How Often and How Consistently do Symptoms Directly Precede Criminal Behavior Among Offenders With Mental Illness?

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Although offenders with mental illness are overrepresented in the criminal justice system, psychiatric symptoms relate weakly to criminal behavior at the group level. In this study of 143 offenders with mental illness, we use data from intensive interviews and record reviews to examine how often and how consistently symptoms lead directly to criminal behavior. First, crimes rarely were directly motivated by symptoms, particularly when the definition of symptoms excluded externalizing features that are not unique to Axis I illness. Specifically, of the 429 crimes coded, 4% related directly to psychosis, 3% related directly to depression, and 10% related directly to bipolar disorder (including impulsivity). Second, within offenders, crimes varied in the degree to which they were directly motivated by symptoms. These findings suggest that programs will be most effective in reducing recidivism if they expand beyond psychiatric symptoms to address strong variable risk factors for crime like antisocial traits.

Keywords: offenders, mental illness, mental health symptoms, crime, recidivism

In the United States, approximately 14%–16% (Fazel & Danesh, 2002; Steadman, Osher, Robbins, Case, & Samuels, 2009; Teplin, 1990; Teplin, Abram, & McClelland, 1996) of the 7.3 million people under correctional supervision (Bureau of Justice Statistics, 2009) suffer from serious disorders such as schizophrenia, bipolar disorder, or major depression. This translates to approximately one million people with a major mental disorder currently involved in the criminal justice system. Most research has focused on the role of psychiatric symptoms in causing crime, and most policy initiatives have assumed that there is a direct link between symptoms and criminal behavior (Human Rights Watch, 2003; Teplin, 1984; Torrey, 2011). Many of these initiatives operate under the framework that improving mental health symptoms (through access to medication and treatment) will effectively reduce recidivism (Skeem, Manchak, & Peterson, 2011).

Some researchers have advocated a new approach—one focused on distinguishing between a (small) group of offenders whose symptoms relate directly to crime and a (larger) group whose symptoms and crimes are not directly related (Peterson, Skeem, Hart, Vidal, & Keith, 2010; Skeem et al., 2011; Swanson et al., 2008). For the smaller group of offenders, access to mental health treatment may effectively reduce recidivism. However, for the larger group whose crimes are *not* directly motivated by symptoms, intervention that extends beyond symptoms would be needed to improve criminal justice outcomes. The hope is that moving beyond a one-size-fits all approach by distinguishing between these two groups—one directly motivated by symptoms and one not—will reduce crime for offenders with mental illness on a large scale. As shown next, this new framework raises two important questions.

Question 1: How Often Do Offenders Commit Crimes Motivated by Mental Health Symptoms?

First, *how often* do offenders commit crimes motivated by symptoms of mental illness? The answer to this question is likely to depend upon how broadly one defines symptoms of mental illness. Narrow definitions (i.e., only including hallucinations or delusions) will probably yield lower estimates than broad definitions (i.e., encompassing anger, impulsivity, and other constructs that may be viewed as symptoms or normative traits). The answer

may also depend upon how one defines the *link* between symptoms of mental illness and criminal behavior.

Legal Definitions of Direct Relationships

Differences in the breadth of legal definitions of insanity illustrate the latter point. For example, the M'Naghten rule requires that an insane defendant suffer from a "mental disease which prevents him from knowing the nature or quality of his act, or that it was wrong" (i.e., Ari. Rev. Stat. Sec. 13.502). The American Law Institute's definition is broader: "a person is not responsible for criminal conduct if at the time of such conduct as a result of mental disease or mental defect, he lacks substantial capacity either to appreciate the criminality [wrongfulness] of his conduct or to conform his conduct to the requirements of the law" (Charles, 2002). This definition is different than M'Naghten in that it includes the "appreciation" of one's understanding of right and wrong, and only requires that the defendant "lacks substantial capacity" rather than a total lack of understanding of one's behavior. The Durham test (used in New Hampshire) defines insanity broadly as unlawful acts that are the "direct product of a mental disease or defect" (Id. At 874–75). Under Durham, crimes could be considered a direct product of nearly any symptom of mental illness.

Regardless of the definition applied, however, the vast majority of people found not guilty by reason of insanity have a primary diagnosis of schizophrenia and ostensibly were responding to psychotic symptoms at the time of their offense (Callahan, Steadman, McGreevy, & Robbins, 1991). This is likely because symptoms of psychosis tend to be specific to serious mental illness (unlike anger, impulsivity, etc.) and because it is relatively easy to conceptualize how positive symptoms of schizophrenia—hallucinations and delusions that alter one's sense of reality—can directly motivate criminal behavior (Cheung, Schweitzer, Crowley, & Tuckwell, 1997; Douglas, Guy, & Hart, 2009; McNiel, Eisner, & Binder, 2000).

Research Definitions of Direct Relationships

The tendency to focus on psychosis in examining relationships between symptoms and crimes is also evident in forensic research. For example, in the MacArthur Violence Risk Assessment Study (MVRAS; Monahan et al., 2001) of over 1,000 psychiatric patients, investigators focused on the role of psychosis when inquiring about symptoms that immediately preceded violent incidents. Specifically, they asked patients if they were experiencing hallucinations or delusions at the time a violent incident occurred—and found that this was the case for only 12% of all violent or aggressive incidents detected (Monahan et al., 2001). Similarly, Peterson, Skeem, Hart, Vidal, and Keith (2010) retrospectively studied 112 parolees with mental illness who were matched on demographic and criminal variables to 109 parolees without mental illness. Based on interview and record review data, raters reliably classified offending patterns. The authors found that the emotionally reactive pattern of offending was most common for the majority of parolees, whether mentally ill or not. Only 5% of parolees with mental illness were classified as committing crimes as a result of their psychotic symptoms, specifically.

Junginger, Claypoole, Laygo, and Cristiani (2006) used a broader definition of symptoms in their study of 113 arrestees with mental illness and co-occurring substance abuse disorders who were deemed eligible for a jail diversion program. In this case, the direct effect of mental illness was defined as "the specific influence of concurrent delusions or hallucinations on the criminal offense," and the indirect effect of mental illness was defined as "any other symptom-based influence, such as confusion, depression, thought disorder, or irritability" (p. 880). Junginger et al. (2006) found that only 4% of offenders in the study had been arrested for offenses related to psychosis. They also found that 4% of offenses related to "any other symptoms." However, it is unclear how the roles of such symptoms as "irritability" were distinguished from normative personality traits and emotional states that may be found among offenders without mental illness.

Difficulties in Distinguishing Between Symptoms and Traits

The distinction between symptoms of mental illness and "normative" risk factors for crime becomes difficult, once the definition of symptoms is broadened beyond psychosis. For example, anger is correlated with symptoms of psychosis (delusions and command hallucinations), personality disorders (emotional instability), mood disorders (irritability and "anger attacks"), and posttraumatic stress disorder (PTSD; Novaco, 2011b). However, anger is also a "fundamental and functional human emotion" that is a robust dynamic risk factor for violence among both general offenders and psychiatric inpatients (Gardner, Lidz, Mulvey, & Shaw, 1996; Novaco, 1994; Novaco, 2011a, p. 661a; Novaco, 2011b). In an intensive study of 132 psychiatric patients at high risk for community violence, Skeem et al. (2006) found that anger robustly predicted violence, unlike symptoms that were more unique to serious mental illness (e.g., delusions). In short, approaching anger as a symptom of mental illness runs the risk of pathologizing a normal emotional state (Novaco, 2011a).

Another example of this difficult distinction is with "impulsivity." Impulsivity is related to certain symptoms of bipolar disorder including "distractibility" and "excessive involvement in pleasurable activities that have a high potential for painful consequences" (American Psychiatric Association, 2000). Perhaps for this reason, impulsivity is more pronounced in the population of people with bipolar disorder than in the general population (Jimenez et al., 2012). However, impulsivity also appears in the diagnostic criteria for Antisocial Personality Disorder (American Psychiatric Association, 2000), and is well-established as one of the most robust predictors of juvenile and adult offending (Krueger, Markon, Patrick, Benning, & Kramer, 2007; White, Moffitt, Bartusch, Needles, & Stouthamer-Loeber, 1994). Therefore, whether impulsivity is a symptom of serious mental illness or a normative personality trait is quite difficult to discern.

To be most inclusive in defining direct relationships between symptoms and crimes in this study, we included both anger and impulsivity in our definition of mental illness. In an attempt to distinguish symptomatic anger and impulsivity from normative traits, we discussed whether anger or impulsivity occurred within a depressive or manic episode with participants, as well as the degree to which the experience differed from their usual status (for anger, see Spielberger, Reheiser, & Sydeman, 1995). For impulsivity, we focused on nonplanning-, motor-, and attentional-impulsiveness (Barratt, 1993; Dickman, 1993; Patton, Stanford, &

Barratt, 1995)—which can be related to manic episodes of bipolar disorder (Strakowski et al., 2009; Swann, Steinberg, Lijffijt, & Moeller, 2008). Still, distinctions between symptomatic states and nonsymptomatic traits were subtle and often difficult to make.

Aim 1 and Hypothesis

Our first aim is to examine how often psychiatric symptoms relate to crimes, where symptoms include not only those of psychotic disorders, but also those of two affective disorders—that is, bipolar disorder (impulsivity, irritability/anger, excessive involvement in pleasurable activities), and depression (hopelessness, suicidality). We defined a "direct crime" as one in which *symptoms immediately preceded the crime and increased its likelihood of occurrence*.

What is our hypothesis? Based on prior research, psychosis directly causes criminal behavior in about 4%–5% of cases (Junginger, Claypoole, Laygo, & Cristiani, 2006; Peterson et al., 2010) and other symptoms directly cause index offenses in 4% of cases (Junginger et al., 2006). Thus, we hypothesize that symptoms of psychosis, bipolar disorder, and depression directly cause criminal behavior in about 10% of cases.

Question 2: How Consistently Are Symptoms of Mental Illness Linked to Criminal Behavior Over Time, Across Incidents?

Our second aim is to test whether the relationship between symptoms and crimes is consistent within offenders, or varies over the course of an offender's criminal history. Legal definitions of insanity focus on *crimes* (e.g., did an offenders' symptoms directly cause a specific criminal act?). In contrast, policy focuses on *people* (e.g., for which group of offenders will psychiatric treatment reduce recidivism?). This raises a question that must be addressed explicitly—among offenders with mental illness, is there a subgroup who consistently commit crimes in response to their symptoms (i.e., a subgroup of "direct offenders")? It is possible that instead, the relationship between symptoms and criminal behavior varies within offenders over time.

Consistency of Direct Relationships, Legally Defined

If "direct offenders" who consistently commit crimes as a response to their symptoms generally account for "direct crimes," then defendants acquitted by reason of insanity for one crime theoretically would not commit any other crimes unrelated to their mental illness. However, research indicates that general risk factors for crime apply even to offenders acquitted by reason of insanity. For example, Callahan and Silver (1998) followed 585 offenders acquitted by reason of insanity for 5 years to identify factors that predicted revocation of conditional release from the hospital. Clinical factors (including symptoms) did not predict revocation, but general risk factors for crime did (e.g., criminal history; substance abuse; being non-White, unmarried, and unemployed). Similarly, Monson, Gunnin, Fogel, and Kyle (2001) found that criminal history, substance abuse, and minority status predicted revocation of conditional release for a sample of insanity acquittees, whereas clinical factors did not.

In sum, it appears that even insanity acquittees sometimes commit crimes based on similar risk factors as nonmentally ill offenders. This is consistent with the premise that these individuals commit an array of "sane" and "insane" crimes over time.

Consistency of Direct Relationships, as Defined in Research

Although it is an empirical question, we could identify no published studies of the extent to which the *relationship* between symptoms and criminal behavior varies within an offender over time. Instead, investigators have made assumptions that the appropriate unit of analysis is crimes, offenders, or some mixture of the two. For example, Junginger et al. (2006) focused on each offender's index crime (one offender, one crime). Monahan et al. (2001) focused on all violent incidents detected in the study, without regard to their potential nesting within patients (many crimes, many patients). In contrast, Peterson et al. (2010) focused on offenders' lifetime pattern of offending based on interview data and records. Ultimately, a single primary classification of a participant's lifetime pattern was chosen based on the rater's "holistic impression" of the offender (one offender, many crimes). None of these studies examined whether and how the relationship between symptoms and criminal behavior varies within offenders over the course of their offending history.

Aim 2 and Hypothesis

The second aim of this study is to examine the extent to which the relationship between symptoms and crimes is consistent within offenders with mental illness. It is possible that "direct crimes" cluster within offenders (i.e., that a small subgroup of offenders with mental illness engage in criminal behavior that is consistently preceded by psychiatric symptoms). It is also possible that these "direct crimes" are randomly scattered across offenders—that offenders with mental illness commit crimes that vary in the extent to which they are linked with psychiatric symptoms. In this study we statistically examine the distribution of these links within participants to determine whether putting offenders into "direct" and "not direct" bins makes policy sense.

Despite counterevidence (i.e., that insanity acquittees commit crimes that are—and are not—directly linked to mental illness), we tentatively hypothesize that the relationship between symptoms and crime will be consistent within offenders over time. This hypothesis is based on previous theory (Skeem et al., 2011) and research (Hiday, 1999; Peterson et al., 2010) which suggests that there is a small (i.e., 7%–12%) group of "direct" offenders who consistently commit crimes in response to their symptoms.

Implications

From a policy perspective, it is important to know whether programs for offenders with mental illness should focus on psychotic symptoms (i.e., whether reducing delusions and hallucinations would reduce recidivism), or include symptoms of depression and bipolar disorder as falling into the "direct crime" category. If criminal behavior could be prevented through treatment targeting symptoms of these affective disorders as well, it would be important to so in correctional settings.

Perhaps more importantly, it is critical to determine whether there is a group of offenders who consistently commit crimes directly related to their symptoms, given that effective treatment of symptoms would prevent recidivism for this group. If instead the relationship between symptoms and crimes tends to be inconsistent within offenders—who commit a combination of crimes that are—and are not—directly related to their symptoms over time, then treating symptoms would not be a "magic bullet," and alternative targets would need to be identified to reduce crime on a large scale for this population.

Method

This study was conducted in a Midwestern city with 143 offenders with serious mental illness. Participants completed a 2-hr interview focused on past criminal behavior, mental health symptoms, and the connection between the two. Based on interview and record review data, study interviewers rated the degree to which each crime was directly related to psychiatric symptoms.

Participants

Recruitment.   To be eligible for this study, participants had to be over the age of 18, have a diagnosis of a serious mental illness (major depression, bipolar disorder, schizophrenia spectrum disorder) as determined by the county social worker, and be involved with the county mental health court. Overall, 55% of participants were recruited by distributing flyers to mental health court defendants (see Figure 1). However, 40% of defendants scheduled for an interview did not complete one.

The other 45% of participants were recruited by providing flyers to probation officers, and social workers who were affiliated with the mental health court. The goal was to ensure that defendants could be referred to the study even if they did not have a court appearance. However, 48% of offenders recruited in this way did not complete an interview.

Data were not available to test whether eligible offenders who did—and did not—complete interviews differed from one another. Nevertheless, there were no differences between participants recruited out of mental health court and participants referred to the study by their probation officer or social worker on either the severity of their mental health symptoms, $t(133) = -0.42$, ns, or the number of past convictions, $t(119) = -0.17$, ns.

Characteristics.   Participants were predominantly male (64.1%) Caucasian (42%) or African American (42%; other, 16%) offenders with an average age of 40 years ($SD = 11.6$). According to participant report and record review, the most common primary Axis I diagnoses were for schizophrenia spectrum disorders (schizophrenia, schizoaffective disorder, schizophreniform disorder, psychosis NOS; 31%), bipolar disorder (44%), and major depression (21%). Virtually all (85%) participants had co-occurring substance abuse disorders. Participants' median number of prior convictions was 4.0 (Mode = 2.0, Range = 1–115).

There were no significant differences between the study sample and the population from which it was drawn in sex (larger pool = 61% male), ethnicity (larger pool = 42% Caucasian), or primary diagnosis (larger pool's primary diagnoses = schizophrenia spectrum [39%] and mood disorder [52%]). However, the study sample ($M = 39.8$, $SD = 11.6$) was significantly older than the pool from which it was drawn, M = 35.0, $t(142) = 4.95$, $p < .01$, 95% CI [2.88, 6.72], $r = .38$.

Procedures

Training personnel.   Seven research assistants (RAs) completed 4 full days of didactic training sessions held over a 1-month period, interspersed with intensive practice sessions with individualized feedback. Training focused on study procedures, interviewing skills, and rating reliability. All RAs were trained to reliability in rating the relationship between symptoms and criminal behavior along the "direct continuum" (defined in the Measures section below).

Throughout data collection, the study team met weekly to discuss cases and complete "refresher cases" to maintain interrater reliability. Reliability was formally assessed by watching and rating video-taped interviews of four research participants who reported a total of 11 crimes. The eight raters (including the first author) coded these 11 crimes on the direct continuum during these trainings for an average measure intraclass correlation coefficient of 0.97, indicating excellent reliability (Shrout & Fleiss, 1979).
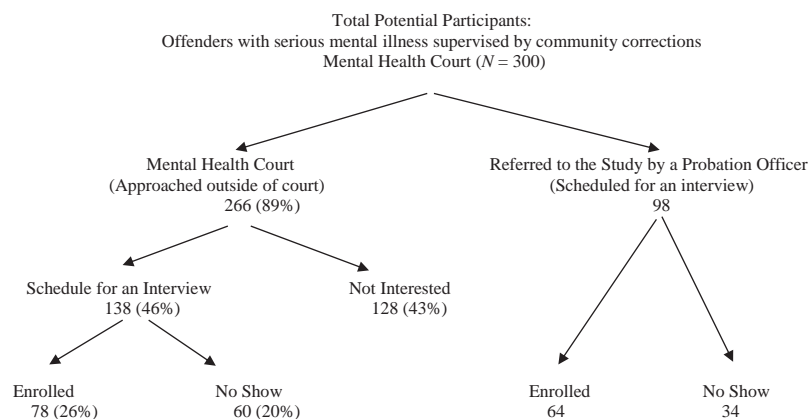

Figure 1.   Number of participants enrolled in the study from community corrections. Total potential participants: Offenders with serious mental illness supervised by community corrections; Mental Health Court (N = 300).

Interviewing participants. RAs met with participants in the community corrections office, in an interview room where government employees could see—but not hear—the conversation. After reviewing the consent form and administering a multiple-choice test about the nature, risks, and benefits of the study, RAs began the interview with participants who passed the consent test. Interviews lasted about 2 hours ($SD = 32.2$ min), and participants were paid \$20 for their participation.

A life-calendar approach was used to help organize events chronologically, along with dates of arrests and convictions (Freedman, Thorton, Cambrun, Alwin, & Young-DeMarco, 1988). The life-calendar approach uses visual cues and focuses on sequencing to enhance participants' autobiographical recall (Axinn, Pearce, & Ghimre, 1999; Belli, 1998). Details on the design and advantages of the life-calendar approach have been described previously (Caspi et al., 1996; Freedman et al., 1998). Interviewers worked to establish rapport with participants, and revisited the life-calendar several times throughout the interview. For each event (i.e., births, deaths, break-ups, trauma, arrests) placed on the calendar, participants discussed their experience of psychiatric symptoms and any criminal activity at that time. This helped interviewers assess for links (or a lack thereof) between symptoms and crimes.

Reviewing records. RAs reviewed participants' records at the community corrections office and recorded diagnoses and criminal history. Diagnostic information (which was available for 85.2% of participants) was based on a community corrections social worker's assessment. Criminal history information, including arrests, convictions, and appearances in mental health court (which were available for 71.1% of participants) were recorded from the community corrections office tracking system and official state Department of Criminal Justice records.

Measures

Crimes. Crimes eligible for inclusion in the study were past arrests and/or convictions for violent and/or nonviolent offenses. To keep the interview length manageable, no more than seven crimes were coded per participant ($M = 3.3$, $SD = 1.8$, median = 3.0, mode = 4.0). For the 13% of the sample that had more than seven crimes, RAs coded the seven *most recent* crimes (see Figure 2). The average length of time between participants first—
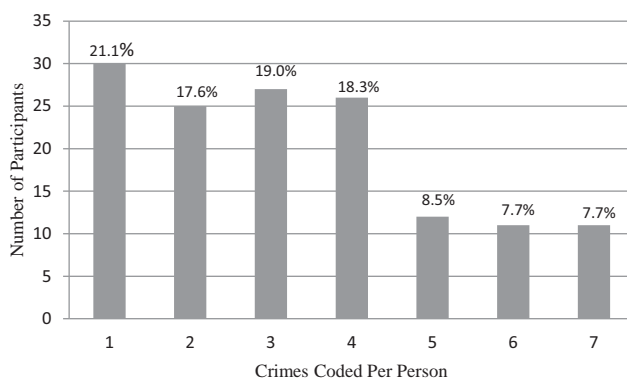

Figure 2. The number of crimes coded per person ranged from 1 to 7. Maximum number of crimes coded per person was 7. $M = 3.3$, $SD = 1.8$.

and last—reported crime (i.e., the average period of offending for this relatively old sample) was 15.4 years ($SD = 12.1$).

Symptoms. Primary diagnoses were reported by participants and confirmed via record review. The Brief Psychiatric Rating Scale (BPRS, Overall & Gorham, 1962) was used to assess current mental health symptoms. RAs completed this 18-item rating scale after conducting semistructured interviews with participants. Based on three videotaped cases completed during the course of the study, raters manifested excellent levels of interrater agreement on the BPRS (ICC = .98). Participants' average BPRS score was 37.0 ($SD = 10.3$), in keeping with observations of other mental health court samples ($M = 34.3$, $SD = 9.0$; Boothroyd, Mercado, Poythress, Christy, & Petrila, 2005).

The "direct continuum." Because crimes can be motivated by multiple factors, we chose not to make a black and white distinction between direct and independent relationships in this study; instead we operationalized direct relationships along a continuum. The direct continuum ranged from completely direct relationships (i.e., offender with schizophrenia attacked someone due to a paranoid delusion about that person) to completely independent (i.e., offender with schizophrenia stole groceries while not experiencing any psychotic symptoms). In between these two extremes are moderately direct relationships or crimes that had something, but not everything, to do with symptoms (i.e., offender with schizophrenia got into a bar fight; was agitated from hearing voices that day, but not responding to voices at the time of the fight). Experiencing symptoms of schizophrenia spectrum disorders, bipolar disorder, or depression at the time of the crime could be rated at any point along the continuum, depending on the extent to which the crime was a direct result of those symptoms.

The crime could be related directly to symptoms of an Axis I mental disorder that qualified the participant for mental health court which included schizophrenia spectrum disorders (e.g., hallucinations and delusions), bipolar disorder (e.g., impulsivity and excessive involvement in pleasurable activities), and major depression (e.g., hopelessness suicidality). Although symptoms of these disorders can overlap within individuals (e.g., psychotic symptoms occur during a manic episode), we used the constellation of symptoms articulated in the *DSM* for the purposes of this study.

To rate each crime, RAs elicited a detailed narrative from the participant detailing the circumstances surrounding each crime (including symptoms, substance abuse, relationships, financial issues, stressors, etc.). Then, they rated each crime on the following scale:

1. Independent relationship—no influence of symptoms;

2. Mostly unrelated to symptoms, minimal evidence of symptom influence;

3. Crime is mostly influenced by symptoms—some evidence of motivation outside of symptoms;

4. Direct relationship—only influence of symptoms involved in the crime.

RAs also rated their confidence in each score on a scale that ranged from 1 (*not confident*) to 5 (*completely confident*). Crimes with a confidence ratings less than three (4% of crimes) were

discussed by the research team at the weekly meeting to establish consensus on the rating.

Although a continuous approach was most appropriate for the assessment of direct crimes in this study, for analyses that required an identification of "direct" crimes, the continuum was dichotomized to distinguish between crimes that were coded as "mostly or completely direct" (18.2% of crimes), and crimes that were coded as "mostly or completely independent" (81.8% of crimes).

Results

Aim 1: How Often Do Direct Relationships Between Symptoms and Crime Occur?

To describe the frequency of direct relationships between symptoms and crime, we first explored the distributions of direct crimes by symptom cluster (i.e., schizophrenia spectrum disorders, bipolar disorder, and depression). Next, we examined differences in scores on the direct continuum among offenders with each of these three primary diagnoses. Finally, we examined the percentage of people within each diagnostic group that committed at least one direct crime.

Proportion of direct crimes by diagnosis. Of the 429 crimes coded, almost two thirds (64.7%) were coded as completely independent and less than one in 10 (7.5%) were coded as completely direct. About one third (27.9%) of crimes fell in the middle of the continuum, indicating mixed or moderate symptom involvement (see Figure 3).

Schizophrenia spectrum distribution. Of crimes committed by participants with schizophrenia spectrum disorders, 23% were completely or mostly related directly to symptoms. Of crimes related to schizophrenia spectrum disorders, 42% were crimes against another person, 42% were property crimes, and 16% were minor crimes such as trespassing.

Bipolar disorder. Of crimes committed by participants with bipolar disorder, 62% were completely or mostly related directly to symptoms. Of crimes related to symptoms of bipolar disorder, 39% were crimes against another person, 42% were property crimes, and 19% were minor crimes.

Depression. Some 15% of crimes committed by participants with depression were completely or mostly related directly to

symptoms. Of crimes related to symptoms of depression, 39% were crimes against another person, 15% were property crimes, and 46% were minor crimes.

Direct continuum scores by diagnosis. To determine whether participants with different primary diagnoses were more likely to commit direct crimes, we examined differences in mean scores on the direct continuum between crimes committed by offenders with a primary diagnosis of schizophrenia spectrum disorders, $M = 1.70$, $SD = 0.78$, 95% CI [1.46, 1.94]; bipolar disorder, $M = 1.98$, $SD = 0.97$, 95% CI [1.73, 2.22]; and major depression, $M = 1.46$, $SD = 0.78$, 95% CI [1.17, 1.75]. This person-based ANOVA analysis revealed that there was a significant main effect for diagnostic subgroup, $F(2, 135) = 3.84$, $p < .05$, $\eta^2 = 0.05$, and Tukey's HSD post hoc tests indicated that crimes committed by patients with a primary diagnosis of bipolar disorder had significantly higher direct continuum scores than those committed by patients with a primary diagnosis of depression, $p < .05$, 95% CI [0.061, 0.980], $r = .26$, with no other significant differences between the three groups. There were no significant differences in direct continuum scores among crimes committed by the three diagnostic groups when we examined violent offenses only, the small sample size resulted in limited power to detect differences (Cohen, 1992).

Proportion of offenders (by diagnostic group) with at least one direct crime. Next, we examined the percentage of people with each primary diagnosis that committed at least one crime that related completely or mostly to symptoms. Results indicate that 41%, 50%, and 20% of offenders with schizophrenia spectrum, bipolar, and major depressive disorder respectively committed at least one such crime. These distributions were significantly different ($X^2[2] = 7.56$, $p < .05$, Cramers $V = 0.24$), specifically, those with depression were less likely to have a direct crime than those with other disorders.

Conclusion. Even with the broad definition of symptoms used in this study, only about one fifth of crimes were mostly or completely related directly to symptoms. Of these direct crimes, most related to symptoms of bipolar disorder (which include externalizing features), rather than schizophrenia spectrum disorders or depression. Patients with bipolar disorder had significantly higher average scores on the direct continuum than those with a primary diagnosis of depression.

Aim 2: How Consistent Is the Relationship Between Symptoms and Criminal Behavior Over Time, Within an Offender?

Three steps were used to determine the extent to which symptoms were consistently linked to criminal behavior across incidents within individuals. First, we examined the distribution of scores on the direct continuum by participant (in contrast with the analyses for Aim 1, which focused on the distribution by crime). Second, we calculated individual standard deviations from mean scores on the direct continuum for each participant to describe their degree of consistency within individuals. Third, we calculated an intraclass correlation coefficient (ICC) and also statistically tested for the overall "clustering" of direct crimes within participants. It is possible that direct crimes cluster within a small subset of individuals whose criminal behavior is consistently preceded by symptoms of mental illness over time. It is also possible that these direct
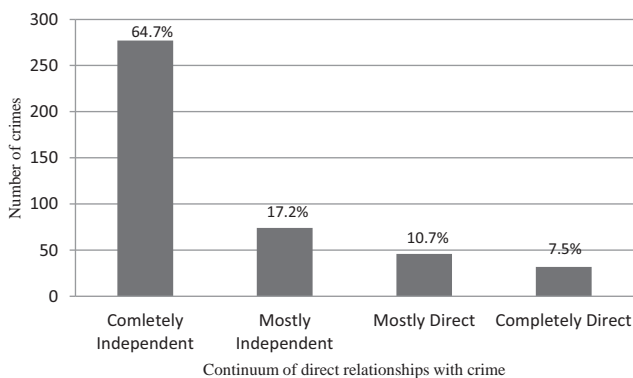

Figure 3. Distribution of crimes along the direct continuum from independent to direct.

crimes are scattered across individuals with both direct and independent incidents.

Proportion of Direct Crimes by Individual

The 18% of crimes coded as mostly or completely related directly to symptoms were scattered among 38% of offenders. Of the 38% of offenders with at least one direct crimes, most (66.7%) also committed at least one crime that was coded "mostly or completely" independent. This suggests that the relationship between symptoms and criminal behavior varies over time within an offender.

We also examined the percentage of each participant's crimes that were coded as completely direct. If the relationship between symptoms and criminal behavior was consistent within offenders over time, the distribution would be largely bimodal—that is, either a small or large proportion of an offender's crime would relate directly to symptoms. Instead, as shown in Figure 4, 81% of participants had no direct crimes, 5% had solely direct crimes, and 14% (the majority of participants with at least one direct crime) fell somewhere in between. Again, this suggests that the relationship between symptoms and criminal behavior is largely inconsistent over time within an offender.

Describing Variation in Direct Continuum Scores Within Offenders

To explore the degree to which the relationship between symptoms and criminal behavior were consistent across crimes within offenders, we calculated each individual's average score on the direct continuum and his or her standard deviation around that score. An individual standard deviation or ISD represents the degree to which a particular offender's direct continuum scores vary around their individual mean score. These ISDs provide a readily interpretable index of how much the relationship between symptoms and crimes vary within a participant. ISDs could only be calculated for the 79% of participants who committed more than one crime.

Across participants, the average mean score on the direct continuum was 1.66 ($SD = 0.78$), which can be interpreted as between "mostly" and "completely" independent. The average ISD was
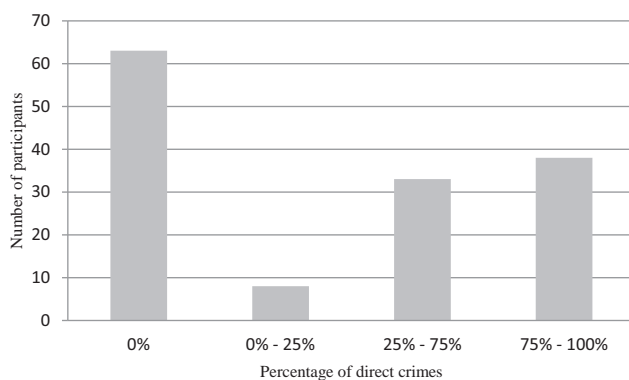

Figure 4. The percentage of total crimes coded completely direct per person indicates offenders varied in the types of crimes they committed over time.

0.47 ($SD = 0.54$). Although ISDs are expected to be smaller among participants with more crimes (given basic mathematical principles), there was virtually no association between ISDs and the number of crimes committed ($r = .06$; Cohen, 1988), suggesting that the number of crimes did not artificially reduce the size of the average ISD.

To determine whether individual standard deviations varied by diagnostic group (i.e., that the relationship between symptoms and criminal behavior was more consistent for offenders with particular diagnoses), we tested differences in ISDs among patients with schizophrenia spectrum disorders, $M = 0.52$, $SD = 0.63$, 95% CI [0.31, 0.73]; bipolar disorder, $M = 0.60$, $SD = 0.50$, 95% CI [0.44, 0.75]; and depression, $M = 0.24$, $SD = 0.36$, 95% CI [0.08, 0.40]. There was a significant main effect for diagnostic group, $F(2, 105) = 3.36$, $p < .05$, $\eta^2 = 0.06$. Tukey's HSD post hoc tests indicated that ISDs were smaller among patients with depression than patients with bipolar disorder ($p < .05$, $r = .34$, 95% CI [0.03, 0.68]), with no other significant differences among the three groups.

Testing for Clustering of Direct Continuum Scores Within Offenders

We completed further analyses in STATA 10.1 to test the degree to which direct continuum scores were nested, or clustered, by offender. Unlike measures of individual variation (e.g., ISDs), cluster analysis provides an overall, global sense of how well items (direct continuum scores for crimes) within the same group (each participant) resemble each other. We explored direct continuum scores using two models, one which included the effects of clustering by participant and one which did not. The effect of clustering can be tested using the chi-square statistic, which reports whether there is a significant improvement in the model's fit when clustering by participant is taken into account. As above, these analyses focused on the 79% of participants who committed more than one crime (as clustering cannot add any additional explanation to the model for those with only one crime). The results indicate that adding clustering within offenders did not significantly improve the model fit, relative to the model that included no clustering ($X^2 = 0.00$, *ns*).

To describe the degree of clustering (or lack thereof) of scores on the direct continuum by participant, we also calculated an Intraclass Correlation Coefficient for the model (ICC). The results indicate that scores on the direct continuum are not significantly explained by offender cluster (ICC = 0.00). This very low ICC (Parkerson, Broadheard, & Tse, 1993) indicates that approximately 0% of the variance in scores along the direct continuum is attributed to the offender.

Direct continuum scores for crimes committed by an individual offender over time are not correlated, and instead vary. Because the distribution of crimes along the continuum was positively skewed, we performed this analysis with and without a log transformation on the data and the results did not change.

Conclusion

Together, these results indicate that little or no variance in direct continuum scores can be attributed to offenders—that crimes are inconsistently related to symptoms within a given offender, over

time. The majority of offenders who committed a "mostly or completely" direct crime committed at least one crime independent of symptoms as well.

Discussion

This study is among the first to explore the degree of relationship between symptoms of mental illness and criminal behavior throughout an offender's life. There are two main findings. First, contrary to our hypothesis, the degree to which mental health symptoms influence criminal behavior varies across crimes within individual offenders. An offender who commits a crime that is directly preceded by symptoms often commits other crimes that are unrelated to symptoms. Second, 4% and 13% of the total number of crimes were mostly or completely directly motivated by psychotic symptoms and other symptoms, respectively. Although the proportion is consistent with our hypothesis for psychosis, it is higher than expected for other symptoms. The majority of mostly or completely direct crimes (62%) were linked to symptoms of bipolar disorder, including externalizing features.

Limitations

Before discussing the theoretical and practical implications of these findings, it is important to note the limitations of this study. First, the study sample was relatively small (N = 143), and excluded offenders with a violent index offense (like the mental health court pool from which it was drawn). Therefore the results may not generalize to "violent offenders." This concern is only partly mitigated by the fact that nearly one fifth (17%) of the crimes analyzed in this study were violent or potentially violent because participants reported crimes other than their index offense. It is possible that the rate of direct crimes would differ in a sample with more violent offenses. Second, this study did not examine whether and how substance abuse interacts with mental illness to directly influence criminal behavior. This issue should be examined in future research.

Third, the records available for review were limited—the only consistently available information they contained was on diagnoses and criminal history. As a result, scores on the direct continuum were chiefly rated using self-report data. A common concern about relying upon offenders' self-reported data is that offenders may underreport their criminal behavior. Available evidence in this study helps mitigate this concern: 45% of participants accurately reported the number of times they had been convicted, and only 25% underreported their crimes. The median number of convictions by participant report and the median number of convictions by record report were the same (4.0). However, we cannot determine how accurately participants recalled their past crimes and the circumstances that preceded them. Memory is a malleable, constructive process (Loftus, 2003), and participants can only report their interpretation of the events. For crimes that occurred at the beginning of offenders' careers (i.e., an average of 15 years ago), it may be especially difficult to accurately recall the sequence of events. Therefore, it would be helpful in future studies to obtain detailed police records for each crime and include interviews of collateral informants (e.g., victims, codefendants, family members, friends).

Finding #1: The Relationship Between Symptoms and Criminal Behavior Varies Within Offenders

Despite these limitations, this study is one of the first to systematically explore how consistently crimes are influenced by an offender's symptoms over time. Prior studies either have assumed that a "direct" group of offenders can be identified based on lifetime offending patterns (Peterson et al., 2010) or have examined only index offenses (Junginger et al., 2006). These studies seemed to suggest that, for a *small* group of "direct" offenders, effective psychiatric treatment would prevent criminal behavior. The task, then, was to identify characteristics that differentiated these "direct" offenders from the larger group, whose symptoms did not lead directly to criminal activity (Skeem et al., 2011).

The results of this study provide no support for the notion that any direct subgroup exists. We found that only 18% of reported crimes were mostly or completely related directly to symptoms— and these crimes were scattered among 38% of the offender sample. Of offenders who committed a direct crime, two thirds also committed one or more crimes that were independent of their symptoms. More importantly, direct tests of potential clustering of scores on the direct continuum revealed that *none* of the variance in scores was explained by the offender who committed the crime. Although this finding needs to be replicated, it may be that offenders cannot be classified as exclusively and consistently "direct"—that is, that there is no subgroup of offenders with mental illness who only engage in criminal behavior when their symptoms directly cause such behavior. The previous research that has identified 5%–12% of "direct offenders" (Junginger et al., 2006; Monahan et al., 2001; Peterson et al., 2001) may in fact have identified a group of people that commit "direct crimes" *some of the time.*

Finding #2: Relatively Few Crimes Are Directly Motivated by Symptoms, but the Proportion Increases as the Definition of "Symptoms" Is Broadened

Even with the broad definition of symptoms used in this study, only about one fifth of crimes had a mostly or completely direct relationship to symptoms. The proportion of directly motivated crimes increased as the definition of symptoms was broadened to include externalizing features that are not specific to Axis I illness. Specifically, 3%, 4% and 10% of crimes were related directly to symptoms of depression, schizophrenia, and bipolar disorder, respectively. Bipolar disorder—which accounted for 62% of crimes rated as directly based on symptoms—includes impulsivity, anger/ irritability, and other externalizing features that can also be found among offenders without an Axis I disorder.

The results of our study are most directly comparable with those of Junginger et al. (2006). These authors found that 4% of detainees' index arrests were "probably to definitely" caused by psychosis (consistent with our finding of 4%), but only 4% were "probably to definitely" caused by symptoms other than psychosis (lower than our finding of 13%). The latter difference may reflect the fact that we used less stringent criteria to distinguish symptoms from normative personality traits than Junginger et al. (2006).

Although population-based longitudinal studies suggest that bipolar disorder increases one's risk for violence and other criminal behavior (Fazel, Lichtenstein, Grann, Goodwin, & Langstrom,

2010; Graz, Etschel, Schoech, & Soyka, 2009; Modestin, Hug, & Amman, 1997), little is understood about the specific features of bipolar disorder that explain this effect. We could only find study that explored this issue. Specifically, based on interviews with 112 patients with bipolar disorder, Swann et al. (2011) found two factors that differentiated the 29 patients with a criminal history from those without a criminal history: impulsivity and impaired response inhibition. Both impulsivity and impaired response inhibition have been found to relate to criminal behavior for people *without* mental illness as well (Krueger et al., 2007; Peterson et al., 2010).

Although we attempted to assess whether impulsivity experienced specifically during manic episodes influenced crimes in this study, it was difficult to determine this retrospectively.

It is possible that our findings for bipolar disorder partially reflect reporting bias. Anecdotally, participants seemed uncommonly prepared to describe impulsive, substance abusing, criminal behavior as "manic" even when it was unclear that symptoms associated with a manic episode were implicated (i.e., an offender drove while intoxicated because he was "manic"). Participants may have developed language through prior assessments and treatment to describe their criminal activity in terms of a manic episode, even when such activity could better be described by normative personality traits (e.g., impulsivity; stimulation seeking).

Implications

Our findings question the accuracy of past distinctions between offenders with mental illness whose criminal behavior is or is not directly caused by symptoms (i.e., Hodgins, 2000; Peterson et al., 2010; Skeem et al., 2011; Swanson et al., 2008). These findings also underscore the fact that symptoms other than psychosis can lead directly to criminal behavior. As noted earlier, however, distinguishing between symptoms that are specific to major mental disorder and features that may be found among offenders *without* mental illness can be difficult. Further investigation of specific symptoms of Axis I disorders in causing crime is needed.

Our findings also question the current policy focus on controlling symptoms as a means toward recidivism reduction (which is a remnant of the criminalization hypotheses; see Teplin, 1984; Torrey, 2011). As shown in prior literature reviews, system solutions like diversion programs that focus predominantly on symptom control tend to have little effect on recidivism (Martin, Dorken, Wamboldt, & Wooten, 2012; Morgan et al., 2012; Skeem et al., 2011). The findings in this study indicate that effective mental health treatment may prevent a minority of *crimes* from occurring (about 18%, according to our findings), but would likely not improve criminal justice outcomes for the vast majority of *offenders* with mental illness. In keeping with past research (reviewed by Skeem et al., 2011), our results suggest that psychiatric symptoms are not robust, independent risk factors for criminal recidivism.

Instead, most offenders with mental illness—whether they occasionally commit a crime that is directly motivated by symptoms or not—may benefit from interventions that reduce recidivism for offenders without mental illness. For example, cognitive–behavioral treatment focused on criminal cognition (e.g., Ross, Fabiano, & Ewles, 1988) or services that target variable risk factors for high-risk offenders (e.g., Andrews & Bonta, 2010) have

been shown to reduce criminal recidivism for general offenders (Lipsey & Cullen, 2007; McGuire, 2008; McGuire et al., 2008). Developing a better understanding of causal factors for recidivism among offenders with mental illness can inform better correctional interventions, both in institutions and probation and parole.

References

American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders,* 4th ed., text revision (DSM–IV–TR). Arlington, VA: American Psychiatric Association.

Andrews, D., & Bonta, J. (2010). Rehabilitating criminal justice policy and practice. *Psychology, Public Policy, and Law, 16,* 39–55. doi:10.1037/a0018362

Axinn, W. G., Pearce, L. D., & Ghimire, D. (1999). Innovations in life history calendar applications. *Social Science Research, 28,* 243–264. doi:10.1006/ssre.1998.0641

Barratt, E. S. (1993). Impulsivity: Integrating cognitive, behavioral, biological, and environmental data. In W. G. McCown, J. L. Johnson, & M. B. Shure (Eds.), *The impulsive client: Theory, research and treatment* (pp. 39–56). Washington, DC: American Psychological Association.

Belli, R. F. (1998). The structure of autobiographical memory and the event history calendar: Potential improvements in the quality of retrospective reports in surveys. *Memory, 6,* 383–406. doi:10.1080/741942610

Boothroyd, R. A., Mercado, C. C., Poythress, N. G., Christy, A., & Petrila, J. (2005). Clinical outcomes of defendants in mental health court. *Psychiatric Services, 56,* 829–834. doi:10.1176/appi.ps.56.7.829

Bureau of Justice Statistics. (2009). *Improving responses to people with mental illness: The essentials of a mental health court*. Retrieved from http://www.ojp.usdoj.gov/BJA/grant/mentalhealth

Callahan, L. A., & Silver, E. (1998). Revocation of conditional release: A comparison of individual and program characteristics across four U.S. states. *International Journal of Law and Psychiatry, 21,* 177–186. doi:10.1016/S0160-2527(98)00011-9

Callahan, L. A., Steadman, H. J., McGreevy, M. A., & Robbins, P. C. (1991). The volume and characteristics of insanity defense pleas: An eight-state study. *Bulletin of the American Academy of Psychiatry and Law, 19,* 331–338. Retrieved from http://www.jaapl.org

Caspi, A., Moffitt, T. E., Thornton, A., Freedman, D., Amell, J. W., Harrington, H., Smeijers, J., & Silva, P. A. (1996). The life history calendar: A research and clinical assessment method for collecting retrospective event-history data. *International Journal of Methods in Psychiatric Research, 6,* 101–114. doi:10.1002/(SICI)1234-988X(199607)6:2<101::AID-MPR156>3.3.CO;2-E

Charles, B. H. (2002). *Pennsylvania's definition of insanity and mental illness: A distinction with a difference*. 12 Temp. Pol. & Civ. Rts. L. Rev. 265.

Cheung, P., Schweitzer, I., Crowley, K., & Tuckwell, V. (1997). Violence in schizophrenia: Role of hallucinations and delusions. *Schizophrenia Research, 26,* 181–190. doi:10.1016/S0920-9964(97)00049-2

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112,* 155–159. doi:10.1037/0033-2909.112.1.155

Dickman, S. J. (1993). Impulsivity and information processing. In W. G. McCown, J. L. Johnson, & M. B. Shure (Eds.), *The impulsive client: Theory, research and treatment* (pp. 151–184). Washington, DC: American Psychological Association.

Douglas, K. S., Guy, L. S., & Hart, S. D. (2009). Psychosis as a risk factor for violence to others: A meta-analysis. *Psychological Bulletin, 135,* 679–706. doi:10.1037/a0016311

Fazel, S., & Danesh, J. (2002). Serious mental illness in 23,000 prisoners: A systematic review of 62 surveys. *The Lancet, 359,* 545–550. doi:10.1016/S0140-6736(02)07740-1

Fazel, S., Lichtenstein, P., Grann, M., Goodwin, G. M., & Langstrom, N. (2010). Bipolar disorder and violent crime: New evidence from population-based longitudinal studies and systemic review. *Archives of General Psychiatry, 67,* 931–938. doi:10.1001/archgenpsychiatry.2010.97

Freedman, D., Thorton, A., Camburn, D., Alwin, D., & Young-DeMarco, L. (1988). The life history calendar: A technique for collecting retrospective data. In C. C. Clogg (Ed.), *Sociological methodology* (pp. 37–68). Ann Arbor, MI: Institute for Social Research, University of Michigan. doi:10.2307/271044

Gardner, W., Lidz, C., Mulvey, E., & Shaw, E. (1996). A comparison of actuarial methods for identifying repetitively violent patients with mental illness. *Law and Human Behavior, 20,* 35–48. doi:10.1007/BF01499131

Graz, C., Etschel, E., Schoech, H., & Soyka, M. (2009). Criminal behavior and violent crimes in former inpatients with affective disorder. *Journal of Affective Disorders, 117,* 98–103. doi:10.1016/j.jad.2008.12.007

Hiday, V. A. (1999). Mental illness and the criminal justice system. In A. V. Horwitz & T. L. Scheid (Eds.), *A handbook for the study of mental health* (pp. 478–498). New York, NY: Cambridge University Press.

Hodgins, S. (2000). The etiology and development of offending among persons with major mental disorders. In S. Hodgins (Ed.), *Violence among the mentally ill* (pp. 89–116). Dordrecht, the Netherlands: Kluwer. doi:10.1007/978-94-011-4130-7_7

Human Rights Watch. (2003). *Ill-equipped: U.S. prisons and offenders with mental illness*. New York, NY: Human Rights Watch.

Jiménez, E., Arias, B., Castellví, P., Goikolea, J. M., Rosa, A. R., Fañanásm, L., . . . Benabarre, A. (2012). Impulsivity and functional impairment in bipolar disorder. *Journal of Affective Disorders, 136,* 491–497. doi:10.1016/j.jad.2011.10.044

Junginger, J., Claypoole, K., Laygo, R., & Cristiani, A. (2006). Effects of serious mental illness and substance use on criminal offense. *Psychiatric Services, 57,* 879–882. doi:10.1176/appi.ps.57.6.879

Krueger, R. F., Markon, K. E., Patrick, C. J., Benning, S. D., & Kramer, M. D. (2007). Linking antisocial behavior, substance use, and personality: An integrative quantitative model of the adult externalizing spectrum. *Journal of Abnormal Psychology, 116,* 645–666. doi:10.1037/0021-843X.116.4.645

Lipsey, M. W., & Cullen, F. T. (2007). The effectiveness of correctional rehabilitation: A review of systematic reviews. *Annual Review of Law and Social Science, 3,* 297–320. doi:10.1146/annurev.lawsocsci.3.081806.112833

Loftus, E. F. (2003). Our changeable memories: Legal and practical implications. *Nature Reviews: Neuroscience, 4,* 231–234. doi:10.1038/nrn1054

Martin, M. S., Dorken, S. K., Wamboldt, A. D., & Wooten, S. E. (2012). Stopping the revolving door: A meta-analysis of the effectiveness of interventions for criminally involved individuals with major mental disorder. *Law and Human Behavior, 36,* 1–12. doi:10.1037/h0093963

McGuire, J. (2008). A review of effective interventions for reducing aggression and violence. *Philosophical Transactions of the Royal Society B: Biological Sciences, 363,* 2577–2597. doi:10.1098/rstb.2008.0035

McGuire, J., Bilby, C., Hatcher, R., Hollin, C., Hounsome, J., & Palmer, E. (2008). Evaluation of structured cognitive-behavioural treatment programmes in reducing criminal recidivism. *Journal of Experimental Criminology, 4,* 21–40. doi:10.1007/s11292-007-9047-8

McNiel, D. E., Eisner, J. P., & Binder, R. L. (2000). The relationship between command hallucinations and violence. *Psychiatric Services, 51,* 1288–1292. doi:10.1176/appi.ps.51.10.1288

Modestin, J., Hug, A., & Ammann, R. (1997). Criminal behavior in males with affective disorders. *Journal of Affective Disorders, 42,* 29–38. doi:10.1016/S0165-0327(96)00093-6

Monahan, J., Steadman, H. J., Silver, S., Appelbaum, P. S., Robbins, P. C., Mulvey, E. P., . . . Banks, S. (2001). *Rethinking risk assessment: The MacArthur study of mental illness and violence*. New York, NY: Oxford University Press.

Monson, C. M., Gunnin, D. D., Fogel, M. H., & Kyle, L. L. (2001). Stopping (or slowing) the revolving door: Factors related to NGRI acquittees' maintenance of a conditional release. *Law and Human Behavior, 25,* 257–267. doi:10.1023/A:1010745927735

Morgan, R. D., Flora, D. B., Kroner, D. G., Mills, J. F., Varghese, F., & Steffan, J. S. (2012). Treating offenders with mental illness: A research synthesis. *Law and Human Behavior, 36,* 37–50. doi:10.1037/h0093964

Novaco, R. W. (1994). Anger as a risk factor for violence among the mentally disordered. In J. Monahan & H. J. Steadman (Eds.), *Violence and mental disorder: Developments in risk assessment* (pp. 21–59). Chicago, IL: University of Chicago Press.

Novaco, R. W. (2011a). Anger dysregulation: Driver of violent offending. *Journal of Forensic Psychiatry & Psychology, 22,* 650–668. doi:10.1080/14789949.2011.617536

Novaco, R. W. (2011b). Perspectives on anger treatment: Discussion and commentary. *Cognitive and Behavioral Practice, 18,* 251–255. doi:10.1016/j.cbpra.2010.11.002

Overall, J. E., & Gorham, D. R. (1962). The brief psychiatric rating scale. *Psychological Reports, 10,* 799–812. Retrieved from http://www.amsciepub.com doi:10.2466/pr0.1962.10.3.799

Parkerson, G. R., Broadhead, E., & Tse, C.-K. (1993). The Duke Severity of Illness Checklist (DUSOI) for measurement of severity and comorbidity. *Journal of Clinical Epidemiology, 46,* 379–393. doi:10.1016/0895-4356(93)90153-R

Patton, J. H., Stanford, M. S., & Barratt, E. S. (1995). Factor structure of the Barratt Impulsiveness Scale. *Journal of Clinical Psychology, 51,* 768–774. doi:10.1002/1097-4679(199511)51:6<768::AID-JCLP2270510607>3.0.CO;2-1

Peterson, J., Skeem, J. L., Hart, E., Vidal, S., & Keith, F. (2010). Comparing the offense patterns of offenders with and without mental disorder: Exploring the criminalization hypothesis. *Psychiatric Services, 61,* 1217–1222. doi:10.1176/appi.ps.61.12.1217

Ross, R., Fabiano, E., & Ewles, C. (1988). Reasoning and rehabilitation. *International Journal of Offender Therapy and Comparative Criminology, 32,* 29–35. doi:10.1177/0306624X8803200104

Shrout, P. E., & Fleiss, J. L. (1979). Interclass correlations: Uses in assessing rater reliability. *Psychological Bulletin, 86,* 420–428. doi:10.1037/0033-2909.86.2.420

Skeem, J. L., Manchak, S., & Peterson, J. K. (2011). Correctional policy for offenders with mental illness: Creating a new paradigm for recidivism. *Law and Human Behavior, 35,* 110–126. Retrieved from http://onlinelibrary.wiley.com/journal doi:10.1007/s10979-010-9223-7

Skeem, J. L., Schubert, C., Odgers, C., Mulvey, E. P., Gardner, W., & Lidz, C. (2006). Psychiatric symptoms and community violence among high-risk patients: A test of the relationship at the weekly level. *Journal of Consulting and Clinical Psychology, 74,* 967–979. doi:10.1037/0022-006X.74.5.967

Spielberger, C. D., Reheiser, E. C., & Sydeman, S. J. (1995). Measuring the experience, expression, and control of anger. *Issues in Comprehensive Pediatric Nursing, 18,* 207–232. doi:10.3109/01460869509087271

Steadman, H. J., Osher, F. C., Robbins, P. C., Case, B., & Samuels, S. (2009). Prevalence of serious mental illness among jail inmates. *Psychiatric Services, 60,* 761–765. doi:10.1176/appi.ps.60.6.761

Strakowski, S. M., Fleck, D. E., DelBello, M. P., Adler, C. M., Shear, P. K., McElroy, S. L., . . . Arndt, S. (2009). Characterizing impulsivity in mania. *Bipolar Disorders, 11,* 41–51. doi:10.1111/j.1399-5618.2008.00658.x

Swann, A. C., Lijffijt, M., Lane, S. D., Kjome, K. L., Steinberg, J. L., & Moeller, F. G. (2011). Criminal conviction, impulsivity, and the course of illness in bipolar disorder. *Bipolar Disorders, 13,* 173–181. doi: 10.1111/j.1399-5618.2011.00900.x

Swann, A. C., Steinberg, J. L., Lijffijt, M., & Moeller, F. G. (2008). Impulsivity: Differential relationship to depression and mania in bipolar disorder. *Journal of Affective Disorders, 106,* 241–248. doi:10.1016/j .jad.2007.07.011

Swanson, J. W., Van Dorn, R. A., Swartz, M. S., Smith, A., Elbogen, E., & Monahan, J. (2008). Alternative pathways to violence in persons with schizophrenia: The role of childhood antisocial behavior problems. *Law & Human Behavior, 32,* 228–240. doi:10.1007/s10979-007-9095-7

Teplin, L. A. (1984). Criminalizing mental illness: The comparative arrest rate of the mentally ill. *American Psychologist, 39,* 794–803. doi: 10.1037/0003-066X.39.7.794

Teplin, L. A. (1990). The prevalence of severe mental illness among urban male jail detainees: Comparison with the epidemiologic catchment area program. *American Journal of Public Health, 80,* 663–669. doi:10.2105/ AJPH.80.6.663

Teplin, L. A., Abram, K. M., & McClelland, G. M. (1996). Prevalence of psychiatric illness among incarcerated women: Pretrial jail detainees. *Archives of General Psychiatry, 53,* 050–512. doi:10.1001/archpsyc .1996.01830060047007

Torrey, E. F. (2011). Stigma and violence: Isn't it time to connect the dots? *Schizophrenia Bulletin, 37.* Advanced online publication. doi:10.1093/ schbul/sbr057

White, J. L., Moffitt, T. E., Caspi, A., Bartusch, D. J., Needles, D. J., & Stouthamer-Loeber, M. (1994). Measuring impulsivity and examining its relationship to delinquency. *Journal of Abnormal Psychology, 103,* 192–205. doi:10.1037/0021-843X.103.2.192