Published in final edited form as:

Law Hum Behav. 2012 February ; 36(1): 37–50. doi:10.1037/h0093964.

Treating Offenders with Mental Illness: A Research Synthesis

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Abstract

The purpose of this research synthesis was to examine treatment effects across studies of the service providers to offenders with mental illness. Meta-analytic techniques were applied to 26 empirical studies obtained from a review of 12,154 research documents. Outcomes of interest in this review included measures of both psychiatric and criminal functioning. Although meta-analytic results are based on a small sample of available studies, results suggest interventions with offenders with mental illness effectively reduced symptoms of distress, improving offender's ability to cope with their problems, and resulted in improved behavioral markers including institutional adjustment and behavioral functioning. Furthermore, interventions specifically designed to meet the psychiatric and criminal justice needs of offenders with mental illness have shown to produce significant reductions in psychiatric and criminal recidivism. Finally, this review highlighted admission policies and treatment strategies (e.g., use of homework), which produced the most positive benefits. Results of this research synthesis are directly relevant for service providers in both criminal justice and mental health systems (e.g., psychiatric hospitals) as well as community settings by informing treatment strategies for the first time, which are based on empirical evidence. In addition, the implications of these results to policy makers tasked with the responsibility of designating services for this special needs population are highlighted.

Keywords

Offender; Mental illness; Meta-analysis; Intervention; Treatment

It is commonly accepted that persons with mental illness (PMI) are over-represented in the criminal justice system (see Munetz, Grande, & Chambers, 2001; Teplin, 1984). Of greatest concern to mental health professionals working with offenders with mental illness (OMI), and compounding the problem for correctional administrators, are the findings that PMI

have been incarcerated at disproportionately increasing rates over the last ten years (e.g., Condelli, Bradigan, & Holanchock, 1997; Hodgins, 1995; Steadman, Morris, & Dennis, 1995). In fact, the United States has three times more individuals with severe mental illnesses in prison than in psychiatric hospitals (Abramsky & Fellner, 2003); thus, it appears the majority of PMI are landing in the criminal justice system rather than the mental health system.

It is widely recognized that most estimates of the number of incarcerated offenders suffering from mental illness are under-representative of actual prevalence rates (Rice & Harris, 1997), with recent findings showing approximately one-quarter (25%) of offenders suffering from mental health problems including a history of inpatient hospitalization and psychiatric diagnoses (James & Glaze, 2006). The clinical picture in American jails is even more disconcerting (note that jails incarcerate individuals awaiting trial or convicted of less serious offenses), as local jails have superseded mental health facilities as providers of mental health treatment. As one example, in the mid 1990s, the Los Angeles County Jail system surpassed state and private psychiatric hospitals to become the nation's largest provider of institutionally based mental health services (Torrey, 1995).

With these shifts in placement of PMI, treatment efforts for OMI have been unable to keep pace with the incarceration rates in state and federal jail and prison facilities. In fact, the U.S. correctional systems have been criticized for failing to provide even minimally appropriate mental health services for prison inmates (Human Rights Watch, 2003). Compounding the problem, the criminal justice system was designed as a public safety system so it is not surprising that few resources are targeted toward the specific treatment needs of OMI (Boothby & Clements, 2000). As a result, many OMI experience increased psychiatric symptoms (Morgan, Bauer, et al., 2010), with a majority requiring inpatient treatment for acute psychiatric symptoms during incarceration (Lamb, Weinberger, Marsh, & Gross, 2007).

When services are warranted, there remains a dearth of empirical research guiding effective treatment strategies for OMI. In fact, "treatment outcome research on mentally ill offenders specifically is almost nonexistent" (Rice & Harris, 1997, p. 164), and "are as scarce now as they were 30 years ago...Too few programs are being developed and...tested with the rigor that would yield the proof needed to label them as evidence based" (Snyder, 2007, p. 6). Thus, clinicians treating OMI do so without sufficient efficacy or effectiveness data on which to base their practices. Consequently, clinicians are left searching for the most effective correctional treatment and rehabilitative methods for incarcerated OMI to alleviate suffering (e.g., improved subjective well-being, reduced symptomatology, etc.) during periods of incarceration, and subsequently reduce psychiatric (return to the hospital) and criminal (return to the criminal justice system with new charges or parole revocation) recidivism when released back into society.

Treating Criminalness¹

The correctional treatment literature has primarily focused on interventions targeting criminalness with non-disordered offenders (see Andrews & Bonta, 2006; Gendreau, 1996 for reviews of this literature), and strategies for treating criminalness in general population inmates may also prove beneficial for OMI whose criminal behavior has similar etiology (Rice & Harris, 1997). Specifically, OMI present with similar criminal risk factors as non-

¹We define criminalness here to refer to behavior that breaks laws and social conventions and/or violates the rights and wellbeing of others and may or may not lead to arrestable offenses such as abuse of sick leave, drug possession, person, property, and violent crime (Morgan, Fisher, Duan, Mandracchia, & Murray, 2010).

mentally ill offenders (Bonta, Law, & Hanson, 1998). There is convincing evidence that correctional interventions are superior to sanctioned approaches (e.g., incarceration, electronic monitoring, etc.) alone for reducing recidivism (see Andrews & Bonta, 2006 for a thorough review). Notably, the best evidence-based intervention paradigm for non-mentally disordered offenders is Risk–Need–Responsivity (R–N–R; Andrews, Bonta, & Hoge, 1990). R–N–R is likely the most commonly utilized model of offender assessment and treatment (Ward, Mesler, & Yates, 2007).

To summarize, R–N–R refers to identifying offender risk and matching the level of services to the offenders level of risk for reoffending (greater risk requiring greater and more intensive intervention; Risk Principle), identifying and treating changeable (dynamic) risk factors directly linked to criminal behavior (criminogenic needs; Need Principle), and finally, providing cognitive–behavioral treatments tailored to the specific needs of the offender such as the offender’s learning style, motivation, personality functioning, or cognitive functioning (Responsivity principle). In addition, services should be intensive in nature requiring at least a few months’ participation (Gendreau, 1996) as increased treatment dosage results in reduced recidivism (Bourgon & Armstrong, 2005; Wormith & Olver, 2002). Structured interventions result in more positive outcomes (Leak, 1980; Morgan & Flora, 2002), as does the use of homework (Morgan & Flora, 2002) which helps offenders over-learn information and extend learning to the offenders’ real world (Morgan, Kroner, & Mills, 2006). Despite the environment, service providers who relate to offenders in interpersonally sensitive and constructive manners achieve better outcomes (Andrews & Bonta, 2006; Skeem, Eno Louden, Polaschek, & Camp, 2007). In summary, the most empirically supported interventions for offender populations adhere broadly to principles of R–N–R with a cognitive–behavioral frame-work by individuals with a firm but caring relational style (Skeem, Polaschek, & Manchak, 2009).

In addition to identifying what works, research has also demonstrated what does not work. Less effective treatment strategies include purely psychodynamic and non-directive therapies, approaches designed to better understand the offender (e.g., subcultural approach of respecting the offenders cultural background when the culture is tied to criminality etc.), programs that provide alternatives to incarceration (e.g., boot camps, electronic monitoring, and drug testing), and targeting low risk offenders (Gendreau, 1996). Furthermore, program characteristics that are ineffective for reducing criminal recidivism include increasing self-esteem without simultaneous reduction in criminogenic need areas, focusing on affective domains that have not been linked with criminal conduct, increasing cohesiveness of antisocial peer groups, increasing conventional ambition (e.g., school, work, etc.) without assistance in realizing these ambitions, and merely trying to make the offender a “better person” when the standards for being a “better person” do not link with recidivism (Gendreau, 1996; Lipsey & Cullen, 2007). Furthermore, although we have developed an understanding of what constitutes effective interventions, we know little about the mechanisms of change and how appropriate treatments work to reduce recidivism (Skeem et al., 2009).

In spite of the growing understanding of effective intervention strategies for reducing recidivism with non-mentally disordered offenders, the R–N–R model and subsequent therapeutic strategies have yet to be empirically investigated with OMI. Furthermore, it is impractical to suggest that merely applying correctional strategies that work for non-mentally ill offenders to OMI will result in similar treatment gains. Thus, empirical research identifying effective interventions and treatment strategies for OMI is needed.

Treating Mental Illness

Psychiatric rehabilitation has become the treatment of choice for PMI (Corrigan, Mueser, Bond, Drake, & Solomon, 2007). Psychiatric rehabilitation encourages PMI (referred to as consumers as the individual is responsible for ensuring they receive the services needed to achieve recovery) to develop their fullest capacities through learning and environmental supports (Bachrach, 1992). The goal of psychiatric rehabilitation is to enable individuals to live independently by compensating for, or eliminating, functional deficits (IAPSRs, 1995).

Psychiatric rehabilitation includes a myriad of social and educational services and supportive community interventions to help consumers achieve improved functioning including greater levels of independence. Although there are a variety of services available for PMI (e.g., intensive case management, supportive housing, social rehabilitation, vocational rehabilitation, substance abuse treatment, family support services) that have facilitated positive outcomes (e.g., see Corrigan et al., 2007 for a thorough review of this extensive literature), six areas have evidenced particular effectiveness and are considered evidence-based (Mueser, Torrey, Lunde, Singer, & Drake, 2003):

1. Collaborative psychopharmacology—few would argue that psychotropic medications do not effectively help reduce symptoms of mental illness, and outcomes are improved when consumers are included in the medication decision-making formula (i.e., collaborate for shared decision-making).
2. Assertive community treatment—provision of services to consumers in their natural environment (e.g., community) rather than a clinical setting such as an outpatient clinic or psychiatric hospital.
3. Family psychoeducation—educate family members about mental illness and effects of mental illness, enhance interpersonal relations, and foster a supportive support system.
4. Supported employment—work with PMI to gain competitive employment and provide assistance as needed, regarding skill development and employment maintenance for job security.
5. Illness management and recovery—help consumers assume responsibility for their recovery such that they can manage their illness, seeking assistance as needed to obtain personally meaningful and satisfying life goals.
6. Integrated dual disorders treatment—service providers target issues of mental illness and substance abuse simultaneously in an integrated fashion rather than treating these issues as separate disorders.

Psychiatric rehabilitation has proven effective for PMI, and preliminary findings with OMI are promising (MacKain & Mueser, 2009). Nevertheless, just as principles of treating criminalness have not been applied to OMI, principles and services of psychosocial rehabilitation have not been thoroughly examined with OMI. Considering the prevalence of OMI in correctional settings and these individuals' risk for decompensation (Morgan, Bauer, et al., 2010) victimization (Abramsky & Fellner, 2003; Wolff, Blitz, & Shi, 2007), and longer prison sentences (Ditton, 1999), it is essential that treatment services, to be effective with regard to long-term functioning, originate while the offender is incarcerated (National Research Council, 2008).

The aim of this review was to utilize meta-analytic techniques to examine treatment effects across studies to identify whether interventions available in correctional settings are effective across various mental health and criminal outcomes, as well as identify theoretical models and therapeutic strategies associated with positive outcomes for OMI. Given

findings from treatments with non-mentally disordered offenders and psychosocial rehabilitation services for PMI, it was hypothesized that services would be effective for the domain treated (i.e., correctional rehabilitation oriented services would be effective for reducing criminalness), whereas psychosocial rehabilitation oriented services would be effective at reducing symptoms of mental illness. It was further hypothesized that treatment effects would be unidirectional such that correctional rehabilitation oriented programs would not result in decreased psychopathology, and psychosocial rehabilitation programming would not result in reduced criminalness. It is expected that the results of this review will provide psychologists and other mental health professionals in correctional (offenders are sanctioned and under the supervision of the criminal justice system) and forensic (patients are committed to the custody of the department of mental health and are housed in secure forensic hospitals or other forensic mental health settings) systems by providing an empirical basis on which to frame interventions for treating dual issues of mental illness and criminalness. Notably, these findings will also be of importance to mental health professionals in general practice settings given the prevalence of offenders seeking mental health services in the community (Morgan, Rozycki, & Wilson, 2004), as well as the likelihood that service providers in general practice settings will see offenders in their community agencies and practices (see, for example, Morgan, Beer, Fitzgerald, & Mandracchia, 2007).

Method

Data Sources and Study Selection

Two procedures for retrieving published and unpublished documents evaluating interventions for mentally disordered offenders were used in the present review. First, an electronic search of three prominent data bases (i.e., PsychINFO, MEDLINE, and SocialSciAbs) was conducted. For purposes of this search, we included keywords related to mental illness and offenders in titles and abstracts of documents. Specifically, keywords related to mental illness (i.e., mental illness, mentally ill, treatment, therapy, psychiatric disorder, psychiatric illness, severe and persistent, and chronic illness) were entered with each keyword related to offenders (i.e., *prison, jail, penitentiary, inmate, and offender*). Thus, 40 separate searches were conducted for each of the three electronic data bases.

In addition to the electronic search, we examined table of contents for journals and electronic releases for journals and government reports that commonly publish documents related to treatment efforts with OMI. We also examined the reference list of articles that provided literature reviews of studies related to treatment of OMI. The PsychINFO search resulted in 7,935 documents, MEDLINE produced 2,700 documents, SocialSciAbs resulted in 1,497 documents, review of reference list of articles that provided literature reviews of studies related to treatment of mentally disordered offenders resulted in 20 documents, and review of table of contents for journals and electronic releases for journals and government reports that commonly publish documents related to treatment efforts with mentally ill offenders resulted in two documents. Thus, a total of 12,154 documents related to interventions with mentally disordered offenders were identified.

Four trained research assistants conducted a preliminary review of the titles and abstracts of the 12,154 documents to eliminate documents that obviously did not meet the inclusion criteria for this review. This preliminary review aimed to eliminate duplicates, ensure that documents reported the results of empirical research, and that the samples studied included mentally disordered offenders (for purposes of this study, OMI were defined as an offender involved in a criminal justice setting—correctional facility/prison, community residential correctional setting, forensic hospital—that suffered from a major DSM Axis I disorder including: Delirium, Dementia, and other Amnestic and Other Cognitive Disorders;

Schizophrenia and Other Psychotic Disorders; Mood Disorders; and or Anxiety Disorders). Research assistants were trained to be conservative when deleting articles from further consideration such that they were to be certain documents did not meet the preliminary inclusion criteria before deleting any document from further consideration. In other words, if research assistants had any doubts about the appropriateness of a document, then they maintained it for further consideration.

This initial review resulted in 1,148 documents remaining for further consideration, as 92%, 90%, and 86%, respectively, of documents from PsychINFO, MEDLINE, and SocialSciAbs were deleted from further consideration, and one of the two documents obtained from a review of the table of contents for journals and electronic releases for journals and government reports was deleted. None of the 20 documents obtained from the reference list of relevant literature reviews were deleted at this stage of review. The lead investigator then reviewed the 1,148 remaining documents for inclusion in this meta-analytic review. The inclusion criteria at this stage consisted of (1) the document being published in the English language; (2) the study evaluated an intervention provided in a criminal justice setting (e.g., correctional institution, community corrections residential setting, forensic mental health unit); (3) participants suffered from a major Diagnostic and Statistical Manual (DSM; American Psychiatric Association, 1952, 1968, 1980, 1994, 2000) Axis I disorder including Delirium, Dementia, Amnestic, and Other Cognitive Disorders; Schizophrenia and Other Psychotic Disorders; Mood Disorders; and/or Anxiety Disorders (it should be noted that the class of anxiety disorders was included in the analysis as anxiety-related mental disorders are often the focus of mental health services in prison, including inpatient psychiatric treatment; see, for example, Edens, Peters, & Hills, 1997); (4) the study design included some form of control procedure or used a repeated measures (e.g., pre-post testing) design, and (5) studies included sufficient data or summary statistics that allowed for the calculation of effect sizes (or this data could be obtained from study authors). Of the 1,148 documents reviewed, 26 met the inclusion criteria outlined above and were included in this research synthesis.

Coding and Methodological Elements of Rating

A 13-page code sheet was developed by the authors of this study.² To develop the code sheet, content areas of interest were identified, and items were then developed to measure these areas of interest. The code sheet was then submitted for review to two external reviewers experienced in the use of meta-analytic strategies for evaluating effective interventions in prison. After the code sheet was revised, the authors met via conference call and reviewed scoring protocol for each item in the code sheet, as well as item scoring criteria. One document was then coded by all the authors, and a conference call was convened to review coder discrepancies. Every item was reviewed, discrepancies resolved, and poor coding items revised in an attempt to improve scorer accuracy and agreement. A second document was coded by every author, and another conference call was convened to resolve scoring discrepancies. No further revisions to the code sheet were warranted, resulting in a 13-page code sheet that examined the following content areas:

1. Study, author, and institutional descriptors.
2. Sample descriptors (e.g., sample size of treatment and control groups, attrition in treatment and control groups, dropout statistics, sample demographics, offender criminal sentence and level of risk, diagnostic information, and institutional behavioral information).

²We thank Drs. Paul Gendreau and Sheila Anne French for their helpful suggestions for improving the code sheet. A copy of the 13-page code sheet may be obtained by contacting the lead author.

3. Therapist descriptors (e.g., number of therapists, therapist-client gender and race consistency, therapist educational achievement, and training).
4. Control group descriptors (i.e., type of control group and type of treatment offered in the control group).
5. Treatment and intervention group descriptors/information (e.g., measure of therapeutic integrity, treatment dosage and interval, method of service delivery, use of structure and homework, type and goal of intervention, theoretical model of intervention, comprehensiveness of intervention, appropriateness of correctional intervention, type of outcomes measured, when intervention was offered, follow-up treatment available, and significance of therapeutic relationship).
6. Research design descriptors (measure of scientific integrity utilized in study, research design, type of follow-up, type of failure, and time to failure).
7. Effect size descriptors (significance tests, pre-post test means and standard deviations of treatment and control groups, and pre-, post-test proportions of successful and unsuccessful outcomes for treatment and control groups).

To complete the coding process, each document was coded by three of the authors. Documents were randomly assigned to authors; however, the number of documents coded was representative of author order (i.e., lead author coded the most documents, second author coded the second most documents, etc.). The lead author then reviewed the three code sheets for each document and identified scoring discrepancies. A 2/3 majority agreement criteria was utilized to resolve discrepancies, such that agreement of two of the three coders was required for items to be considered accurately scored. Items that did not result in a 2/3 majority agreement were resolved by the three coders reviewing the item and coding via conference call.

To evaluate studies on the merits of the presence and composition of a comparison group relative to the treatment group, we utilized a portion of the Maryland Scale of Scientific Rigor (MSSR). The MSSR was developed as a metric to evaluate the scientific rigor of empirical investigations to assist in the evaluation of causation among variables (Sherman et al., 1997).

Calculation of Effect Sizes and Analysis Method

Most studies ($k = 23$) used some type of pre-post design, some of which utilized a control group and some of which did not. For studies that did not utilize a control group, effect size (ES) was calculated as the standardized mean gain score (Becker, 1988; see Lipsey & Wilson, 2001), which is interpretable as a standardized mean difference similar to Cohen's d , where values around 0.2 are considered "small," 0.5 are "medium," and 0.8 or above are "large" (Cohen, 1988, pp. 25–26). All ES s were coded so that a positive value indicated improvement due to treatment. For pre-post studies that included a control group, ES s were calculated using the mean gain score from the treatment group only, so that these ES s could be directly comparable to those from studies without a control group. Given the relatively small number of studies meeting inclusion criteria, calculating ES s based on treatment-group gain scores (i.e., allowing the pre-treatment scores to serve as control group scores) allowed the maximum number of studies to be included in the actual meta-analyses. If a given study had multiple ES s for a general outcome (e.g., an ES for depression and an ES for obsessive compulsive disorder under the general outcome "mental health"), then these ES s were averaged to create an overall ES for that study. However, if there was a separate ES for a subset of participants, then only the ES for the complete group of participants was used (e.g., Lovell, Allen, Johnson, & Jemelka, 2001 psychotic sample; Nelson et al., 2001).

Given that the collection of studies coded for this article assessed a diverse range of treatment outcomes, we determined it would be inappropriate to combine all the studies in a single analysis (to do so would be combining “apples and oranges”). Instead, the primary statistical procedures consisted of a series of univariate meta-analyses, with a separate meta-analysis reported for each outcome of interest. We grouped the outcomes into eight general categories: mental health symptoms, coping, institutional adjustment, behavioral functioning, criminal recidivism, psychiatric recidivism, treatment-related factors (e.g., therapeutic alliance), and financial benefit. Note that some studies contributed *ESs* for more than one of these general outcome categories. We then conducted a separate meta-analysis for each general outcome.³ Unfortunately, the small number of *ESs* observed for each individual outcome precluded any formal assessment of moderator effects in that the observed variation in potential moderator variables was severely limited (see Field & Gillett, 2010, pp. 682–683; in addition, potential moderators introduced missing data and produced unequal cell sizes, further limiting their inferential validity).

For each outcome, we calculated a weighted mean *ES*, where each weight is the inverse of the estimated variance of the *ES* (see Lipsey & Wilson, 2001, pp. 113–114). Each *ES* variance was calculated as the sum of the variance due to sampling error and a random-effects variance component. Random-effects procedures allow inferences about the distribution of effect-size parameters in a population of studies from a random sample of studies; that is, the random-effects approach accounts for the variability that results across studies, including hypothetical studies that have not been sampled. Thus, the sources of sampling error in a random-effects analysis include both the variation from the sampling of people into studies and also the variation resulting from other particular study characteristics, such as differing methodologies (Hedges & Vevea, 1998; Raudenbush, 1994). Because of the widely varying methodologies employed by the studies reviewed in this article, a random-effects analysis is clearly appropriate. In addition, we calculated a 95% confidence interval estimate of the mean effect for each outcome (see Lipsey & Wilson, 2001, pp. 113–114). These analyses were conducted using a computer macro by Wilson (2005), which utilizes the method-of-moments approach to estimating the random-effects variance component (Raudenbush, 1994). To examine the potential impact of publication bias, we applied Orwin’s (1983) fail-safe *N* approach, which determines the number of unpublished studies with *ES* = 0 (i.e., studies in the “file drawer”) that would need to be added to a meta-analysis to substantially reduce the mean *ES* (see Lipsey & Wilson, 2001, p. 166).

Results

Summary of Reviewed Studies

See Table 1 for the final *ESs* for each study included in this research synthesis. Table 2 provides frequency data for offender characteristics coded from the documents included in this review, as well as information regarding the investigators and the facilities wherein the interventions were housed. Included in this summary section is information of particular interest or information that is not included in Table 2.

Summary of Reviewed Documents, Authors, and Institutions

Of the 26 documents included in this research synthesis, 24 were published in peer-reviewed journals, one was a published dissertation, and one was an unpublished dissertation. The documents were produced between 1973 and 2004. Regarding the facilities included in this

³We did not conduct analyses for psychiatric recidivism, treatment-related factors, or financial benefit, because of the small number of studies providing results for these outcomes. However, the *ES* information for these outcomes is available in Table 1.

review, 64% were sanction-oriented facilities (i.e., not treatment facilities), whereas 28% of facilities were described as treatment facilities (8% were described as other facility type).

Offender Descriptors

Participants from all the 26 studies consisted of 1,649 offenders, with 1,369 participants in treatment groups and 280 participants in control groups. Attrition in the treatment and control groups consisted of 145 and 20 participants, approximately 11% and 7%, respectively, for a final sample of 1,224 offenders that completed treatment and 260 offenders that participated in control groups. Primary reasons for dropouts included geographic relocation or institutional transfers, medical complications, completed prison sentence, dissatisfaction with treatment, and patient not suitable for program. It is worth noting that of the studies that reported dropouts, only one failed to report the primary reason for dropouts. Secondary reasons for dropouts included medical complications, including adverse side-effects, and termination for unspecified reasons.

The average age of participants in treatment groups was 32.3 years ($SD = 7.5$). Only four studies reported the average sentence length of incarcerated offenders, with a mean of 13.3 years ($SD = 9.9$). As a result of the offenses listed in Table 2, offenders were sentenced, on average, to serve 13.3 years in prison ($k = 4$ reported this information). Only one study reported offender risk level, and this study indicated treatment recipients were at high risk for re-offending. Few studies reported offender misconduct history for participants ($k = 3$); however, eight studies indicated prior institutionalization history for treatment recipients, including prior incarceration and inpatient psychiatric hospitalizations. In addition, six studies indicated treatment recipients presented with a history of disciplinary infractions during periods of incarceration.

Participants in the reviewed studies were generally severely mentally ill, as 42% ($k = 11$) of the studies included participants with diagnosis of schizophrenia, 15.4% ($k = 4$) with a mood disorder (i.e., Bipolar Disorder or Major Depressive Disorder), and 19.2% ($k = 5$) with multiple Axis I disorders (which typically included a mood and thought disorder). Although symptom severity was provided in only nine studies, all nine of these studies indicated participants' symptoms were moderate or severe.

The majority of participants from the 26 studies were referred for participation ($k = 12$; 46.2%) or voluntarily enrolled in the study ($k = 8$; 30.8%) from a therapeutic ward ($k = 12$; 46.2%), the general institutional population ($k = 7$; 26.9%), community setting ($k = 2$; 7.7%), administrative segregation, community and jail placements, or inpatient and outpatient placements ($k = 1$; 3.8%, respectively).

Therapist Descriptors

The majority of studies provided little demographic information about treatment providers. Only eight studies indicated the number of service providers involved in treatment of participants, and gender was reported in only two studies with both indicating therapists were female. No studies provided information regarding therapist race or ethnicity. Five studies reported that supervision was offered to treatment providers, and one study reported that supervision was not available.

Treatments

Treatments offered in the reviewed investigations ranged from 1.5 weeks to 78 weeks of intended intervention, with offenders completing a mean of 24.9 weeks (Median = 15.0, $SD = 27.2$; $k = 12$). Total number of sessions completed ranged from 3 to 20 ($M = 11.8$, $SD = 7.0$; $k = 12$). Session length ranged from 0.75 to 4 h ($M = 1.6$ h, $SD = 0.9$; $k = 10$). Total

number of treatment hours completed ranged from 3.5 to 30 h ($M = 16.4$, $SD = 8.8$; $k = 7$). These interventions were generally structured ($k = 9$, 56.3%), with seven of these treatments incorporating a formal treatment manual. Of the remaining studies coded for structure ($k = 16$), six incorporated a combination of structured and unstructured strategies. As reported in Table 2, the goals of the reviewed interventions varied; however, only two studies (8.3%) targeted dual issues of mental illness and criminality. Not surprisingly then, 22 studies targeted offenders with an Axis I DSM diagnoses (with 19 studies targeting schizophrenia, bipolar, or major depressive disorders), whereas three studies targeted both Axis I and Axis II DSM diagnoses.

Consistent with the above findings of the theoretical model utilized in treatment programs, of 10 studies coded for use of homework, five studies included active homework activities with a social component (e.g., behavioral practice of skills, homework that required some form of social interaction, etc.), whereas five studies did not include homework exercises. Furthermore, eight (30.8%) of the treatment programs required offenders to experiment with new behaviors (i.e., behavioral practicing), whereas 18 studies (69.2%) did not. As these treatment programs were developed for offenders, it is important to examine the programs for their relevance to offender populations. Andrews, Zinger, et al. (1990) described treatment program criteria that must be considered for an intervention to be deemed an “appropriate” correctional intervention, and 65.2% ($k = 15$) of the studies included in this review met the inclusion criteria to be considered at least somewhat appropriate as they were intensive in nature, included structured programming, incorporated cognitive-behavioral models, or targeted criminogenic needs. Eight studies (34.8%) were not deemed to be appropriate correctional interventions as they were brief, unstructured, did not incorporate cognitive-behavioral strategies, and did not target criminogenic needs.

In spite of research highlighting the significance of the therapeutic relationship, only one of the 26 studies reviewed included any discussion of the importance of the relationship between the service provider and offenders. Follow-up treatment was uncommon as only three (11.5%) studies included a follow-up treatment. Consistent with previous findings (see Perepletchikova, Treat, & Kazdin, 2007), the majority of studies did not include a measure or discussion of treatment integrity. In fact, only three studies (12%) included a measure or any discussion of therapeutic integrity.

Outcome Measures and Research Designs

The majority of interventions targeted mental health issues (see treatment descriptors in Table 2); thus, it is not surprising that many of the studies measured mental health outcomes ($k = 13$; 50%). Importantly, however, several studies ($k = 9$; 34.6%) measured both mental health and criminal outcomes. Outcome measures included behavioral markers (e.g., recidivism, institutional adjustment), standardized assessment measures, subjective ratings or non-standardized instruments, or a combination of behavioral, standardized and non-standardized instruments. When follow-up assessments were completed, they were typically done at the institution level ($k = 12$; 70.6%), rather than in the community ($k = 5$; 29.4%), with a median follow-up time of 12 weeks for the first follow-up (range of 2–260 weeks).

Regarding research designs, as noted above, studies predominantly incorporated pre-post test design without the presence of a control group ($k = 12$; 48%); however, other designs were used, including pre-post test design with a control group ($k = 4$; 15%), time series design ($k = 4$; 15%), and comparison group (control not matched on risk factors; $k = 4$, 15%). The MSSR (Sherman et al., 1997) was utilized to evaluate studies on the merits of the presence and composition of a comparison group relative to the treatment group. Studies were coded as having scientific integrity if (1) separate comparison group present but non-randomly constituted; extensive information provided on pre-treatment equivalence of

groups; obvious group differences on important variables, or (2) separate comparison group present; extensive information provided on pre-treatment equivalence of groups; only minor group differences evident, or (3) random assignment to comparison and treatment groups; differences between groups are not greater than expected by chance; units for random assignment match units for analysis. Studies were coded as not having scientific integrity if (1) there was no control group, or (2) separate comparison group present, but non-randomly constituted and limited (e.g., only demographic variables) or no information on pre-treatment equivalence of groups. According to MSSR ratings, only five studies (19.2%) indicated adequate scientific integrity in research designs.

Meta-Analytic Results

As noted above, this research synthesis did not consist of a single, large meta-analysis because a number of different treatment outcomes assessed in the literature were included in this review. Thus, for purposes of this research synthesis, treatment outcomes were grouped into eight general categories: mental health symptoms, coping, institutional adjustment, behavioral functioning, criminal recidivism, psychiatric recidivism, treatment-related factors (e.g., therapeutic alliance), and financial benefit. These outcomes were then analyzed with separate meta-analyses. Table 1 presents the sample size, *ES*, and *ES* standard error terms from each study, grouped according to outcome. The random-effects weighted mean *ES*s and 95% confidence intervals for each outcome along with fail-safe *N* analyses are discussed later.

General Mental Health Outcomes—There were $k = 15$ studies with mental health outcome *ES*s. The random-effects weighted mean of these *ES*s was 0.87 (95% CI: 0.64, 1.11), indicating a strong positive treatment effect on mental health symptoms. However, one of the *ES*s measuring this outcome, extracted from Kinzie, Hancey, Wilson, and Harter (1996), was an outlier, with $ES = 2.54$, whereas the other 14 remaining *ES*s ranged from 0.26 to 1.74. Yet, because of the small sample size in Kinzie et al., removing this outlying *ES* from the data had very little effect on the mean *ES*, dropping it to 0.86 (95% CI: 0.63, 1.09), still indicating a strong positive treatment effect. Fail-safe *N* analysis indicated that 50 studies with *ES*s = 0 would need to be found to reduce the mean *ES* from 0.87 (large effect) to 0.20 (small effect), suggesting that our results for the mental health outcome are unlikely to be substantially affected by publication bias.

Coping—There were $k = 6$ studies with *ES*s related to increasing knowledge and skills for coping with mental illness and reducing symptomatology (coping). The random-effects weighted mean of these *ES*s was 1.32 (95% CI: 0.56, 2.07), indicating a very strong positive treatment effect on coping. For this outcome, the Schippers, Marker, and Fuentasas-Merillas (2001) study produced an outlying $ES (= 2.54)$, with other *ES*s ranging from 0.43 to 1.78). With this outlier removed, the mean $ES = 1.00$ (95% CI: 0.31, 1.70) still indicated a strong positive treatment effect. Fail-safe *N* analysis indicated that 33 studies with *ES*s = 0 would need to be found to reduce the mean *ES* to 0.20 (small effect). Given that only six studies were analyzed, this result suggests that our findings for coping are unlikely to be substantially affected by publication bias.

Institutional Adjustment—The random-effects weighted mean of the $k = 6$ institutional adjustment *ES*s was 0.57 (95% CI: 0.34, 0.80), indicating a moderate positive treatment effect, while there was a moderate to strong treatment effect in the $k = 4$ behavioral functioning *ES*s, which had a mean = 0.78 (95% CI: 0.23, 1.32). Fail-safe *N* analyses indicated that 11 studies and 12 studies with *ES*s = 0 would need to be added to the institutional adjustment and behavioral functioning analyses, respectively, to reduce their mean *ES*s to 0.20. Given the small number of studies that were actually found for these

outcomes, it seems unlikely that an additional 11 or 12 studies with null effects exist, again suggesting little effect of publication bias.

Criminal and Psychiatric Recidivism—Likely of greatest interest to clinicians, decision makers, and policy makers is the outcome of criminal recidivism. Recidivism, for purposes of this research synthesis, is the return of an offender to the criminal justice system (criminal recidivism) or placement in a psychiatric hospital (psychiatric recidivism). Results of this review produced mean *ES*s that were inconclusive for both recidivisms: psychiatric and criminal. The random-effects weighted mean effect size for the three studies investigating psychiatric recidivism was 0.42 (95% CI: -0.84, 1.69), whereas the random-effects weighted mean of the four *ES*s for criminal recidivism was 0.11 (95% CI: -0.47, 0.69). Although the random-effects weighted mean *ES* is greater than zero for both of these outcomes, because the associated confidence intervals include zero, we cannot conclude that the treatments in these studies lead to improved psychiatric or criminal recidivism. As seen in Table 1 however, it is worth noting that for both of these outcomes, the data were heavily influenced by one large negative outcome study (i.e., Solomon, Draine, & Meyerson, 1994 for criminal recidivism and Beck-Sanders, Griffiths, & Friel, 1998 for psychiatric recidivism). The limited sample did not allow for meaningful analysis (empirical or qualitative) that elucidated distinguishing characteristics of the two interventions that produced negative effect sizes for criminal and psychiatric recidivism. Importantly, however, two of the three outcomes for psychiatric recidivism produced large positive effects (random-effects weighted mean *ES* of 1.13 and 1.17, respectively) and three of the four studies of criminal recidivism produced moderate positive effects (random-effects weighted mean *ES* of 0.25, 0.38, and 0.54, respectively).

Therapeutic Elements Leading to Effectiveness

A structured review was conducted to identify elements of interventions or therapeutic programs that contribute to improved outcomes for OMI. As mentioned previously, the paucity of data (i.e., both the small number of studies and large amounts of unavailable information on study descriptors) limited the appropriateness of utilizing formal identification of patterns in the data using inferential procedures for moderation; nonetheless, a few trends can be noted descriptively. It should be noted, however, that these trends are based on limited data and are considered tentative at this time.

With regard to criminal and psychiatric recidivism, only one study examined the effectiveness of a comprehensive program that targeted dual issues of mental illness and criminalness, and this program produced the strongest positive effective for both outcomes (i.e., *ES* = 0.54 for criminal recidivism and *ES* = 1.17 for psychiatric recidivism). The two studies that produced negative effects for criminal and psychiatric recidivisms, on the other hand, were both limited to issues of mental illness (i.e., did not target issues related to criminalness).

Treatment programs that utilized an open admission policy produced 9 of 19 (47%) *ES*s equal to or greater than 1.00, whereas programs with a closed admission policy produced 4 of 11 (36%) *ES*s equal to or greater than 1.00 (it should be noted that we did not combine these *ES*s meta-analytically [i.e., to estimate the moderated effect of admission outcome on mean *ES*] because they do not all pertain to the same general outcome). Furthermore, the two studies with positive *ES*s for criminal recidivism and the two studies with positive *ES*s for psychiatric recidivism utilized an open admission policy, and the one study with a negative *ES* either utilized a closed admission policy (criminal recidivism) or did not provide information regarding the admission policy (psychiatric recidivism).

The use of homework tended to produce more favorable treatment outcomes for OMI when compared to interventions that did not utilize homework. Specifically, programs or interventions that incorporated active homework exercise (defined as any activity that required the behavioral practice of new skills or that required social interaction) tended to produce stronger positive effects than did programs or interventions that did not include homework exercises. Specifically, programs that incorporated homework produced eight positive *ESs* with 75% ($k = 6$) of these programs producing *ESs* equal to or greater than 1.00. Interventions or programs that did not incorporate homework exercises produced only two *ESs* (out of six; 33%) equal to or greater than 1.00 (it could be noted we did not combine these *ESs* meta-analytically [i.e., to estimate the moderated effect of homework on mean *ES*] because they do not all pertain to the same general outcome). Similarly, interventions that included a behavioral practice component that required OMI to practice new behaviors produced stronger positive outcomes (and no negative outcomes) as 54% (7 of 13 *ESs*; note several of these studies produced multiple effect sizes) of these outcomes were equal to or greater than 1.00 effect size. Programs without a behavioral component, on the other hand, resulted in 38% (10 of 26 *ESs*; note several studies produced multiple effect sizes) of outcomes equal to or greater than an effect size of 1.00 (and included all three negative effect sizes obtained in this study).

Discussion

This review is the first to systematically examine the effectiveness of interventions for OMI. The principal findings from this review were that interventions with offenders effectively reduced OMI symptoms of distress, improved their ability to cope with problems, and resulted in improved behavioral markers including institutional adjustment and behavioral functioning. Although results were statistically inconclusive with regard to effects on criminal or psychiatric recidivism, this review suggests that positive treatment effects, including large treatment effects, can be achieved with OMI. Specifically, the results of this empirical and structured review indicated the literature consistently presented improvement across a range of variables including symptom-focused problems, as well as more general behavioral functioning for OMI in treatment programs as compared to OMI in control groups. Unfortunately, greater specificity (e.g., which type of treatment produces specific desired outcomes, what aspects of treatments are more effective for specific psychiatric disorders) was unattainable in this review.

It was expected that the results of this review would provide clinicians with empirical guidance on which to develop or base their services; however, results of this review reinforced the conclusion that “treatment outcome research on mentally ill offenders specifically is almost nonexistent” (Rice & Harris, 1997, p. 164), and “are as scarce now as they were 30 years ago...Too few programs are being developed and too few promising programs are being tested with the rigor that would yield the proof needed to label them as evidence based” (Snyder, 2007, p. 6). Given the prevalence of OMI in the criminal justice system (approximately 1,000,000 individuals) as previously described, it is surprising that so few studies ($n = 26$) meet the scientific inclusion criteria to effectively examine the effects of services for OMI. The almost complete absence of randomized controlled clinical trials is particularly disappointing as clinicians treating OMI are without sufficient efficacy or effectiveness data on which to base their practices. Unfortunately, the results of this review provided less additional data than expected. Nevertheless, two therapeutic elements, admission policies and use of homework, were identified as contributing to enhanced therapeutic outcomes.

Although it has been speculated that treatment programs utilizing open admission procedures (i.e., allow the admission of new treatment participants throughout the program)

may impede therapeutic progress (Morgan & Winterowd, 2002), results of this review indicated that programs with an open admission policy tended to produce stronger effects than did programs with closed admission policies (i.e., allow participants to enter at the beginning of a treatment program only). This finding is consistent with the recommended format of group psychotherapy with patients with a severe mental illness (i.e., schizophrenia; Kanas, 1988). It is possible that OMI benefit by the addition of new members who present new learning opportunities and experiences as they enter the treatment program. Given these findings, clinicians using a group method should give serious consideration to incorporating an open admission policy in spite of the threats of such an approach to group cohesiveness. Consistent with previous findings (Morgan & Flora, 2002), results of this review also indicated that the inclusion of homework, specifically homework that required the practice of new skills and behaviors, produced stronger positive effects than did programs that did not include homework or the practice of new skills and behaviors. Homework emphasizing development of new skills and behaviors should be regularly incorporated in any intervention with emphasis placed on helping OMI over-learn new skills and behaviors so they become automatic in the behavioral repertoire and replace prior ineffective behaviors (see Morgan et al., 2006).

In spite of the evidence supporting the principles of R–N–R for effectively reducing recidivism, treatments provided to OMI are not adhering to these principles. For example, the first principle, risk, dictates that services be proportional to offender's risk for recidivism; however, only one study (Tupin et al., 1973) included a measure of offender risk before beginning treatment. Similarly, only one intervention (Storms, 2001) was coded as an appropriate correctional intervention (i.e., adheres to R–N–R principles, intensive in nature, incorporates cognitive behavioral strategies, or targeted criminogenic needs) as defined by Andrews, Bonta, et al., 1990. It is noted, however, that 14 interventions were coded as "somewhat" appropriate by being intensive and/or incorporating cognitive-behavioral strategies, or targeting criminogenic needs. Clearly greater emphasis needs to focus on integrating the best practices from the correctional and criminal justice literature into interventions with OMI. Not doing so means missing one-half of the equation—an offender's criminalness—by limiting treatment focus only to issues of mental illness.

The recent recognition of the need for mental health professionals to treat co-occurring issues of mental illness and criminalness (Draine, Salzer, Culhane, & Hadley, 2002; Hodgins et al., 2007; Morgan, Fisher, et al. 2010; Morgan, Steffan, Shaw, & Wilson, 2007) in conjunction with federal mandates that correctional systems are obligated to provide mental health services that meet inmates' health care needs, highlights the necessity that treatment development emphasize the co-occurring issues of mental illness and criminalness. In fact, from this comprehensive review, only two studies targeted dual issues of mental illness and criminalness. Notably, one of these studies (Lamberti et al., 2001) produced strong positive effects for both criminal and psychiatric recidivism. This program, Project Links, is a consortium of five community agencies that provide a mobile treatment team using an assertive community treatment (ACT) model to provide psychiatric service, day treatment, and intensive psychiatric rehabilitation (i.e., psychosocial rehabilitation) services. This program was effective by linking service providers to increase service delivery to OMI. Although it can be effective as a community-based inter-agency service delivery program, intervention programs developed to specifically target the co-occurring issues of mental illness and criminalness are needed. In fact, a national survey of re-entry programs for OMI found very few efforts addressing mechanisms of change to reduce criminal recidivism, improve psychiatric status, or enhance quality of life (Wilson & Draine, 2006) such that development of effective interventions tailored to the specific issues of co-occurring mental illness and criminalness remains a significant deficit in the treatment of OMI.

Importantly, results of this examination showed that treatments for OMI are effective during periods of confinement. Given robust findings that continuity of care has contributed to the improvement of clinical and functional outcomes among the severely mentally ill (Adair et al., 2005; Brekke, Ansel, Long, Slade, & Weinstein, 1999), with those receiving fewer gaps in services having better rehabilitative outcomes (Brekke et al., 1999), findings that interventions are effective during periods of confinement have significant policy implications. Although many stake holders might prefer to delay intensive services until offenders are released from prison (or other correctional setting), it is important to note that significant treatment gains can begin during incarceration. These gains, with concomitant services in the community, are likely to improve the chances of keeping OMI from recidivating (criminally or psychiatrically). Fiscally noteworthy, in addition to desired treatment outcomes, continuity of care is consistent with public health initiatives by contributing to lower health care costs by reducing the rate of psychiatric hospitalization (Mitton, Adair, McDougall, & Marcoux, 2005) as well as reducing access to general medical services (e.g., Gill, Mainous III, & Nserekro, 2000). Finally, it is equally important for mental health professionals to consider the importance of continuity of services in the reverse direction, that is when OMI's transition from the community into incarceration (Hodgins, 1995). As stated previously, many OMI have had prior psychiatric hospitalizations before being incarcerated, and may be receiving mental health services before incarceration; therefore, it is essential for this population to continue to receive services upon incarceration to eliminate gaps in service and improve outcomes.

Although the results of this investigation are of direct relevance to practicing psychologists and other mental health professionals, the results will also be of interest to policy and decision makers. The results of symptom reduction, coping skills, and improved behavioral functioning is consistent with increased emphasis on recovery. Recovery is the return to pre-illness levels of independence and prosocial functioning with improved quality of life (e.g., Corrigan, 2003). Recovery also refers to PMI ability to control and manage their symptoms while overcoming deficits resulting from mental illness (Corrigan et al., 2007). Recovery as a therapeutic goal has been accepted as the treatment goal of choice for PMI (see, for example, American Psychological Association Recognition of a Proficiency in Psychology in the Assessment and Treatment of Serious Mental Illness, 2009). Such a policy shift, from a model of assisted functioning (e.g., assisted employment, assisted living) is certainly applicable to offenders as well and the results of this review suggest that improvements in the co-occurring dimensions of mental illness and criminality are possible.

As with all meta-analyses, the quality of the findings is limited by what has been accomplished in the field. The most obvious limitation of this review is the small sample obtained with limited studies for some of the outcomes of the greatest interest to clinician's and policy makers alike: criminal and psychiatric recidivism. Another limitation of this investigation is the limited range of documents included in the review. Although efforts were made to obtain dissertations and public reports, the majority of studies included in this review were published in scientific journals. Thus, it is probable that unpublished studies, often times referred to as "file drawer" studies that were never published because of a lack of significant findings, were missed in this review. In addition, several documents were obtained in non-English languages, and no attempt was made to translate these documents.

In spite of these limitations, the results of this investigation proved informative by showing that interventions for OMI are effective across a variety of outcomes including mental health symptoms, coping skills, and behavioral measures. Nevertheless, much research remains to be done. Given that only 26 studies met the inclusion criteria of this review out of the original 12,154 documents suggests that a lot is being said but little is being studied. Furthermore, of the 26 studies that met the inclusion criteria for this study only five studies

included a check of scientific integrity (Colosetti, 1997; Hagan, Cho, Jensen, & King, 1997; Solomon et al., 1994; Trupin, Stewart, Beach, & Boesky, 2002; Valentine, 2000; Valentine & Smith, 2001; Wilson, 1990), and consistent with findings from the general psychotherapy literature (Pereplechikova et al., 2007), only three studies included a check of therapeutic integrity (MacKain & Streveler, 1990; Schippers et al., 2001; Zlotnick, Najavits, Rohsenow, & Johnson, 2003). Clearly, additional studies are needed. Specifically, psychologists and other mental health professionals need to offer more comprehensive treatments to OMI, and must evaluate the effectiveness of these treatments. In particular, randomized controlled clinical trials are needed to more clearly elucidate elements of therapeutic programs that are most efficacious for OMI.

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Table 1*ES* statistics by study and outcome

Study	N	ES	SE
Mental health symptoms			
Zaylor, Nelson, and Cook (2001)	45	0.26	0.09
Beck-Sander et al. (1998)	10	0.31	0.41
Storms (2001)	57	0.32	0.07
Lovell, Allen, et al. (2001)	150	0.67	0.03
Nelson et al. (2001)	16	0.75	0.27
Valentine (2000), Valentine and Smith (2001)	56	0.78	0.08
Hodel and West (2003)	13	0.89	0.34
Colosetti (1997)	5	1.01	0.97
Condelli et al. (1997)	49	1.14	0.10
Thaut (1989)	150	1.22	0.03
Lamberti et al. (2001)	44	1.24	0.11
Wilson (1990)	5	1.40	1.13
Feldman (1982)	15	1.49	0.35
Zlotnick et al. (2003)	17	1.74	0.34
Kinzie et al. (1996)	5	2.54	1.87
Coping			
Valentine (2000), Valentine and Smith (2001)	56	0.43	0.07
Beck-Sander et al. (1998)	10	0.53	0.42
Melville and Brown (1987)	31	0.87	0.14
MacKain and Streveler (1990)	10	1.29	0.50
Thaut (1989)	150	1.78	0.04
Schippers et al. (2001)	40	2.98	0.22
Institutional adjustment			
Lovell, Allen, et al. (2001)	140	0.34	0.03
Condelli et al. (1997)	96	0.68	0.04
Trupin et al. (2002)	22	0.69	0.19
Tupin et al. (1973)	22	0.85	0.20
Edinger (1980)	32	0.96	0.14
Foley, Goldenberg, Bartley, and Gayda (1995)	6	1.00	0.79
Behavioral functioning			
Lovell, Allen, et al. (2001)	140	0.39	0.03
Schippers et al. (2001)	40	0.52	0.10
Trupin et al. (2002)	22	1.18	0.22
Hodel and West (2003)	13	2.02	0.49
Criminal recidivism			
Solomon and Draine (1995)	140	-0.55	0.03
Hagan et al. (1997)	53	0.25	0.08
Trupin et al. (2002)	22	0.38	0.19

Study	N	ES	SE
Lamberti et al. (2001)	44	0.54	0.09
Psychiatric recidivism			
Beck-Sander et al. (1998)	10	-1.56	0.55
Johnson and Hickey (1999)	29	1.13	0.16
Lamberti et al. (2001)	44	1.17	0.11
Treatment-related factors			
Storms (2001)	57	-0.11	0.07
Melville and Brown (1987)	31	0.17	0.13
MacKain and Streveler (1990)	10	1.86	0.62
Financial benefit			
Lovell, Allen, et al. (2001)	140	0.33	0.23

ES mean gain-score effect-size estimate, *SE* standard error, or variability in *ES* due to sampling error

Table 2

Descriptive statistics of studies included in research synthesis

Characteristic/group	f
Documents	
Peer-reviewed	24
Published dissertation	1
Unpublished dissertation	1
Lead authors' affiliation	
Universities/Medical schools	17
Correctional settings	3
Forensic mental health settings	2
Private	1
Dual settings	1
Other	2
Lead author's discipline	
Psychology	8
Medicine	6
Other	6
Unknown	6
Lead authors as treatment providers	
Yes	5
No	4
Unknown	17
Participants' housing	
Correctional facilities	17
Forensic centers	2
Community outpatient placements	1
Multiple institutions	2
Other	4
Countries	
United States	22
Europe	2
Unknown	2
Theoretical model	
Biological	4
Psychobiological	5
Cognitive/behavioral	9
Eclectic	4
Security level	
Maximum	2
Medium	0
Minimum	1

Characteristic/group	f
Mixed	1
Other	0
Unknown	22
Education of service providers	
Doctoral level	9
Master's level	2
Nursing staff	1
Probation officers	1
Case managers	1
Combination (unspecified)	1
Unknown	7
Service provider training	
No specialized training	3
< 20 hours	3
> 70 hours	1
Unspecified amount	1
Unknown	17
Time treatment offered	
During incarceration/hosp	21
During pre-release planning	1
During community placements	3
Place treatment offered	
Residential	15
Non-residential	8
Unknown	3
Treatment admission policy	
Open	12
Closed	9
Treatment modality	
Group	10
Individual	7
Combination	6
Type of interventions offered	
Medication alone	4
Psychosocial	5
Psychoeducational	1
Medication and psychosocial	2
Psychosocial and psychoeducation	4
Inclusion of all three	5
Other unspecified	2
Group member gender	
Male only	13

Characteristic/group	f
Female only	4
Predominately male	6
Mixed	1
Unknown	2
Group member race/ethnicity	
Predominately Caucasian	2
Predominately African-American	2
Multi-racial	14
Unknown	7
Group member offenses	
Felony	10
Felony and misdemeanors	4
Violent	3
Violent and non-violent	4
Group member diagnosis	
Schizophrenia	11
Mood disorders	4
Multiple Axis I	5
Anxiety disorders	1
Other Axis I	1
Unknown	3
Group inclusion criteria	
Axis I	12
Combination of problems	11
Institutional behavior problems	1
Any DSM diagnosis	1
Reason for participation	
Referral	12
Volunteer	8
Number of service providers	
One therapist	3
Two or more therapists	5
Unknown	18
Intervention goals	
Increase insight/awareness	1
Skill development	2
Symptom reduction	3
Combination	19
Intervention targets	
Mental illness alone	20
Criminal behavior alone	2
Mental illness ? criminal behavior	2

Characteristic/group	f
Inclusion of control group	
Yes	10
No	16
Type of control group	
No alternate treatment	3
Treatment wait-list	2
Alternate treatment	5
Measured outcomes	
Mental health	1
Criminal	9
Mental health + criminal	4
Outcome measures utilized	
Behavioral markers	5
Standardized assessments	7
Non-standardized assessments	4
Combination of all three	9
Research design	
Pre-post without control group	12
Pre-post with control group	4
Time series	4
Comparison group (control not matched on risk factors)	4
Treatment frequency	
Weekly	6
Bi-weekly	4
Other	2