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Offenders With Mental Illness Have Criminogenic Needs, Too: Toward Recidivism Reduction

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Many programs for offenders with mental illness (OMIs) seem to assume that serious mental illness directly causes criminal justice involvement. To help evaluate this assumption, we assessed a matched sample of 221 parolees with and without mental illness and then followed them for over 1 year to track recidivism. First, compared with their relatively healthy counterparts, OMIs were equally likely to be rearrested, but were more likely to return to prison custody. Second, beyond risk factors unique to mental illness (e.g., acute symptoms; operationalized with part of the Historical-Clinical-Risk Management-20; Webster, Douglas, Eaves, & Hart, 1997), OMIs also had significantly more general risk factors for recidivism (e.g., antisocial pattern; operationalized with the Level of Service/Case Management Inventory; Andrews, Bonta, & Wormith, 2004) than offenders without mental illness. Third, these general risk factors significantly predicted recidivism, with no incremental utility added by risk factors unique to mental illness. Implications for broadening the policy model to explicitly target general risk factors for recidivism such as antisocial traits are discussed.

Keywords: crime, violence, mental disorder, psychosis, risk factors

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Individuals with serious mental illness such as schizophrenia, bipolar disorder, and major depression are substantially overrepresented in the criminal justice system (Steadman, Osher, Robbins, Case, & Samuels, 2009). Some investigators have argued that these individuals are also disproportionately reincarcerated after release—that they get caught in a "revolving prison door" (Baillargeon, Binswanger, Penn, Williams, & Murray, 2009, p. 103). As summarized by the Council of State Governments (2002),

> People on the front lines every day believe too many people with mental illness become involved in the criminal justice system because the mental health system has somehow failed. They believe that if many of the people with mental illness received the services they needed, they would not end up under arrest, in jail, or facing charges in court. (p. 26)

Most policy recommendations for this population reflect an implicit assumption that mental illness is the direct cause of criminal justice involvement, and psychiatric treatment is the principal solution (for a review, see Peterson, Skeem, & Manchak, 2011). For example, reentry programs tend to focus on enhancing continuity of care from prison to community and linking "released inmates with long-term, community-based, outpatient services *to help them manage their mental health problems and reduce their risk of recidivism* [emphasis added]" (Baillargeon et al., 2009, p. 108).

Challenges to the Current Policy Model

The "direct cause" model that underpins this reentry approach rests on little empirical support (see Peterson et al., 2011). Although individuals with serious mental illness clearly need psychiatric services, managing offenders' mental health problems may do little to reduce their risk of recidivism. Untreated mental illness is, at best, a weak predictor of recidivism among criminal offenders (e.g., Callahan & Silver, 1998; Monson, Gunnin, Fogel, & Kyle, 2001; Phillips et al., 2005). In a meta-analysis of 58 prospective studies of offenders with mental illness (70% with schizophrenia), Bonta, Law, and Hanson (1998) found that clinical variables (e.g., diagnoses, treatment history) did not meaningfully

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predict a new general offense ($r = -.02$) or a new violent offense ($r = -.03$). Similarly, although psychosis is moderately associated with violence in nonreferred community samples (e.g., Douglas, Guy, & Hart, 2009; Fazel, Gulati, Linsell, Geddes, & Grann, 2009), this relationship tends not to generalize to criminal samples. For example, based on a meta-analysis of 204 diverse studies and samples, Douglas et al. (2009) found no meaningful correlation between psychosis and violence among forensic psychiatric patients (OR = 0.91, $d = -0.05$, $r = .02$, *ns*) or general offenders (OR = 1.27, $d = 0.13$, $r = .06$, $p < .05$; conversion formulae in Cooper, Hedges, & Valentine, 2009). Finally, even among defendants acquitted by reason of insanity (because their mental illness directly contributed to the offense), clinical factors do not predict revocation of conditional release to the community (Callahan & Silver, 1998; Monson et al., 2001). Mental illness may be these offenders' most distinguishing feature, but it relates weakly to their criminal behavior.

Instead, the strongest predictors of recidivism may generalize from offenders without mental illness to offenders with mental illness. What are those predictors? According to one model with empirical support (Andrews, Bonta, & Wormith, 2006), the four strongest risk factors for recidivism are an established criminal history, an antisocial personality pattern (stimulation seeking, low self-control, anger), antisocial cognition (attitudes, values, and thinking styles supportive of crime; e.g., misperceiving benign remarks as threats, demanding instant gratification), and antisocial associates. Four additional moderate risk factors are substance abuse, employment instability, family problems, and low engagement in prosocial leisure pursuits. Although several risk assessment tools capture many of these general risk factors, the leading measure for assessing all eight is the Level of Service/Case Management Inventory (LS/CMI; Andrews, Bonta, & Wormith, 2004).

Some of these risk factors have been found to apply to offenders with mental illness. For example, in their meta-analysis, Bonta et al. (1998) found that the strongest predictors of a new violent offense among offenders with mental illness ($r > .20$) included antisocial personality, juvenile delinquency, and criminal history. Similarly, Morgan and colleagues (Morgan, Fisher, Duan, Mandracchia, & Murray, 2010; Wolff, Morgan, Shi, Huening, & Fisher, 2011) found that antisocial cognition was at least as common among offenders with mental illness as their relatively healthy counterparts.

Alternative Models and Their Implications

These findings are consistent with two alternatives to the direct cause model. According to these models, mental illness often (a) is independent of criminal behavior (i.e., psychiatric symptoms and antisocial tendencies develop in parallel; see Hodgins & Carl-Gunnar, 2002), or (b) indirectly causes criminal behavior by promoting the development of general risk factors for crime (e.g., prodromal symptoms cause some young people to gravitate toward environments that model, reinforce, and provide opportunity for antisocial behavior; see Skeem & Peterson, 2012).

There are important theoretical differences between these two models, but they share practical implications. If mental illness usually is incidental to—or lies far upstream from—criminal behavior, then traditional psychiatric treatment will not be sufficient to achieve successful reentry. For example, taking antipsychotic medication may prevent an offender with schizophrenia from preemptively striking a perceived persecutor as part of a delusion, but is unlikely to keep him from repeatedly picking fights with rivals who allegedly treat him with "disrespect."

If general risk factors directly lead to criminal behavior far more often than mental illness, then the policy model for offenders with mental illness should be revised. Research robustly indicates that the effectiveness of correctional treatment programs depends on the number of "criminogenic needs"—or strong risk factors for recidivism—that they target, relative to "noncriminogenic needs" or disturbances that impinge on the offender's functioning (Andrews & Bonta, 1998; Andrews et al., 1990; Lowenkamp, Latessa, & Smith, 2006).

Present Study

There are at least two important unanswered questions about how to revise the policy model. First, how much should the model shift away from conceptualizing mental illness as a criminogenic need, toward focusing on general risk factors? At least one leading risk assessment tool (the Historical-Clinical-Risk Management-20 [HCR-20]; Webster, Douglas, Eaves, & Hart, 1997) includes variables such as "acute symptoms" that are unique to mental illness. Before relegating mental illness to largely "noncriminogenic" status, it seems important to rigorously measure these unique variables and test whether they function as risk factors. Second, which general criminogenic needs should be prioritized as treatment targets for those with mental illness? For example, is antisocial cognition as predictive of recidivism as substance use?

The present study was designed to shed light on these issues. In this study, we used leading measures (the LS/CMI and HCR-20) to directly compare purported risk factors that are general versus unique to mental illness based on a matched sample of 221 parolees with and without mental illness. Our specific aims were the following:

1. To compare these groups in their frequencies of unique versus general purported risk factors. We hypothesized that offenders with mental illness (OMIs) would have both more pronounced "unique" (by definition) and "general" factors (see Girard & Wormith, 2004) than offenders without mental illness (non-OMIs).

2. To test whether mental illness moderates the predictive utility of general risk factors as a group. We hypothesized that general factors would be similarly predictive for those with and without mental illness.

3. To explore which general risk factors maximally predict recidivism for OMIs. Given the paucity of past relevant research (for a review, see Skeem & Peterson, 2011), we present exploratory results to generate hypotheses to test in further policy-relevant research.

4. To assess whether unique risk factors add significant incremental utility to predicting recidivism for OMIs above the effect of these general risk factors. We hypothesized that they would not do so.

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Method

To address these aims, we conducted a prospective longitudinal study of parolees with and without serious mental illness. Specifically, we conducted (a) a baseline interview to assess risk factors via the LS/CMI and HCR-20 shortly after participants had been released from prison, and (b) a review of records at least 12 months after the baseline to assess arrests and return to prison custody.

Participants

Participants were 221 adults recently released to parole in a large city in a western state. Eligibility criteria included (a) released from prison within the past 3 months, (b) on active parole in the relevant jurisdiction, (c) age 18 years or older, (d) no recorded diagnosis of mental retardation, and (e) competent to consent to research (i.e., able to correctly answer four of five multiple-choice questions about the study's risks and benefits). Of the 221 participants, approximately half (n = 112) had serious mental illness.

Parolees in the mentally ill group (OMIs) were required to have an officially designated serious mental illness (i.e., schizophrenia/other psychotic disorder, bipolar disorder, or major depression). Social workers assign these designations in prisons as part of a statewide community reentry program designed to identify mentally ill inmates who are about to parole and provide them with psychiatric services through parole outpatient clinics (see Farabee, Yang, Sikangwan, Bennett, & Warda, 2008). The designations specify whether the serious mental illness is stable ("Correctional Clinical Case Management System" or "CCCMS") or acute ("Enhanced Outpatient Program" or "EOP"); those with EOP designations are required to attend more parole outpatient clinic appointments than those with CCCMS designations.

Parolees in the nonmentally ill group (non-OMIs) were required to not have an officially designated serious mental illness. During recruitment, we made efforts to obtain a non-OMI sample that was similar to the OMI sample in gender, ethnicity, age, and time on parole.

The sociodemographic, criminal, and clinical characteristics of the OMI- and non-OMI subsamples are shown in Table 1. There were no differences between groups in either the design-matching variables or criminal history variables. As a group, participants predominantly were African American men with an average age of 39 years and an average of three lifetime arrests (the most serious of which was for a violent crime). They had spent an average of 2 years incarcerated. Relative to those without mental illness, those with mental illness were slightly less likely to have obtained a high school degree, less likely to have ever been married, and were more likely to be unemployed. Chiefly, the two groups were distinguished by clinical variables (e.g., symptoms). Of those in the OMI group, 71% were CCCMS (rather than EOP); the modal chart diagnosis reflected a psychotic disorder; and 52% were diagnosed with a co-occurring substance abuse disorder. These clinical characteristics are representative of the target population (see Farabee et al., 2008).

Measures

Colorado Symptom Index (CSI). The CSI (Shern et al., 1994) was used to assess psychiatric symptoms. The CSI is a 14-item self-report scale in which respondents indicate on a 5-point scale how often they have experienced various psychiatric symptoms over the past month. In past research, the CSI has manifested good internal consistency and test–retest reliability over 2 weeks (e.g., α = .90, r = .79, Conrad et al., 2001; see also Boothroyd & Chen, 2008) and a theoretically consistent pattern of relationships with other measures, including the Brief Symptom Inventory (r = .62; see Boothroyd & Chen, 2008). CSI scores do not appear to be affected by ethnic differences (Lee, Shern, Coen, Bartsch, & Wilson, 2003, as cited in Boothroyd & Chen, 2008). In the present study, CSI total scores (α = .88) and scores on three items that assess psychosis (α = .75, Items 4, 5, and 13) were used. As shown in Table 1, parolees with mental illness obtained average total scores of 35. This is above Boothroyd and Chen's (2008) recommended CSI cutoff score of 30 for identifying individuals who would qualify for psychiatric disability and Supplemental Security Income.

LS/CMI. The LS/CMI (Andrews et al., 2004) is a comprehensive case management system that assesses a broad array of issues relevant to community supervision, including such responsivity factors as mental health. In the present study, we used only the risk assessment section (Section I) of the LS/CMI. Section I consists of 43 items grouped into scales that assess the following "Central Eight" general risk factors for recidivism: (1) Criminal History, (2) Leisure/Recreation, (3) Alcohol/Drug Problems, (4) Education/Employment, (5) Companions (composition and nature of core social network), (6) Procriminal Attitude Orientation, (7) Family/Marital, and (8) Antisocial Patterns (e.g., personality disorder diagnosis, early and diverse antisocial behavior, criminal attitude, pattern of generalized trouble). Items are scored on the basis of an interview with the offender and a review of her or his records; scores are summed to obtain a total score.

Based on normative data for 135,791 adult offenders, Andrews et al. (2004) found that LS/CMI scores were strongly predictive of general (r = .41) and violent (r = .29) recidivism. Moreover, based on a sample of 630 male offenders, Girard and Wormith (2004) found that the LS/CMI predicted both general (r = .39) and violent (r = .28) recidivism and performed just as well for a subsample of 169 offenders with mental illness.

Generally, acceptable levels of interrater reliability for trained raters have been obtained on the LS/CMI (κ = .58, Girard & Wormith, 2004) and its precursor, the Level of Service Inventory—Revised (LSI–R; intraclass correlation coefficient [ICC] = .80–.96; Andrews & Bonta, 1995; Kroner & Mills, 2001). Levels of internal consistency have been acceptable for LS/CMI scores (α = .91; Girard & Wormith, 2004) in past research, and were acceptable in this study (α = .80). In keeping with prior research (e.g., Girard & Wormith, 2004), levels of internal consistency for the eight subscales in this study varied substantially (from α = .35 to .78). Although most were in the acceptable range, internal consistency was poor for Criminal History (α = .54), Family/Marital (α = .39), Companions (α = .43), and Antisocial Patterns (α = .35); values for the last three scales are likely attenuated by short length (i.e., four items; see Nunnally & Bernstein, 1994). Interrater reliability in this study is described later.

Because one of our aims was to compare OMIs and non-OMIs in their level of general risk factors, it is important to contextualize the non-OMIs' level of risk. Average LS/CMI scores for non-OMIs in this study were 24.80 (SD = 5.82), which is within the

Table 1
Characteristics of Parolee Subsamples

Characteristic	With mental illness (n = 112)	Without mental illness (n = 109)	Effect size[a]
Mean (*SD*) age (years)	41 (9)	38 (9)	0.33
Male, %	86	90	−0.38
Ethnicity, %			
White	8	7	0.14
Black	71	71	0.00
Hispanic	16	19	−0.20
Other	6	3	0.72
Mean (*SD*) education (years)*	11 (2)	12 (2)	−0.50
Ever married, %*	33	38	−0.22
Currently unemployed, %**	86	67	1.10
Mean (*SD*) age at first arrest (years)	17 (6)	18 (7)	−0.15
Lifetime arrests, %			
One	1	3	−1.11
Two	3	8	−1.03
Three or more	96	89	1.09
Most serious charge ever, %			
Person	82	72	0.57
Property	10	18	−0.68
Drug	7	8	−0.14
Minor	1	2	−0.70
Most serious index charge, %			
Person	31	22	0.47
Property	24	36	−0.58
Drug	35	39	−0.17
Minor	10	3	1.27
Mean (*SD*) months incarcerated before release	32 (34)	27 (24)	0.17
Mean (*SD*) days released at time of baseline interview	64 (27)	58 (31)	0.20
Recorded primary diagnosis, %			
Psychotic disorder	52	—	—
Bipolar disorder	15	—	—
Major depressive disorder	16	—	—
Other Axis I disorder (excludes substance abuse)	16	—	—
Mean (*SD*) Colorado Symptom Index scores			
Total***	35 (12)	26 (11)	0.78
Psychosis***	7 (4)	4 (2)	0.94
Mental/emotional treatment, past 3 months, %***	91	15	4.04
Self-reported substance abuse, past month, %			
Drank to intoxication	41	45	−0.16
Used other drugs to get high, past month	33	27	0.29

[a] Values are Cohen's *d* for means and odds ratios for proportions.
* $p < .05$. ** $p < .01$. *** $p < .001$.

average range of scores obtained for general correctional inmates (e.g., Girard & Wormith, 2004). To facilitate interpretation and comparison across scales, we transformed all participants' scores into *T* scores for analysis using the full sample (N = 221).

HCR-20. The HCR-20 (Webster et al., 1997) was used to capture risk factors viewed as particularly relevant to offenders with mental illness. To our knowledge, there is no well-validated tool designed to assess risk of general recidivism for this group. However, there are specialized violence risk assessment tools for this group. One such tool, the HCR-20, is a 20-item scale that was designed to structure clinical judgment to assess violence risk among forensic psychiatric patients. It contains 10 past-oriented "historical" items (H; e.g., previous violence, major mental disorder), five present-oriented "clinical" items (C; e.g., impulsivity, active symptoms), and five future-oriented "risk management" items (R; e.g., plans lack feasibility, stress). Based on a clinical interview and a review of records, the rater scores the extent to which each HCR-20 item applies to the individual, based on a 3-point scale (0 = *not at all* to 2 = *definitely*). Items may be summed to yield a total score, as well as a score on each of the three scales. The rater is asked to consider the risk factors and the extent to which they apply to an individual case to make a final clinical judgment of low, medium, or high risk.

Based on a meta-analysis of 88 prospective studies, Campbell, French, and Gendreau (2009) found that the utility of the HCR-20 in predicting violent recidivism (r = .25, k = 11 studies, chiefly of forensic patients) was equivalent to that of the LSI–R (r = .25, k = 25 studies, chiefly of general offenders). The HCR-20 was designed—and is best validated—for forensic psychiatric patients (for a review, see Douglas, Blanchard, Guy, Reeves, & Weir, 2010). However, the tool goes beyond items that are unique to mental illness (e.g., active symptoms) to include items that are not (e.g., previous violence, employment problems). Also, there is preliminary evidence that the tool predicts general recidivism among general offenders. Specifically, based on a sample of 97 general offenders, Kroner and Mills (2001) found that the HCR-20

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predicted total postrelease convictions (r = .28) nearly as well as the LSI–R (r = .34).

Acceptable levels of interrater reliability have been obtained for trained raters on the HCR-20, both for total scores and scale scores (ICC > .75 in a 28-study meta-analysis summarized by Douglas et al., 2010). Levels of internal consistency were acceptable in this study, at both the total score (α = .87) and scale level (α = .64-.74). Interrater reliability is reported below.

Two modifications were made to the HCR-20 in the present study. First, to examine predictive utility of content specific to mental illness, we disaggregated the HCR-20 to produce three sets of scores: one comprised only factors unique to major mental illness ("unique"), one comprised only nonunique factors ("general"), and one comprised both unique and nonunique factors ("combined"). Of HCR-20 items, two refer wholly to unique factors (H6, C3) and four (C1, C5, R4, and R5) mix unique with general factors. Thus, we split each of the latter in two and scored them separately (e.g., C1 became C1a/lack of insight about psychosis and C1b/lack of insight about violence risk). "Unique" total scores were composed of six items (H6, C3 + C1a, C5a, R4a, R5a) referencing diagnoses and symptoms of major mental illness, lack of insight about psychosis, noncompliance with and lack of response to psychiatric treatment, and stress promoting psychiatric decompensation. "General" total scores were composed of 18 items referencing (nonunique components of) all HCR-20 items except Items H6 and C3. "Combined" scores were composed of 20 items that represent the whole HCR-20 (to avoid double-weighting the four items that were split in two, we used the average score for each item pair).

Second, to maintain a protocol of reasonable length, we used an estimate of psychopathic traits to score Item H7 rather than the Psychopathy Checklist—Revised (Hare, 2003). Specifically, we used the 155-item Multidimensional Personality Questionnaire (Patrick, Curtin, & Tellegen, 2002) to estimate total scores on the Psychopathic Personality Inventory (PPI; Lilienfeld & Fowler, 1996), a self-report measure of psychopathy. We did so by applying beta weights derived by Benning, Patrick, Blonigen, Hicks, and Iacono (2005) to the Multidimensional Personality Questionnaire scores, which predict PPI total scores well (disattenuated multiple R = .96; S. Benning, personal communication, June 23, 2009). The PPI is moderately associated with the Psychopathy Checklist—Revised and manifests a similar pattern of associations with theoretically relevant variables (see Poythress et al., 2010). In the present study, Multidimensional Personality Questionnaire-estimated PPI total scores significantly predicted recidivism (e.g., parole revocation, r = .19, p < .01). Given threshold scores recommended for the Psychopathy Checklist—Revised in the HCR-20 manual, we transformed Multidimensional Personality Questionnaire-estimated PPI total scores into H7 scores of 0 (<33rd percentile), 1 (34th–74th percentile), and 2 (>75th percentile).

Because one of our aims was to compare OMIs and non-OMIs in their levels of risk, it is informative to contextualize our OMIs' level of risk. For the OMI group, the average HCR-20 combined total score was 29.94 (SD = 4.85), which falls within the average range of scores obtained for forensic psychiatric samples (for a review, see Douglas et al., 2010). To facilitate interpretation and comparison across scales, we transformed participants' scores into T scores for analysis, using the full sample (N = 221).

Recidivism. Recidivism was assessed based on a review of official state records that occurred an average of 1.4 years (SD = 0.18) after parolees' baseline assessment. The chief outcome variables used in analyses involved the date and occurrence of any arrest (1-year base rate = 53%; of these, 47.3% were for minor crimes, 22.3% were for drug crimes, 15.2% were for property crimes, and 15.2% were for person crimes) and any return to custody (RTC) in prison (1-year base rate = 33%; of these RTCs, 50% were for technical violations and 50% were for new crimes). These variables are associated with one another (□ = .51, p < .001), but also provide important independent information. Rearrests may be viewed as a relatively "clean" index of new criminal behavior that may violate public safety. In contrast, an RTC may be based on either a new crime (i.e., rearrest) or a technical violation of the conditions of parole. Nevertheless, RTC or reimprisonment indicates failure of community supervision.

Procedure

Training and reliability. A semistructured interview guide (available from the primary author) was created to elicit information for both the LS/CMI and HCR-20. Interviewers completed a comprehensive 3-day training sequence on qualitative interviewing skills, the risk assessment tools, and the general study protocol. Initial training on the risk assessment tools was provided by a certified LS/CMI trainer and a coauthor of the HCR-20.

All four interviewers independently rated five or more training cases for each risk assessment tool until they reached a predefined level of total score agreement with the criterion (defined as ICC > .85). Then, at regular intervals throughout the study, they completed five "tune-up" cases to avoid rater's drift.

We used the final two training cases and all five tune-up cases to calculate average interrater agreement across raters. Average agreement across raters for the training and tune-up cases was excellent for total scores on both the LS/CMI (ICC = .92 and .88, respectively) and HCR-20 combined (ICC = .83 and .86, respectively). Agreement for these cases was also generally strong for the HCR-20's Historical (ICC = .95 and .96, respectively), Clinical (ICC = .73 and .66, respectively), and Risk (ICC = .89 and .81, respectively) subscales, as well as the LS/CMI's Criminal History (ICC = .92 and .67, respectively), Education/Employment (ICC = .96 and .92, respectively), and Alcohol/Drug Problems (ICC = .95 and .97, respectively) subscales, and the five remaining subscales combined (ICC = .90 and .58, respectively). We combined the latter subscales because they are composed of few items and variance was limited, preventing computation of ICCs for the scales individually. To compute chance-corrected interrater agreement for all eight LS/CMI subscales individually, we used Maxwell's random error (RE) coefficient, which is less influenced by limited variance and disproportionate marginal distributions than other agreement statistics. For both the training and tune-up cases, RE indicated good agreement across the eight subscales (RE_{AVG} = .87, SD = .10, and RE_{AVG} = .79, SD = .18, respectively). Indeed, of the 16 reliability values computed, only one fell below .65 (i.e., Education/Employment subscale, tune-up cases, RE = .44).

Recruitment. Each month, the project coordinator received an updated list of all OMIs scheduled for release the following

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month. All eligible EOPs and a randomly drawn subsample of eligible CCCMS were recruited each month.

Non-OMIs were recruited from mandatory parole orientation meetings. At each meeting, a research assistant announced the opportunity to participate in the study and briefly described the study to eligible parolees who opted into the recruitment pool.

Eligible OMIs and non-OMIs who entered the recruitment pool were invited to participate via letter, telephone, parole office visit, and, if necessary, community home visit. The target date for the interview was 8 weeks after prison release, and parolees were dropped from recruitment if they could not be located and interviewed within 14 weeks of release. Because the study involved assessing the predictive utility of risk factors for recidivism, parolees became ineligible if their parole was revoked during recruitment (these individuals would have had no time at risk in the community for recidivism).

Figures 1 and 2 depict the recruitment process for OMIs and non-OMIs, respectively. As shown in Figure 1, 63% of all eligible OMIs were interviewed. There were no significant differences between OMI participants ($n = 112$) and eligible OMI nonparticipants ($n = 67$) in age, gender, ethnicity, type of index offense, or mental health classification (i.e., EOP/CCCMS). As shown in Figure 2, of eligible non-OMIs approached, 62% were interviewed. There were no significant differences between non-OMI participants ($n = 108$) and eligible non-OMI nonparticipant s ($n = 68$) in age, gender, or ethnicity.

Data collection. After completing the informed consent process, interviews were conducted in private rooms at the parole office, community institutions, public places, or parolees' homes. Interviews consisted of a 2-hr semistructured interview followed by a brief structured interview. Participants were paid $25.

After the meeting, interviewers reviewed participants' records to collect additional data necessary to complete the study measures. Approximately 1 year after baseline data collection had concluded, interviewers revisited the parole office to review electronic databases to code whether and how parolees had recidivated during the follow-up period.

Results

The aims of this study were to (a) compare OMIs and non-OMIs in their frequency of unique and general purported risk factors, (b) assess whether mental illness moderates the predictive utility of general risk factors as a group, (c) explore which general risk factors predict OMIs' recidivism, and (d) test whether unique factors add incremental utility to those general risk factors for OMIs. These aims were addressed by using bivariate analyses, logistic regression, and survival analyses. To provide context for interpreting the results of our primary analyses, we first tested whether the OMI and non-OMI groups differed in their rates of recidivism.

Providing Context: Mental Illness as a Predictor of Recidivism

As shown in Table 2, although there were no significant differences between the two groups in the likelihood of arrest, there was a trend toward OMIs being more likely than non-OMIs to RTC. Also, OMIs with EOP classifications were significantly more likely to RTC for a technical violation than non-OMIs. Similar results were obtained using survival analyses (Cox proportional hazards). For example, there was a trend for OMI status to predict time to RTC, $\chi^2(1, N = 220) = 3.30$, $p = .07$: The hazard ratio indicates that mental illness corresponds to a 60% increase in the likelihood of prison return.

Psychiatric symptoms, as assessed by the CSI, were significantly associated with offender classification (i.e., non-OMI, CCCMS, or EOP, CSI total $\eta = .28$, $p < .001$). Although symptoms did not significantly predict arrests during the first year of release, they significantly predicted RTC ($\eta = .14$, $p < .05$). Similar results were obtained using survival analyses (Cox proportional hazards). For example, CSI total scores did not significantly predict time to rearrest, but significantly predicted time to RTC, $\chi^2(1, N = 220) = 4.58$, $p < .05$ ($B_{exp} = 1.02$, $p < .05$). In summary, psychiatric classification and symptoms do not predict new offenses per se (arrests), but they do predict parole failure.

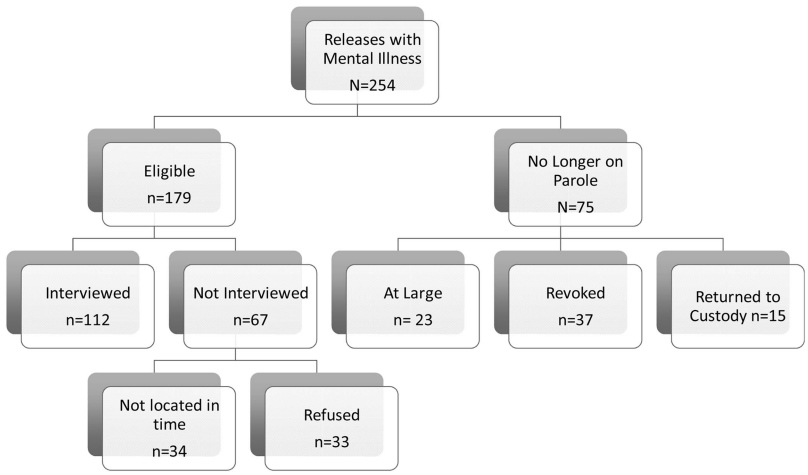

Figure 1. Recruitment process for parolees with mental illness.

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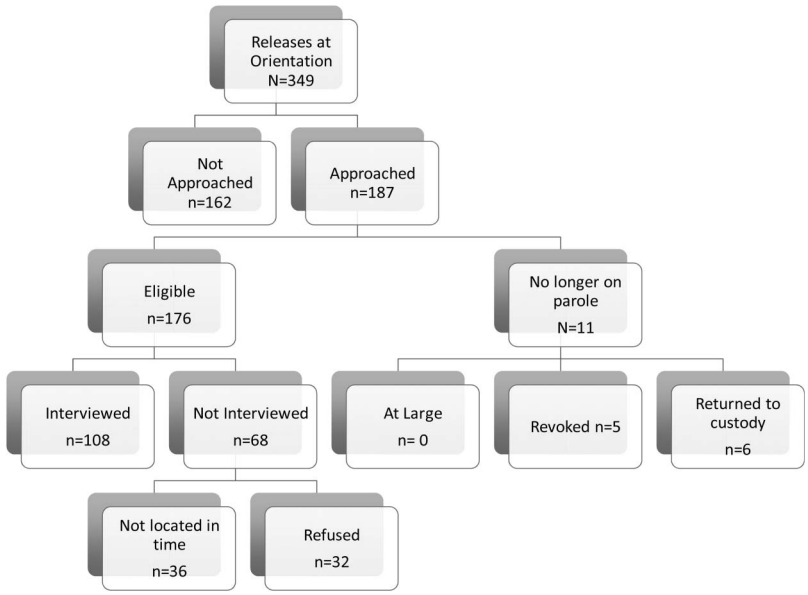

Figure 2. Recruitment process for parolees without mental illness.

Aim 1: Frequency of Unique and General Risk Factors as a Function of Mental Illness

The above finding provides context for assessing how mental illness relates to general and unique purported risk factors for recidivism. For these analyses, OMI subgroups were collapsed, given that average risk factor scores for EOP and CCCMS parolees were highly similar (i.e., within 3 *T* score points). To contextualize the results, we first computed the association between total scores on the risk assessment tools designed for general offenders (LS/CMI) and offenders with mental illness (HCR-20). Although LS/CMI total scores were moderately associated with total scores on the HCR-20 that reflected only unique risk factors ($r = .37$, $p < .001$), they were strongly associated with total scores on the HCR-20 that reflected general risk factors ($r = .76$, $p < .001$) and combined risk factors ($r = .70$, $p < .001$).

First, we analyzed *T* scores on the HCR-20, which was designed for OMIs. As shown in Figure 3 and Table 3, relative to non-OMIs, OMIs obtained significantly higher HCR-20 total and scale scores across the board. Closer examination revealed that OMI status was significantly associated with HCR-20 general total scores ($\eta = .26$, $p < .01$), but was much more strongly associated with unique total scores ($\eta = .86$, $p < .001$), $t(218) = -15.41$, $p < .001$ (see Steiger, 1980). Combined total scores on the HCR-20 (i.e., traditional total scores) were strongly associated with both OMI status ($\eta = .60$, $p < .001$) and CSI total symptoms ($r = .52$, $p < .001$). As expected, this association chiefly was attributable to inclusion of unique factors; there was no significant independent association between HCR-20 combined scores and OMI status (partial $r = -.06$, *ns*).

Second, we analyzed *T* scores on the LS/CMI, which was designed for general offenders. As shown in Figure 4 and Table 3, relative to non-OMIs, OMIs obtained significantly higher scores on the LS/CMI. Total scores on LS/CMI were weakly associated with both OMI status ($\eta = .20$, $p < .01$) and CSI total symptoms ($r = .33$, $p < .001$). As shown in Figure 4 and Table 3, at the subscale level, OMIs obtained significantly higher scores than non-OMIs on the following Central Eight scales: Antisocial Patterns, Family/Marital, Education/Employment, and Procriminal Attitude Orientation. A forward stepping logistic regression analysis with the eight LS/CMI subscales as predictors indicated that the Antisocial Patterns subscale alone ($B_{exp} = 1.08$, CI [1.04, 1.11], $p < .001$) predicted OMI status, $\chi^2(1, N = 197) = 22.37$, $p < .001$, Nagelkerke $R^2 = .14$. This suggests that OMIs are more likely than non-OMIs to have an early and diverse pattern of antisocial behavior.

Table 2
One-Year Criminal Justice Outcomes for Parolee Subsamples

Outcome	EOP OMIs ($n = 32$)	CCCMS OMIs ($n = 80$)	Non-OMIs ($n = 109$)	All OMIs ($n = 112$)
Arrest for any offense (%)	51.6	53.8	53.2	46.8
Arrest for violent offense (%)	9.7	2.5	9.2	4.5
Return to custody* (%)	35.5	26.2	18.3	28.8
For technical violation only** (%)	21.9	11.5	9.2	14.5

Note. EOP = early outpatient program parolees; CCCMS = community correctional case management parolees; OMIs = parolees with mental illness, including EOP and CCCMS; non-OMIs = parolees without mental illness.
* $p < .10$, OMI vs. non-OMIs, as well as EOP vs. CCCMS vs. non-OMIs. ** $p < .05$, EOP vs. non-OMIs.

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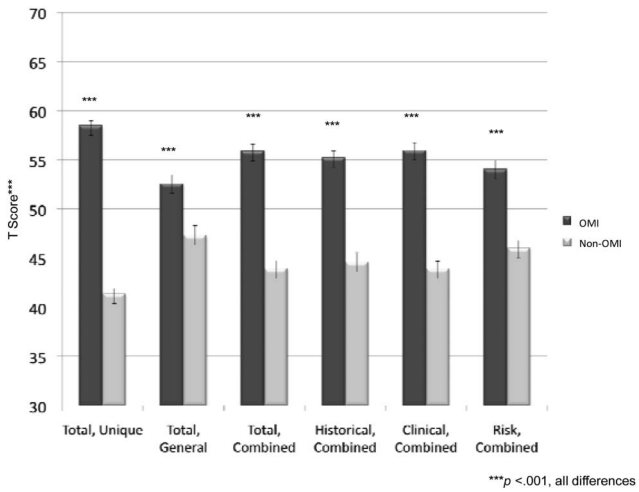

Figure 3. Historical-Clinical-Risk Management-20 (HCR-20) scores of parolees with (OMI) and without mental illness (non-OMI).

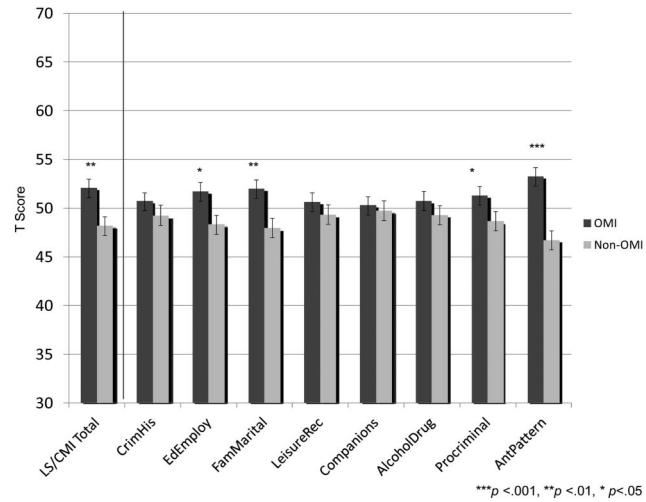

Figure 4. Level of Service/Case Management Inventory (LS/CMI) scores of parolees with (OMI) and without mental illness (non-OMI).

In summary, as expected (and by definition), psychiatric classification and symptoms relate strongly to putative risk factors that are specific to mental health. However, these psychiatric features are also significantly associated with general risk factors for recidivism.

Aim 2: Predictive Utility of General Risk Factors as a Function of Mental Illness

We used a traditional moderation approach (see Baron & Kenny, 1986) to test whether mental illness moderated the utility of total scores on the LS/CMI (which focuses exclusively on general risk factors) and HCR-20 (which adds unique factors to general factors) in predicting arrests and RTC. Specifically, we conducted four Cox proportional hazards survival analyses in which we entered (a) total risk scores (i.e., LS/CMI total or HCR-20 combined) and mental illness status (0 = not mentally ill, 1 = mentally ill) in the first block and then (b) an interaction between total risk scores and mental illness status in the second block, as predictors of either time to rearrest or RTC.

The interaction term of interest did not significantly predict either rearrest or RTC, indicating that mental illness status does not moderate the predictive utility of total LS/CMI or HCR-20 scores for recidivism. Notably, on the first block of these analyses, the LS/CMI modestly but significantly predicted both rearrest (B_{exp} = 1.05, CI [1.01, 1.08], $p < .01$) and RTC (B_{exp} = 1.06, CI [1.01, 1.11], $p < .01$). The HCR-20 did not significantly predict RTC (B_{exp} = 1.03, CI [0.98, 1.08], $p = .21$), but there was a nonsignificant trend toward its prediction of rearrest (B_{exp} = 1.04, CI

Table 3
Raw Means and Differences of LS/CMI and HCR-20 Scores in Parolee Subsamples

Measure	OMIs *M* (*SD*)	Non-OMIs *M* (*SD*)	Cohen's *d*	95% CI
LS/CMI				
Total	27.00 (5.66)	24.64 (5.93)	0.41	[−0.35, 1.17]
Criminal History	6.07 (1.05)	5.88 (1.39)	0.16	[−0.01, 0.32]
Education/Employment	6.10 (1.92)	5.44 (1.93)	0.34	[0.09, 0.60]
Family/Marital	2.59 (1.07)	2.12 (1.20)	0.42	[0.27, 0.57]
Leisure/Recreation	1.44 (0.75)	1.34 (0.81)	0.13	[0.03, 0.23]
Companions	3.41 (0.78)	3.36 (0.91)	0.06	[−0.05, 0.17]
Alcohol/Drug Problems	3.37 (2.12)	3.07 (2.10)	0.14	[−0.13, 0.42]
Procriminal Attitude Orientation	2.22 (1.26)	1.87 (1.34)	0.27	[0.10, 0.44]
Antisocial Patterns	2.46 (0.91)	1.80 (0.98)	0.70	[0.58, 0.83]
HCR-20				
Total unique	8.18 (2.27)	1.02 (2.06)	3.32	[3.03, 3.60]
Total general	26.61 (4.84)	23.81 (5.44)	0.55	[−0.13, 1.22]
Total combined	29.94 (4.85)	22.28 (5.45)	1.49	[0.82, 2.17]
Historical combined	16.36 (2.10)	13.22 (2.88)	1.25	[0.92, 1.58]
Clinical combined	6.93 (1.96)	4.06 (1.85)	1.51	[1.26, 1.76]
Risk combined	6.65 (2.03)	5.00 (1.72)	0.88	[0.63. 1.13]

Note. LS/CMI = Level of Service/Case Management Inventory; HCR-20 = Historical-Clinical-Risk Management-20; OMIs = parolees with mental illness, including early outpatient program parolees and community correctional case management parolees; non-OMIs = parolees without mental illness.

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[1.00, 1.07], $p = .05$). Final clinical judgments of risk (low = 12%, medium = 48%, high = 40%) based on the HCR-20 significantly predicted RTC ($B_{exp} = 1.03$, CI [1.01, 1.05], $p < .01$), but did not significantly predict rearrest ($B_{exp} = 1.02$, CI [1.00, 1.04], $p = .12$.

Thus, as hypothesized, mental illness did not moderate the predictive utility of general risk factors. The LS/CMI was similarly predictive of recidivism for OMIs and non-OMIs.

Aim 3: Exploring Which General Risk Factors Predict OMIs' Recidivism

We used the subsample of OMIs to explore which general factors maximally predicted recidivism. Two Cox proportional hazards survival analyses were performed with (a) the eight LS/CMI subscales as predictors and (b) outcome variables of time to either arrest (or lack thereof) or RTC (or lack thereof). Subscales were entered in a forward stepping algorithm, with the likelihood ratio as the criterion for entry and removal.

Three subscales of the LS/CMI combined to significantly predict OMIs' time to arrest, $\chi^2(3, N = 96) = 17.35$, $p < .001$. These were the Leisure/Recreation ($B_{exp} = 2.25$, CI [1.39, 3.63], $p < .001$), Criminal History ($B_{exp} = 1.55$, CI [1.10, 2.17], $p < .01$), and Companions ($B_{exp} = 0.71$, CI [0.50, 1.02], $p. < .05$) subscales. Similarly, three LS/CMI subscales combined to significantly predict OMIs' RTC, $\chi^2(3, N = 96) = 17.25$, $p < .001$. These were the Leisure/Recreation ($B_{exp} = 2.26$, CI [1.15, 4.46], $p < .01$), Criminal History ($B_{exp} = 1.52$, CI [1.01, 2.29], $p < .05$), and Alcohol/Drug Problems ($B_{exp} = 1.22$, CI [1.03, 1.44], $p. < .05$) subscales. These results indicate that general risk factors combine to predict OMIs' recidivism, with criminal history and poor use of leisure/recreation time playing a role in both rearrest and RTC.

To aid in interpreting these results, we conducted parallel survival analyses for the non-OMI subsample. Briefly, the results indicate that the same two leading LS/CMI risk factors significantly predicted both time to rearrest and RTC for non-OMIs, that is, Leisure/Recreation ($B_{exp} = 1.51$, CI [1.06, 2.15], $p < .05$, and $B_{exp} = 2.04$, CI [1.12, 3.71], $p < .05$, respectively) and Criminal History ($B_{exp} = 1.34$, CI [1.07, 1.68], $p < .05$, and $B_{exp} = 1.43$, CI [1.00, 2.02], $p < .05$, respectively).

Aim 4: Assessing Whether Unique Factors Add Incremental Utility for OMIs

We also focused on the subsample of OMIs to determine whether variables unique to mental illness added predictive utility to the general risk factors identified above. Specifically, we conducted two survival analyses (one for rearrest, another for RTC) in which general and unique variables were entered in two separate blocks. The first block was identical to that described above, in which the eight LS/CMI subscales were allowed to enter the predictive equation in a forward stepping fashion. The second block entered unique total scores on the HCR-20.

As detailed above, on the first block of these analyses, three general risk factors (see Aim 3 above) combined to significantly predict both OMIs' time to rearrest and RTC. For both rearrest, $\chi^2(1, N = 96) = 1.06$, *ns*, and RTC, $\chi^2(1, N = 96) = 1.25$, *ns*, adding unique variables did not significantly increase the predictive utility achieved by these general factors.

Discussion

This study yielded three main findings. First, in addition to variables that are unique to mental illness, OMIs also have more general risk factors for recidivism than their counterparts without mental illness, including an antisocial personality pattern. Second, general risk factors predict recidivism more than unique variables, regardless of mental health status. Even for OMIs, risk factors such as poorly structured leisure and recreation time significantly predict rearrest and RTC, whereas variables unique to mental illness such as medication compliance do not. Third, OMIs are more likely to return to prison custody than their peers without mental illness, even though they are no more likely to be rearrested. This suggests that supervision disparities may contribute to OMIs' parole failure. Together, all three findings are consistent with the notion that the relation between mental illness and recidivism is not direct.

Before unpacking these findings and their implications, we present study limitations that must be held in mind while doing so. First, the generalizability of our findings to parolees who returned to custody very quickly (<14 weeks of release) is unknown. However, concern about potential selection bias is partly mitigated by an absence of any significant difference between (a) parolees who did and did not enroll in the study (across demographic, clinical, and criminal variables) and (b) parolees with and without mental illness across the matching variables, including the length of time on parole. Second, although it has been found to predict general recidivism (e.g., Kroner & Mills, 2001), the HCR-20 was specifically designed to predict violence and may better predict that particular outcome. This concern is partly mitigated by the results of our supplemental analyses, which indicate that the HCR-20 did not significantly predict violent recidivism in this study regardless of mental health status. These analyses must be regarded as exploratory because the base rate of violent recidivism was low (11%). Third, although the predictive utility of particular tools was not a focus of this study, the effect sizes we observed for rearrest and RTC for the HCR-20 (area under the curve [AUC] = .52 and .59, respectively) and the LS/CMI (AUC = .60 and .65, respectively) fall at or below the low range of those observed in prior research (e.g., Douglas et al., 2010; Yang, Wong, & Coid, 2010). This may reflect the fact that these effect sizes are based on a relatively short (1 year) follow-up period. Still, our main findings on the relative utility of general and specific risk factors over varying follow-up periods (via survival analyses) seem trustworthy.

OMIs Share Substantial General Risk Factors With Non-OMIs

Because OMIs are distinguished by their mental illness and related variables (e.g., acute exacerbation of illness, psychiatric medication noncompliance), it is not surprising to find that symptoms were strongly associated with "unique" variables (assessed by the HCR-20). However, in keeping with our hypothesis, psychiatric symptoms were also moderately correlated with general risk factors for recidivism (captured by both the HCR-20 and LS/CMI). This finding replicates and extends Girard and Wormith's (2004) observation that OMIs had significantly more

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general risk factors (i.e., higher LS/CMI total scores) than non-OMIs.

Relative to their non-OMIs, OMIs in the present study obtained higher scores on the following general risk factors assessed by the LS/CMI: antisocial pattern, procriminal attitudes (in keeping with Morgan et al., 2010; Wolff et al., 2011), education/employment problems (in keeping with findings reviewed by Prins & Draper, 2009), and family/marital problems. However, scores on the antisocial pattern domain alone maximally distinguished between OMIs and non-OMIs. Thus, OMIs were more likely to manifest early and diverse criminal behavior, a generalized pattern of trouble (e.g., financial instability, few prosocial friends), and procriminal attitudes. Broadly, an antisocial personality pattern describes a person who is adventurous, pleasure seeking, aggressive, and has weak self-control (Andrews et al., 2006).

The term *antisocial* may evoke adverse and avoidant reactions, particularly from mental health professionals. Nevertheless, it is not tenable to neatly classify OMIs as either "mad" and therefore treatable (because they have serious mental illness) or "bad" and therefore difficult to treat (because they have problematic personality traits). Instead, many of these individuals have both a serious mental illness and troubling personality traits. As such, they require both psychiatric and correctional treatment.

Our results are consistent with past indications that antisocial traits are relatively prevalent among OMIs. For example, Hodgins, Toupin, and Cote (1996) found that 63% of incarcerated offenders with schizophrenia met the formal diagnostic criteria for antisocial personality disorder (ASPD). This is consistent with the Kim-Cohen et al. (2003) finding that early aggression, impulsivity, and other conduct problems are sometimes harbingers of psychosis. It is also in keeping with the observation that serious mental illness is relatively prevalent among adults with ASPD: In the Epidemiological Catchment Area study, individuals with ASPD were more than 7 times more likely to meet criteria for schizophrenia than those without ASPD (Robins, 1993; Robins & Price, 1991).

General Risk Factors Predict Recidivism Regardless of Mental Illness

In this study, we used leading risk assessment measures to isolate potential risk factors that are unique to OMIs (e.g., acute symptoms, poor insight, treatment noncompliance, decompensation) and compare their predictive utility with general risk factors that may apply to any offender (e.g., antisocial pattern, associates, attitudes). We found that general risk factors predicted both rearrest and RTC for OMIs, and unique factors were unable to improve on their predictive utility. We also found that an offender's mental health status did not moderate the predictive utility of these risk factors.

These findings are consistent with past research indicating that the LS/CMI is equally predictive of recidivism for OMIs and non-OMIs (Girard & Wormith, 2004) and that the strongest predictors of recidivism are shared by offenders with and without mental illness (e.g., Bonta et al., 1998; Monson et al., 2001). Antisocial traits, for example, are one of the most powerful predictors of violent and other criminal behavior for those with serious mental illness (Bonta et al., 1998; Peterson, Skeem, Hart, Keith, & Vidal, 2010; Skeem, Miller, Mulvey, Monahan, & Tiemann, 2005).

We also explored which general risk factors (among the set assessed by the LS/CMI) combined to maximally predict recidivism for OMIs and non-OMIs. First, across mental health status and recidivism type, two risk factors consistently emerged in predictive equations: antisocial history and poor use of leisure/recreation time. The finding that antisocial history predicts recidivism (above correlated risk factors like antisocial pattern) is consistent with Meehl's (1954) well-validated maxim that the best predictor of future behavior is past, like behavior. In keeping with the notion that "idle hands do the devil's work," poor engagement in prosocial activities reliably added predictive utility to antisocial history. This is consistent with evidence that unstructured routine activities are a robust risk factor for crime (e.g., Cross, Gottfredson, Wilson, Rorie, & Connell, 2010; Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996; Pollock, Joo, & Lawton, 2010; see Skeem & Peterson, 2011, for a review). Second, for OMIs, antisocial companions (for rearrest) and substance abuse (for RTC) added utility in predicting recidivism (for a review of related findings, see Skeem & Peterson, 2011). Although these results cannot and do not provide an explanatory model of recidivism, they highlight independent risk factors to test in future hypothesis-driven research.

OMIs Have Disproportionate Risk of Parole Failure

We found that psychiatric symptoms were weakly to moderately ($r = .26–.33$) associated with general risk factors that significantly predicted both new offenses and RTCs. Thus, it would be reasonable to expect symptoms to (weakly and indirectly) predict recidivism. We found, however, that psychiatric symptoms predicted parole failure (i.e., RTCs), but not new offenses (i.e., rearrests). Similarly, we found that OMIs under intensive supervision (i.e., EOPs) were uncommonly likely to return to prison for a technical violation.

This pattern of findings is consistent with past suggestions that supervision disparities contribute to OMIs' parole failure. Compared with non-OMIs, OMIs are about equally likely to be rearrested for a new offense (Bonta et al., 1998; Gagliardi, Lovell, Peterson, & Jemelka, 2004, as cited in Baillargeon et al., 2009), but significantly more likely to commit technical violations and have their community terms suspended or revoked (Baillargeon et al., 2009; Eno Louden & Skeem, 2011; Porporino & Motiuk, 1995). The results of both experimental (Callahan, 2004; Eno Louden & Skeem, 2013) and ethnographic (Lynch, 2000) research suggest that correctional officers keep OMIs on a "tighter leash" than those without mental illness, based partially on stigma-based fear and paternalism (for a review, see Skeem & Peterson, 2012).

Although systemic issues were not a focus of the present study, these results shed additional light on the relationship between mental illness and recidivism. Real "risk reduction" for OMIs may require both better targeting of criminogenic needs and less stigma-based correctional decision making.

Conclusion and Implications

The results of this study are consistent with the notion that the relationship between mental illness and recidivism is largely indi-

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rect. If the goal is to reduce recidivism for OMIs, then antisocial features must be explicitly assessed, acknowledged, and targeted in correctional treatment efforts. Many evidence-based treatment programs for offenders explicitly address antisocial traits by building skills for problem solving, anger management, and impulse control (Andrews et al., 2006; see also Skeem, Polaschek, & Manchak, 2009). At least one of these programs has been adapted for OMIs (Young, Chick, & Gudjonsson, 2010). In our view, the field's next great challenge is to examine whether—and how—these programs reduce recidivism for OMIs. To what extent do structuring leisure time, reducing antisocial cognition, and/or increasing problem-solving skills translate into recidivism reduction?

Although we believe that the focus of the policy model for OMIs should be definitively shifted to target general risk factors, it would be a mistake to jettison psychiatric treatment from the model. First, psychiatric symptoms seem to directly cause a small but important minority of offenses among OMIs. Specifically, across jail (Junginger, Claypoole, Laygo, & Crisanti, 2006), parole (Peterson et al., 2010), and psychiatric samples (Monahan et al., 2001), delusions and/or hallucinations precede violent or other criminal behavior up to 10% of the time. Recent research indicates that these symptom-based crimes do not "cluster" by person; instead, they are distributed quite randomly across OMIs (some OMIs have no symptom-based crimes; others have a symptom-based crime among more general crimes; Peterson, 2012). Given the difficulty inherent in predicting symptom-based crimes, it is wise to provide OMIs with psychiatric treatment as a routine preventive measure. Second, even when psychiatric treatment has no effect on recidivism, it can promote better health outcomes for OMIs (e.g., reducing symptoms and hospitalization). Third, psychiatric treatment may often act synergistically with correctional treatment. For example, antipsychotic medication may control hallucinations and organize thinking enough that an offender can actually benefit from cognitive–behavioral sessions that target criminal thinking. Fourth, it is possible that symptom control and improved functioning help parolees live their lives in a manner that reduces the likelihood of violating technical conditions of community release (see Skeem & Eno Louden, 2006).

Whether and how psychiatric treatment adds value to risk reduction efforts for OMIs is an empirical question to address in future research. The clearest message from the present study is that risk reduction efforts must be shifted to focus more on general risk factors to break the cycle of recidivism that embeds many parolees in the criminal justice system (Hartwell, 2003).

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