Bachelor's degree or higher	152	13.6	15	8.8	137	14.3
Urbanicity						
Urban	410	33.3	46	26.2	364	34.4
Suburban	428	45.1	56	46.6	372	44.9
Rural	206	21.6	33	27.2	173	20.8
Census region						
Northeast	191	18.1	19	14.7	172	18.6
Midwest	249	24.8	40	30	209	24.0
South	343	31.7	45	33.4	298	31.4
West	261	25.4	31	21.8	230	26.0
Marital status ^b						
Married or living with someone	435	51.3	40	36.6	395	53.5
Divorced, separated, or widowed	294	20.5	42	22.4	252	20.2
Never married	315	28.2	53	41	262	26.3

^a All percentages are weighted to reflect the U.S. population.

^b Significant difference between those with and without legal involvement; $p<.05$

Table 2

Unadjusted logistic regression analysis of *DSM-IV* mania symptoms or features as predictors of legal involvement during respondents' most severe manic episode (N=1,044)^a

Symptom or feature	N	%	OR	95% CI	p
Inflated self-esteem or grandiosity	317	29.4	1.90	1.15–3.13	.01
Decreased need for sleep	642	62.6	1.03	.62–1.71	.90
Pressured speech or hypertalkativeness	744	70.7	.55	.32–.93	.03
Hypertalkativeness	637	61.4	.68	.41–1.11	.12
Pressured speech	492	46.6	.88	.56–1.40	.59
Flight of ideas or racing thoughts	854	81.8	1.49	.81–2.72	.19
Racing thoughts	814	78.0	1.54	.87–2.72	.13
Flight of ideas	726	70.4	1.12	.70–1.79	.64
Distractibility	885	83.5	.91	.50–1.63	.74
Increase in goal-directed activity or psychomotor agitation	1,001	95.3	4.76	.68–33.13	.11
Fidgeted, paced, or couldn't sit still	844	81.3	1.66	.84–3.27	.14
More active than usual	652	61.8	1.05	.64–1.73	.83
Increased libido	258	24.7	2.71	1.63–4.50	<.001
Uncomfortably restless	605	55.9	1.53	.91–2.57	.11
Excessive engagement in pleasurable activities with a high potential for painful consequences	739	72.0	3.24	1.68–6.28	<.001
Excessive spending or reckless driving	562	54.6	2.37	1.40–4.01	.002
Social indiscretions	539	51.5	3.33	2.00–5.55	<.001
Other features of mania					
Social impairment only	313	30.2	.40	.22–.73	.003
Occupational impairment only	207	20.0	.37	.18–.74	.005
Both social and occupational impairment	463	45.0	3.24	1.98–5.30	<.001
≥6 <i>DSM-IV</i> criterion B manic symptoms	351	31.8	1.73	1.07–2.79	.03
Distressed by symptoms	623	60.1	1.63	.99–2.69	.05
Difficulty completing tasks	668	62.8	2.51	1.42–4.45	.002

^a All percentages are weighted to reflect the U.S. population.

activities with a high potential for painful consequences, having six or more criterion B symptoms, and having both social and occupational impairment (Table 2).

As shown in Table 2, legal involvement was less likely among respondents with hypertalkativeness or pressured speech. Given the unexpected nature of this finding, we conducted a post hoc analysis to identify alternative explanations and found that hypertalkativeness or pressured speech during the most severe episode was associated ($p=.02$) with the longest lifetime manic episode's lasting no more than two weeks. In other words, legal involvement in this group may have been less frequent at least in part because there was less time for it to occur.

A subset of respondents reported all lifetime manic episodes as either elevated (N=186) or irritable (N=427), permitting analyses of legal

risk by primary mood state (data not shown). Among those with only elevated mood, legal involvement was more likely among those with reckless driving or excessive spending (odds ratio [OR]=5.95, CI=1.67–21.22, $p=.007$) and less likely among those with distractibility (OR=.25, CI=.07–.85, $p=.027$). For those with irritable mood only, legal involvement was more likely among those who reported social indiscretions (OR=4.26, CI=1.96–9.27, $p<.001$).

Other characteristics of lifetime mania and psychiatric comorbidity were analyzed, and results are shown in Table 3. Significant associations with legal involvement were found for having a first manic episode at age 23 or younger, a longest episode of 18 weeks or more, and a manic episode preceded (but not specifically induced) by alcohol use or withdrawal or use of or withdrawal from another drug or medication. Legal involve-

ment during the most severe manic episode was also more likely among persons with a lifetime history of alcohol, cannabis, and other substance dependence, lifetime dysthymia, psychotic illness, antisocial personality disorder, and lifetime treatment for mania in emergency room and hospital settings.

When adjusted for demographic and clinical variables not in potential temporal conflict with the most severe lifetime manic episode, being male and having a first manic episode at age 23 or younger were associated with a higher risk of legal involvement (Table 4). The risk of legal involvement was also significantly higher when the most severe manic episode was characterized by social indiscretions, excessive spending or reckless driving, and both social and occupational impairment.

Discussion

This analysis of wave 1 NESARC data represents, to our knowledge, the first large-scale community study to report the prevalence of involvement in the criminal justice system during severe manic episodes and its association with specific manic symptoms. The findings suggest that a relatively large proportion of individuals report legal involvement during their most severe manic episode (13.0%). The findings also offer a clinical framework in which to evaluate a person's risk for involvement with the criminal justice system by the presence of specific manic symptoms in addition to other lifetime risk factors.

Before the clinical and public policy implications of this research are considered, these findings need to be framed in the context of a number of limitations. First, the exclusion of persons residing in prisons, jails, and hospitals may have decreased the proportion of persons in the sample with bipolar disorder who experienced legal involvement during mania. The exclusion of persons in correctional settings is particularly problematic because it is unclear whether behaviors serious enough to result in such confinement have the same symptomologic precursors as those that do not lead to confinement. Because this group was excluded, the

Table 3

Unadjusted logistic regression analysis of lifetime characteristics of mania and psychiatric comorbidity as predictors of legal involvement during respondents' most severe manic episode^a

Characteristic	With legal involvement		Without legal involvement		OR	95% CI	p
	N	%	N	%			
Mood state of episodes							
Elevated only (reference)	17	12.3	169	17.8	1.00		.41
Irritable only	52	45.9	375	42.5	1.57	.76–3.21	.22
Elevated and irritable	66	41.8	364	39.8	1.52	.78–2.99	.21
First episode onset ≤ 23 years (N=999)	78	71.5	446	54.1	2.13	1.30–3.50	.003
Mixed episode features in any episode	76	55.1	476	52.1	1.12	.70–1.80	.62
Mixed episode features in all episodes	71	51.6	433	47.1	1.20	.76–1.88	.43
Lifetime episode count (N=905)							
1 (reference)	49	47.0	312	37.20	1.00		.31
2 or 3	24	23.4	176	23.4	.63	.32–1.26	.19
≥ 4	40	34.3	304	39.4	.69	.40–1.19	.18
Longest episode (N=977)							
1–2 weeks (reference)	37	25.0	271	32.8	1.00		.03
3–17 weeks	29	22.8	283	35.5	.95	.47–1.89	.88
≥ 18 weeks	58	52.2	299	35.5	1.93	1.04–3.61	.04
Any episode after							
Alcohol use or withdrawal	26	19.9	70	8.4	2.71	1.56–4.70	<.001
Drug or medication use or withdrawal	24	21.4	91	9.2	2.68	1.26–5.71	.01
Any substance-induced manic event ^b	5	3.9	19	1.8	2.20	.72–6.79	.17
Any illness-induced manic event ^c	9	7.0	49	5.4	1.31	.59–2.91	.51
Any outpatient psychiatric treatment for mania	70	49.1	357	39.2	1.50	.95–2.35	.08
Any psychiatric hospitalization for mania	41	29.8	156	15.5	2.32	1.42–3.77	.001
Any emergency room visit for mania	35	23.2	117	12.4	2.13	1.27–3.59	.005
Any prescribed medication for mania	65	46.9	332	35.4	1.61	.98–2.63	.06
Self-medicated ^d	68	52.7	67	28.2	2.85	1.74–4.65	<.001
Lifetime psychiatric comorbidity							
Substance use disorder							
Alcohol abuse only	21	14.0	156	18.6	.71	.39–1.32	.28
Alcohol dependence	87	69.7	326	38.7	3.65	2.21–6.04	<.001
Cannabis abuse only	40	29.3	170	21.6	1.50	.88–2.58	.14
Cannabis dependence	26	25.3	75	7.7	4.06	2.02–8.12	<.001
Other substance abuse only	18	11.7	80	11.0	1.07	.53–2.17	.86
Other substance dependence	32	24.1	101	12.8	2.16	1.25–3.75	.007
≥ 5 major depressive symptoms	113	81.0	698	77.3	1.25	.70–2.23	.44
≥ 8 major depressive symptoms	85	61.5	516	57.2	1.19	.74–1.92	.46
Dysthymia (N=1,037)	64	44.8	272	29.1	1.98	1.24–3.17	.005
Psychotic illness (N=1,035)	28	18.5	103	10.4	1.97	1.10–3.52	.02
Any anxiety disorder (N=1,029)	77	58.9	476	53.8	1.22	.76–1.98	.39
Antisocial personality disorder (N=1,039)	61	51.4	175	19.6	4.34	2.68–7.03	<.001
Conduct disorder (without subsequent antisocial personality disorder) (N=1,039)	4	4.8	31	3.2	1.49	.40–5.58	.55
Other personality disorder (N=1,033)	83	66.2	559	61.4	1.23	.79–1.92	.36

^a N=1,044 unless otherwise noted. All percentages are weighted to reflect the U.S. population.

^b Refers to instances when mania symptoms began during a period of alcohol, drug, or medication use or withdrawal but ceased within one month of stopping substance use

^c Refers to instances when mania symptoms began during a period of medical illness

^d Used alcohol, drugs, or nonprescribed medications to calm down or feel better when manic

percentage of individuals experiencing legal involvement during a serious manic episode may have been even higher than the findings indicate. Second, although the outcome measure was specific and was uniformly applied to the study sample, there were no follow-up questions on the extent of further involvement with the criminal justice system. We do not

know, for example, whether these (or other) manic symptoms predict criminal charges, incarceration, or a pattern of recurrent criminal justice involvement. Nevertheless, the extent of legal involvement clearly went beyond what might be considered nuisance police contact (that is, being stopped or interrogated). Because these respondents were arrested and

possibly jailed during severe manic episodes, access to timely and effective psychiatric treatment may have been reduced at precisely the time when it was most needed. Third, legal involvement was assessed only with regard to the most severe manic episode; it is not known whether symptoms associated with less severe manic episodes are similarly predic-

Table 4

Adjusted logistic regression analysis of variables as predictors of legal involvement during respondents' most severe manic episode

Variable	OR	95% CI	t ^a	p
Male gender	4.80	2.78–8.29	5.75	<.001
Both social and occupational impairment	2.43	1.38–4.29	3.14	.003
Social indiscretions	2.32	1.20–4.54	2.53	.01
First manic episode onset ≤23 years	1.92	1.15–3.21	2.53	.01
Excessive spending or reckless driving	1.77	1.05–2.67	2.19	.03
Increased libido	1.62	.94–2.80	1.76	.08
Distractibility	.46	.19–1.15	-1.70	.09
Distressed by symptoms	1.71	.90–3.24	1.67	.10
Hypertalkative	.58	.29–1.15	-1.59	.12
Difficulty completing tasks	1.61	.77–3.36	1.28	.21
Racing thoughts	.67	.32–1.39	-1.10	.28
Decreased need for sleep	1.30	.73–2.32	.92	.36
Fidgeted, paced, or couldn't sit still	1.45	.63–3.35	.89	.38
Race-ethnicity (reference: white)				
Hispanic or Latino	1.53	.75–3.10	1.19	.24
Black	1.83	.82–4.07	1.51	.14
Other	1.44	.43–4.78	.61	.54
Flight of ideas	1.41	.61–3.27	.82	.42
More active than usual	.84	.48–1.47	-.62	.54
Uncomfortably restless	1.21	.62–2.35	.58	.57
Pressured speech	.87	.52–1.45	-.55	.58
≥6 DSM-IV criterion B manic symptoms	1.14	.47–2.75	.29	.77
Inflated self-esteem or grandiosity	1.03	.47–2.75	.09	.93

^a df=61

tive of arrest and detention. Fourth, respondents' recall may have been inaccurate at times, particularly with regard to events that occurred during manic episodes.

Other limitations derive from the cross-sectional nature of the wave 1 data. The unknown temporal relationship between the most severe manic episode and other lifetime characteristics, including age at the time of the index episode, marital status, educational level, and other critical traits prevented the use of these factors in predictive or other multivariate models (29). The same was true for comorbid behavioral health conditions, such as substance use disorders, which are associated with arrest and which, for many respondents, were present at some point in their lives (6,8,13).

Notwithstanding these limitations, use of the NESARC data brings a number of strengths to this study. The large size, diversity of socioeconomic status, and nationally representative nature of the sample support the generalizability of these results. Strict application of DSM-IV criteria for bipolar I disorder and exclusion of alter-

native explanations for manic symptoms (for example, substance use and medical illness) also support diagnostic validity in this sample.

Criminal justice involvement among individuals with bipolar disorder remains an important policy and public safety concern. These findings accord with other large population-based studies that have shown that persons with bipolar disorder have a high risk of criminal justice involvement or violent behavior (6,7,9) and reinforce the notion that this risk may be especially high during the manic phase of bipolar disorder compared with other phases (11). Whereas other work has focused exclusively on violent behavior (6) or particular types of crime (7), these findings represent the broad spectrum of offenses for which individuals face booking and detention during severe mania. These data also support the long-held axiom of clinical wisdom, namely, that certain symptoms of mania predispose patients to criminal justice problems. These episode-specific associations held true even when the analysis controlled for selected lifetime risk factors.

The implications of these findings for addressing the criminal justice involvement of persons with bipolar disorder are noteworthy. With regard to clinical management and risk assessment, these data support providers in moving beyond the state-specific realm (that is, mania) to focus on a subset of patients whose risk appears to be increased by the presence of particular symptoms that are readily identifiable in clinical settings.

Although it is natural to focus on effects that achieve statistical significance at the p=.05 level, some of the odds ratios found in this study are substantial in size but have confidence intervals that include 1 and are thus not "significant" in the conventional sense. For example, an increase in libido was associated with a 62% increase in risk of legal involvement (p=.08), a factor that may have clinical, if not statistical, significance. Likewise, distractibility more than halved the risk of criminal justice involvement (p=.09), a factor that also might be of interest among clinicians attempting to evaluate an individual's risk of various outcomes during an escalating episode of mania.

Of course, to take advantage of these findings, providers need the opportunity to evaluate patients in clinical settings. As our analyses suggest, these high-risk patients as a group are more likely than those who do not experience legal involvement during severe mania to receive treatment for mania in outpatient, emergency room, and hospital settings at some point in their life. Unfortunately, we do not know whether these treatment encounters occurred before, during, or after the manic episode during which the person became involved with the criminal justice system. Nevertheless, the fact that these individuals eventually present for care provides an opportunity for clinical intervention and possible prevention of future criminal justice problems. Such preventive measures would be strengthened by understanding the extent to which particular sets or clusters of manic symptoms work synergistically to produce behaviors leading to legal problems and the relationship between other risk factors for criminal justice involvement and

episode-specific symptoms of mania. These are important areas for future study.

Conclusions

Routine evaluation of patients for these high-risk symptoms, particularly among those with other risk factors for criminal justice problems, seems prudent. Such early-intervention efforts might not only reduce arrest and incarceration but also help prevent the myriad adverse outcomes that follow criminal justice involvement of persons with serious mental illness, including poor access to medical, psychiatric, and substance abuse treatment, higher treatment costs, homelessness, unemployment, and family dysfunction (30–32).

Acknowledgments and disclosures

The authors report no competing interests.

References

1. Fisher WH, Simon L, Roy-Bujnowski K, et al: Risk of arrest among public mental health services recipients and the general public. *Psychiatric Services* 62:67–72, 2011
2. Steadman HJ, Osher FC, Robbins PC, et al: Prevalence of serious mental illness among jail inmates. *Psychiatric Services* 60:761–765, 2009
3. Diamond PM, Wang EW, Holzer CE, et al: The prevalence of mental illness in prison. *Administration and Policy in Mental Health* 29:21–40, 2001
4. Ill-Equipped: US Prisons and Offenders With Mental Illness. New York, Human Rights Watch; 2003
5. Greenberg GA, Rosenheck RA: Jail incarceration, homelessness, and mental health: a national study. *Psychiatric Services* 59:170–177, 2008
6. Fazel S, Lichtenstein P, Grann M, et al: Bipolar disorder and violent crime: new evidence from population-based longitudinal studies and systematic review. *Archives of General Psychiatry* 67:931–938, 2010
7. Calabrese JR, Hirschfeld RM, Reed M, et al: Impact of bipolar disorder on a US community sample. *Journal of Clinical Psychiatry* 64:425–432, 2003
8. Jaworski F, Dubertret C, Adès J, et al: Presence of co-morbid substance use disorder in bipolar patients worsens their social functioning to the level observed in patients with schizophrenia. *Psychiatry Research* 185:129–134, 2011
9. Elbogen EB, Johnson SC: The intricate link between violence and mental disorder: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry* 66:152–161, 2009
10. Quanbeck CD, McDermott BE, Frye MA: Clinical and legal characteristics of inmates with bipolar disorder. *Current Psychiatry Reports* 7:478–484, 2005
11. Quanbeck CD, Stone DC, Scott CL, et al: Clinical and legal correlates of inmates with bipolar disorder at time of criminal arrest. *Journal of Clinical Psychiatry* 65:198–203, 2004
12. Solomon P, Draine J: Explaining lifetime criminal arrests among clients of a psychiatric probation and parole service. *Journal of the American Academy of Psychiatry and the Law* 27:239–251, 1999
13. Quanbeck CD, Stone DC, McDermott BE, et al: Relationship between criminal arrest and community treatment history among patients with bipolar disorder. *Psychiatric Services* 56:847–852, 2005
14. Soyka M, Zingg C: Association for methodology and documentation in psychiatry profiles predict later risk for criminal behavior and violent crimes in former inpatients with affective disorder. *Journal of Forensic Science* 55:655–659, 2010
15. Graz C, Etschel E, Schoech H, et al: Criminal behaviour and violent crimes in former inpatients with affective disorder. *Journal of Affective Disorders* 117:98–103, 2009
16. Yesavage JA: Bipolar illness: correlates of dangerous inpatient behaviour. *British Journal of Psychiatry* 143:554–557, 1983
17. Dean K, Walsh E, Morgan C, et al: Aggressive behaviour at first contact with services: findings from the AESOP First Episode Psychosis Study. *Psychological Medicine* 37:547–557, 2007
18. McNeil DE, Binder RL: The relationship between acute psychiatric symptoms, diagnosis, and short-term risk of violence. *Hospital and Community Psychiatry* 45:133–137, 1994
19. Zaveri P: Symptoms of Mania Among Adult Offenders. *Dissertation Abstracts International: Section B: Sciences and Engineering* 66(9-B):5111, 2000
20. Good MI: Primary affective disorder, aggression, and criminality: a review and clinical study. *Archives of General Psychiatry* 35:954–960, 1978
21. Appelbaum PS, Robbins PC, Monahan J: Violence and delusions: data from the MacArthur Violence Risk Assessment Study. *American Journal of Psychiatry* 157:566–572, 2000
22. Teixeira EH, Dalgalarondo P: Violent crime and dimensions of delusion: a comparative study of criminal and noncriminal delusional patients. *Journal of the American Academy of Psychiatry and the Law* 37:225–231, 2009
23. Grant BF, Moore TC, Shepard J, et al: Source and Accuracy Statement for Wave 1 of the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions. Bethesda, Md, National Institute on Alcohol Abuse and Alcoholism, 2003
24. Grant BF, Kaplan KD: Source and Accuracy Statement for the Wave 2 National Epidemiological Survey on Alcohol and Related Conditions (NESARC). Rockville, Md, National Institute on Alcohol Abuse and Alcoholism, 2005
25. Chen CM, Yi H, Falk DE, et al: Alcohol use and alcohol use disorders in the United States: main findings from the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC); in US Alcohol Epidemiologic Data Reference Manual. Bethesda, Md, National Institute on Alcohol Abuse and Alcoholism, 2006
26. Grant BF, Dawson DA: The Alcohol Use Disorder and Associated Disabilities Interview Schedule–DSM-IV Version. Rockville, Md, National Institute on Alcohol Abuse and Alcoholism, 2000
27. Diagnostic and Statistical Manual of Mental Disorders, 4th ed. Washington, DC, American Psychiatric Association, 1994
28. Stata Statistical Software, Release 10. College Station, Tex, StataCorp LP, 2007
29. Copeland LA, Miller AL, Welsh DE, et al: Clinical and demographic factors associated with homelessness and incarceration among VA patients with bipolar disorder. *American Journal of Public Health* 99:871–877, 2009
30. Draine J, Wolff N, Jacoby JE, et al: Understanding community re-entry of former prisoners with mental illness: a conceptual model to guide new research. *Behavioral Sciences and the Law* 23:689–707, 2005
31. Greenberg GA, Rosenheck RA: Jail incarceration, homelessness, and mental health: a national study. *Psychiatric Services* 59:170–177, 2008
32. McGuire JF, Rosenheck RA: Criminal history as a prognostic indicator in the treatment of homeless people with severe mental illness. *Psychiatric Services* 55:42–48, 2004