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A review of treatment programs for offenders with co-occurring addictive and mental disorders: support for booster interventions

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Abstract

Background: Treatment interventions are essential in supporting psychosocial skills, health promotion and successful reintegration to community living for incarcerated persons. Booster interventions are presumed to be important methods for maintaining the effects of treatment effects for persons with addiction and mental disorders, but there has been remarkably little empirical attention to this assumption. **Objectives:** This review aims are: (1) to describe existing literature on treatment programs for offenders with addiction and mental disorders in the reentry process, and, (2) to add to the literature on this topic by evaluating the impact of booster interventions upon maintenance of treatment effects and outcomes - specifically, a reduction in symptoms, reduced substance abuse, medication adherence, coping, independent functioning and decreased depressive symptoms. **Methods:** Electronic databases were searched for systematic reviews from January 2004 through January 2014 to include: CINAHL PubMed, and PsycINFO using selected keywords. Inclusion criteria were adult offenders, a treatment intervention in prison, jail, or forensic psychiatric hospital with a reentry focus for offenders with addiction and mental disorder. The AMSTAR was utilized to assess quality of the reviews. **Results:** Three systematic reviews were identified to examine treatment interventions for offenders with addiction and mental disorders. Little empirical evidence is available to demonstrate the contribution of booster interventions to overall treatment effects among justice-involved persons. **Conclusion:** Although evidence is not available, clinically it seems reasonable to expect booster interventions for offenders to reinforce treatment gains, strengthen self-care skills, and manage symptoms. **Implications:** Research designed specifically to study booster interventions are needed. **Keywords:** offender reentry, correctional institutions, offenders, treatment programs, mental illness, booster programs

A review of treatment programs for offenders with co-occurring addictive and mental disorders:
support for booster interventions

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Abstract

Background: Treatment interventions are essential in supporting psychosocial skills, health promotion and successful reintegration to community living for incarcerated persons. Booster interventions are presumed to be important methods for maintaining the effects of treatment effects for persons with addiction and mental disorders, but there has been remarkably little empirical attention to this assumption.

Objectives: This review aims are: (1) to describe existing literature on treatment programs for offenders with addiction and mental disorders in the reentry process, and, (2) to add to the literature on this topic by evaluating the impact of booster interventions upon maintenance of treatment effects and outcomes - specifically, a reduction in symptoms, reduced substance abuse, medication adherence, coping, independent functioning and decreased depressive symptoms.

Methods: Electronic databases were searched for systematic reviews from January 2004 through January 2014 to include: CINAHL PubMed, and PsycINFO using selected keywords. Inclusion criteria were adult offenders, a treatment intervention in prison, jail, or forensic psychiatric hospital with a reentry focus for offenders with addiction and mental disorder. The AMSTAR was utilized to assess quality of the reviews.

Results: Three systematic reviews were identified to examine treatment interventions for offenders with addiction and mental disorders. Little empirical evidence is available to demonstrate the contribution of booster interventions to overall treatment effects among justice-involved persons.

Conclusion: Although evidence is not available, clinically it seems reasonable to expect booster interventions for offenders to reinforce treatment gains, strengthen self-care skills, and manage symptoms.

Implications: Research designed specifically to study booster interventions are needed.

Keywords: offender reentry, correctional institutions, offenders, treatment programs, mental illness, booster programs

Introduction

The population of offenders with addiction and mental disorders in the United States has been increasing and is a growing public concern over the past two decades (Baillargeon et al, 2009, 2010; Baillargeon, Hoge, & Penn, 2010; Bewley & Morgan, 2011; Yurkovich & Smyer, 2000) as more than half of all prison and jail inmates (56% of state offenders, 45% of federal offenders and 64% of local jail offenders) have been reported to have mental health problems and high rates of alcohol or drug addiction (state prison = 74%, federal prison = 64% and local jail = 76%) (James & Glaze, 2006). Mental illness for offenders with co-occurring substance abuse is a complex issue, often associated with relapse, homelessness, familial problems, functional problems, and medication non-adherence (Chandler & Spicer, 2006).

The increased number of persons with addiction and mental disorders in correctional systems is occurring simultaneously with a decline in the overall prison population, attributed to the number of releases from prison that far exceeded the number of admissions for the first time in three decades (Carson & Golinelli, 2013; Draine & Herman, 2007; Draine, Wolff & Jacoby, 2005). This trend identifies the need for transitional and treatment services upon reintegration into the respective communities. It is known that the re-entry process is integral in helping an offender successfully transition back into their community and programs that support this transition are helpful to avert criminal behaviors that can lead to re-incarceration.

As a result, much attention is drawn to effective treatment interventions and the ability to sustain treatment gains over time. Booster interventions are designed to sustain change achieved following an evidence-based treatment intervention (Lochman et al, 2014; Scott et al, 2011). Despite the intuitive appeal of having booster sessions after the completion of a program (Eyberg, Edwards, Boggs & Foote, 1998), little research exists on the effects of booster Interventions, and specifically the effect upon justice-involved populations.

The importance of treatment interventions to the reentry process center around the ability to focus on the transition from prison to community, and, to initiate treatment in a prison setting and link with a community program to provide continuity of care (Petersilia, 2004). Offenders face many challenges as they prepare to transition from incarceration to the community. Factors that can affect an offender's reentry and successful reintegration to the community include but are not limited to: lack of education and skills or training for employment (Lawrence, 2010; Wodahl, 2006), presence of or lack of support from family and friends (Bahr, Harris & Fisher, 2011), challenge of obtaining mental illness and substance abuse treatment (Baillargeon, Hoge & Penn, 2010; Drain, Wolff, Jacoby, Hartwell & Duclos, 2005; Wodahl, 2006), homelessness (Baillargeon, Hoge & Penn, 2010; Roman & Travis, 2006; Solomon et al, 2004, Wodahl, 2006), the stigma from a prison record or the dual stigma of a prison record and mental illness/substance abuse (Hartwell, 2004).

Evidence has been accruing to indicate that treatment interventions are essential in supporting psychosocial skills, promoting health and in successful reintegration to community living. However, to make adequate decisions on which interventions are most beneficial to which offenders with addiction and mental disorder, it is important to know not only about types of treatment programs available, but details regarding sustainability of treatment effects over time, or the frequency in which booster interventions might be implemented to enhance outcomes. Currently, the empirical data on boosters is limited and warrants a more detailed examination for its application to the re-entry population.

Aim

This review aims to describe existing literature on treatment programs for offenders with addiction and mental disorders in the reentry process; and, to add to the literature on this topic by

evaluating the impact of booster interventions upon management of these co-occurring illnesses upon soon to be released offender outcomes- specifically, a reduction in symptoms, reduced substance abuse, medication adherence, coping, independent functioning and decreased depressive symptoms. The research questions are:

RQ1: “Describe effective treatment interventions used for offenders with mental illness and substance abuse who are preparing for reentry”; and,

RQ2: “What effect do booster treatment interventions have upon outcomes for offenders with co-occurring disorders as part of the reentry process?”

Method

Search Strategy

The search strategy was conducted using electronic databases that included Cumulative Index of Nursing and Allied Health Literature plus text (CINAHL Information Systems, Glendale, CA), PubMed (U.S. National Institutes of Health, Bethesda, MD), and PsycINFO (American Psychological Association, Washington, D.C.). The following keywords were used, either separately or in combination during the search: (‘offender’, ‘incarceration’, ‘prison’), AND (‘mental health’, ‘mental illness’, ‘mentally ill’, ‘mental disorders’, ‘substance abuse’), AND (‘programs’, ‘treatment programs’, ‘transitional programs’, booster programs’), AND (‘reentry’, ‘re-entry’, ‘reintegration’, and ‘return to community’). The search strategy also looked at government reports related to this topic.

Inclusion Criteria

Inclusion criteria for study selection are listed below. Studies were bounded by publication dates from January 2004 through January 2014. The last search was done in February, 2014.

Inclusion criteria:

- Population is adult offenders (18 years or older)
- Evaluate a treatment intervention in correctional institution (prison, jail, forensic psychiatric hospital)
- Reentry focus for offenders with co-occurring mental and addiction disorders
- Outcomes defined as reduction in symptoms, reduced substance abuse, medication adherence, coping, independent functioning and decreased depressive symptoms
- Types of literature: systematic reviews, literature reviews, meta-analyses
- English language publications

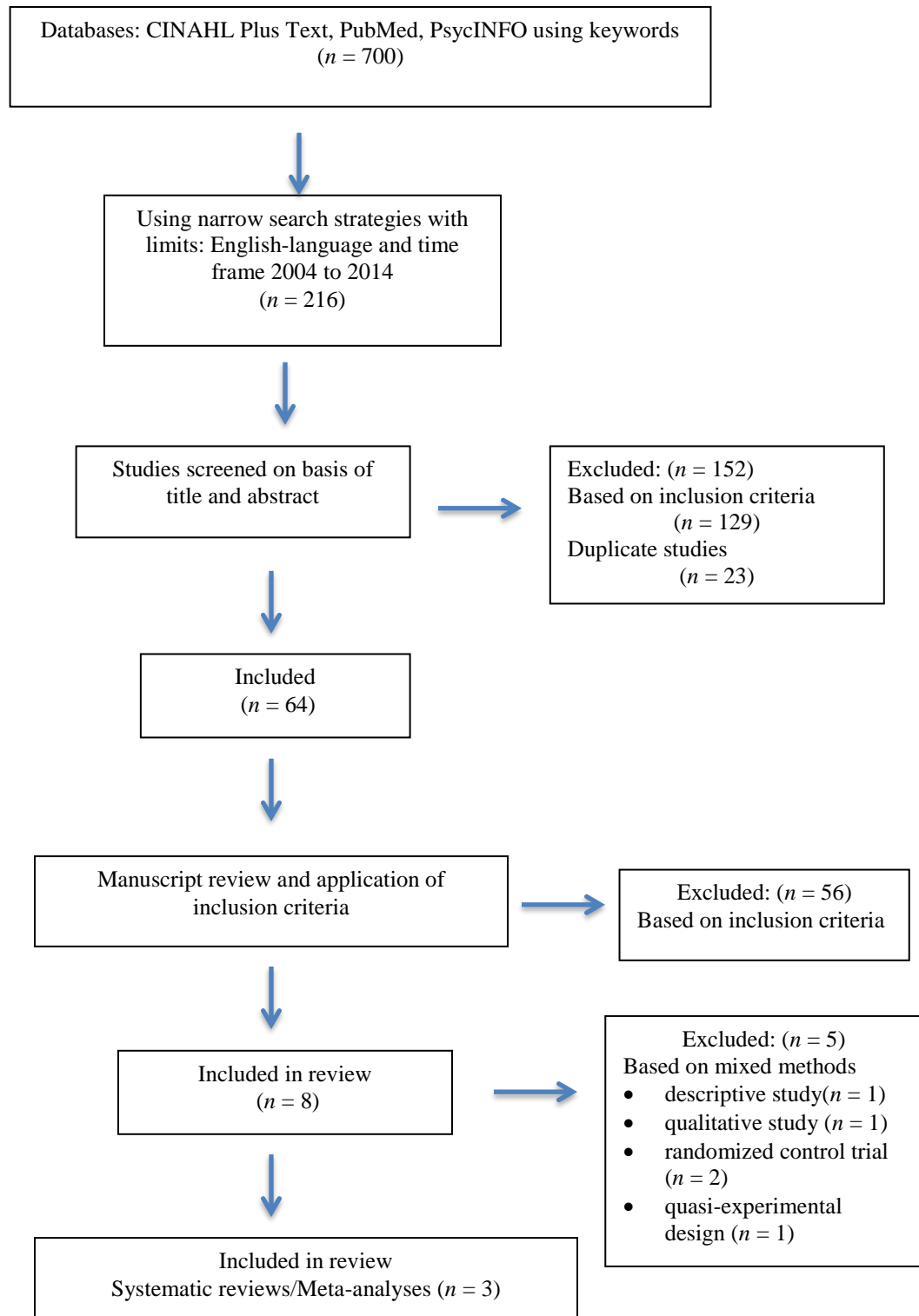
Study Selection and Data Extraction Process

Using the search terms listed above, 700 articles were found from using keyword searches. The search strategy was explored to include all of the narrower terms under headings, to include articles published in English and published within the last 10 years (2004 – 2014). This reduction strategy led to 216 articles. A preliminary appraisal based on title and abstracts resulted in exclusion of 129 articles and yielded 87 articles appropriate for more in-depth review. Removing 23 duplicates, 64 articles remained for in-depth review based on study criteria. Upon further review, it was determined that 56 articles did not meet the inclusion criteria for reasons such as not evaluating an intervention ($n = 21$), the population did not meet criteria ($n = 7$), intervention was in the community setting ($n = 11$), did not have mental health outcomes ($n = 14$), or the article was an editorial letter ($n = 3$). Of the eight articles that met the inclusion criteria, one was a descriptive study, one was a qualitative study, two were randomized control trials, one was a quasi-experimental design, and three were comprehensive systematic reviews conducted on interventions for offenders with mental illness.

The resulting decision was to review and evaluate all three systematic reviews. The five additional articles were deleted and the systematic reviews retained, one of which is a government report by the Agency for Healthcare Research and Quality and Martin (Fontanarosa,

Uhl, Oyesanmi, & Schoelles, 2013), Dorken, Wamboldt, & Wootten (2011) and Morgan, Flora, Kroner, Mills, Varghese, & Steffan (2011) are the two were meta-analyses (Figure 1).

Figure 1: Summary of Literature Search



Data Extraction

After the search and retrieval process was completed, the following data were extracted from the three systematic review articles that included: author, year of publication, interventions examined, outcome reported, methods and analysis, sample, setting or location of treatment intervention, effectiveness of treatment intervention, results, limitations, and ethical quality indicators such as funding, institutional review board approval and consent forms (Table 1).

Table 1: Summary of Articles

Author and Year	Interventions Examined	Outcomes Reported	Methods/Analysis	Sample/Setting	Findings	Ethical Quality Indicators
Fontanarosa, Uhl, Oyesanmi, & Shoelles (2013)	<p>Types of interventions</p> <p>Incarceration based treatment:</p> <ul style="list-style-type: none"> - pharmacological - psychological therapies such as cognitive therapies - Modified Therapeutic Community (MTC) <p>Incarceration to community:</p> <ul style="list-style-type: none"> - Integrated Dual Disorder Treatment (IDDT) - The mentally ill offender community program - Discharge planning that included assistance with applying for mental health services - Interpersonal therapy <p>MH Providers: not identified</p> <p>Booster Intervention: Not discussed; sustainability of interventions not discussed</p>	<p>For both incarceration-based and incarceration-to-community the outcomes of interest are:</p> <ul style="list-style-type: none"> - Suicide and suicide attempts - Quality of life - Independent functioning - Psychiatric symptoms - New mental health diagnosis - Substance or alcohol use - Hospitalization for serious mental illness - Time to re-hospitalization - Time to relapse - Dangerousness to others - Recidivism - Other Criminal justice outcomes 	<p>Research Synthesis:</p> <p>January 1, 1990, through April 1, 2012</p> <p>Updated through August 20, 2012, during the public posting period.</p> <p>Databases:</p> <p>PreMEDLINE®, Embase, the Cochrane Library, the Database of Abstracts of Reviews of Effects, the Health Technology Assessment Database, the United Kingdom National Health Service Economic Evaluation Database, PsycINFO, National Criminal Justice Reference Service Abstracts Service, and ProQuest Criminal Justice. Scanned bibliographies of included studies, the content of new issues of selected journals, and reviewed grey literature for additional relevant articles</p> <p>Inclusion/Exclusion criteria provided:</p> <p>RCT's or nonrandomized comparative trials</p> <p>Trials assessed two or more interventions of interest</p> <p>Enrolled a minimum of 75 subjects with SMI</p> <p>Published in English</p> <p>Conducted in US, Canada, United Kingdom, New Zealand or Australia</p> <p>Reported at least one MH outcome</p> <p>Included follow up at 3 months</p>	<p>Sample: 19 publications including 16 comparative trials</p> <p>Setting: RQ1-jail, prison, and forensic hospital.</p> <p>RQ2 - jail to community, prison to community, and forensic hospital to community.</p> <p>Release to the community includes direct release to home or family and release to a transitional setting (e.g., halfway house, work release program)</p>	<p>Results: Only a few comparative trials assessing interventions for offenders with SMI in an incarceration or incarceration-to-community transitional setting. The trials lacked consistency in treatment comparisons and varied in how they applied the same treatment, in how they combined treatments, and in the outcomes they reported.</p> <p>Effectiveness:</p> <p>Incarceration based interventions evidence insufficient to make any conclusions.</p> <p>Incarceration to community evidence of low strength did support discharge planning with benefit assistance and IDDT.</p> <p>Evidence was insufficient to support Interpersonal therapy and community program</p>	<p>Qualitative analysis:</p> <p>Extracted information included study design, patients, interventions and reported data.</p> <p>Quantitative:</p> <p>When data permitted did calculate study effect size estimates.</p> <p>Effect size determined with standardized mean difference for continuous data and odds ratio for dichotomous data</p> <p>Limitations: the limited number of trials assessing the same intervention and same or comparable outcomes.</p>

Author and Year	Interventions Examined	Outcome Measures	Methods	Sample/Setting	Findings	Method of Synthesizing Results
Martin, Dorken, Wamboldt, & Wotten (2012)	Types of interventions - Medication - Individual or group therapy - Social skills training - Cognitive behavioral therapy - Anger management - Problem solving MH Providers: not identified Booster Intervention: Not discussed; sustainability of interventions not discussed	Mental Health: - Functioning - Medications - Medications (outliers removed) - Service utilization - Symptoms - Symptoms (outliers removed) Criminal Justice: - Arrest - Arrest (outliers removed) - Breach - Convictions - Jail days - Time to failure - Violent crime	Meta-analysis: Studies published between 1989 to 2008 Databases: PsycINFO & Web of Science database Inclusion criteria provided	Sample: 25 studies Setting: community, institutions or both	Results: support the effectiveness of these interventions in terms of reductions in any CJS involvement ($d = 0.19$ excluding one outlier). Effectiveness: Interventions had no significant effect on an aggregate mental health outcome ($d = 0.00$). When disaggregating outcomes, mental health outcomes, intervention participants had significantly better functioning ($d = 0.20$) and fewer symptoms ($d = 0.12$)	Quantitative Individual effect sizes were aggregated to produce a mean weighted effect size for all studies Assuming a fixed-effects model combining 37 effect sizes from 25 studies ($N = 15,678$) Limitations: potential publication bias with use of two data bases (PsycINFO and Web of science); absence of power analysis

Author and Year	Interventions Examined	Outcome Measures	Methods	Sample/Setting	Findings	Method of Synthesizing Results
Morgan, Flora, Kroner, Mills, Varghese, & Steffen (2011)	Types of interventions - Group, individual or combination - Medication alone or with psychosocial intervention - Psychosocial - Psychoeducation - Psychosocial and psychoeducation MH Providers: Doctoral level, masters level, nursing staff, probation officers, case managers Booster Intervention: Not discussed; sustainability of interventions not discussed	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) - Financial benefit.	Meta-analysis Studies published between 1973-2004 Databases: PsycINFO MEDLINE, and SocialSciAbs Inclusion criteria provided	Sample: 26 empirical studies obtained from a review of 12,154 research documents Setting: incarceration, during pre-release, community placements	Results: indicated the literature tentatively presented improvement across a range of variables including symptom focused problems, as well as more general behavioral functioning for offenders with mental illness (OMI) in treatment programs as compared to OMI in control groups. Effectiveness: Interventions effective to reduce mental health symptoms, symptoms of distress, coping institutional adjustment and behavioral functioning. Insufficient evidence to conclude that interventions lead to reduced psychiatric and criminal recidivism	Quantitative: Calculated individual study effect sizes and conducted meta-analysis on each treatment outcome Limitations: potential publication bias with only two databases; did not calculate power to determine # of studies

Risk of Bias Assessment

A Measurement Tool to Assess Systematic Reviews (AMSTAR, Bruyère Research Institute, 2015) is an 11-item measurement tool used to appraise the methodological quality of systematic reviews included this report (Shea et al, 2007). The AMSTAR tool was developed by combining items from the enhanced *Overview Quality Assessment* questionnaire by Oxman and Guyatt (1991) and a checklist created by Sacks et al (1987) with three additional items the authors judged to be of methodological importance: (a) language restriction, (b) publication bias and (c) inclusion of grey literature (p. 2). The tool was applied to 99 paper-based reviews and 52 electronic systematic reviews and an exploratory factor analysis was performed to identify underlying components (Table 2). AMSTAR developers recognized the need for a tool that would measure methodological quality and that could be applied to a wide variety of systematic reviews such as those reviews that may not have a meta-analytic component. As such, AMSTAR was psychometrically developed so that each item can be scored individually as if not related to each other and/or as a checklist by summing the item scores to obtain an overall score (Shea et al., 2009, p. 1016). The AMSTAR tool was found to have strong inter-rater reliability and face, content and construct validity (Kang et al, 2012; Shea et al, 2007). Both Shea et al (2009) and Kang et al. (2012) reported that AMSTAR as a tool for measuring methodological quality of systematic reviews demonstrated both external reliability and was found to be easy to use taking approximately 10 – 15 minutes to complete. In fact, Kang et al (2012) claimed that “the performance of AMSTAR in terms of reliability and validity was better than OQAQ (Overview of Quality Assessment Questionnaire)” (p.5).

Table 2: AMSTAR (Assess Methodological Quality of Systematic Reviews)

CHECKLIST	Martin et al, 2011	Morgan et al, 2011	Fontanarosa et al, 2013
1. Was an 'a priori' design provided? The research question and inclusion criteria should be established before the conduct of the review.	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable
2. Was there duplicate study selection and data extraction? There should be at least two independent data extractors and a consensus procedure for disagreements should be in place.	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable
3. Was a comprehensive literature search performed? At least two electronic sources should be searched. The report must include years and databases used (e.g. Central, EMBASE, and MEDLINE). Key words and/or MESH terms must be stated and where feasible the search strategy should be provided. All searches should be supplemented by consulting current contents, reviews, textbooks, specialized registers, or experts in the particular field of study, and by reviewing the references in the studies found.	Yes x No x Can't answer Not applicable *disagreement	Yes x No x Can't answer Not applicable *disagreement	Yes x No Can't answer Not applicable
4. Was the status of publication (i.e. grey literature) used as an inclusion criterion? The authors should state that they searched for reports regardless of their publication type. The authors should state whether or not they excluded any reports (from the systematic review), based on their publication status, language etc.	Yes No Can't answer x Not applicable	Yes No Can't answer x Not applicable	Yes No x Can't answer Not applicable
5. Was a list of studies (included and excluded) provided? A list of included and excluded studies should be provided.	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable
6. Were the characteristics of the included studies provided? In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analyzed e.g. age, race, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be reported.	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable
7. Was the scientific quality of the included studies assessed and documented? 'A priori' methods of assessment should be provided (e.g., for effectiveness studies if the author(s) chose to include only randomized, double-blind, placebo controlled studies, or allocation concealment as inclusion criteria); for other types of studies alternative items will be relevant.	Yes No x Can't answer Not applicable	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable
8. Was the scientific quality of the included studies used appropriately in formulating conclusions? The results of the methodological rigor and scientific quality should be considered in the analysis and the conclusions of the review, and explicitly stated in formulating recommendations.	Yes No x Can't answer Not applicable	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable
9. Were the methods used to combine the findings of studies appropriate? For the pooled results, a test should be done to ensure the studies were combinable, to assess their homogeneity (i.e. Chi-squared test for homogeneity, I ²). If heterogeneity exists a random effects model should be used and/or the clinical appropriateness of combining	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable

should be taken into consideration (i.e. is it sensible to combine?).			
10. Was the likelihood of publication bias assessed? An assessment of publication bias should include a combination of graphical aids (e.g., funnel plot, other available tests) and/or statistical tests (e.g., Egger regression test).	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable	Yes x No Can't answer Not applicable
11. Was the conflict of interest stated? Potential sources of support should be clearly acknowledged in both the systematic review and the included studies.	Yes No x Can't answer Not applicable	Yes No Can't answer Not applicable	Yes No x Can't answer Not applicable
Grade Score: <i>Good = a quality score of 10-11</i> <i>Fair = a quality score of 7-9</i> <i>Poor = a quality score <7</i>	Fair	Good	Good

From: Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. [BMC Med Res Methodol.](#) 2007 Feb 15;7:10. PMID: 17302989

A numeric value was ascribed to each item for the purpose of grading the overall quality of the reviews. For example, a *yes* or *not applicable* rating was scored with a numeric value of “1” while a *no* or *can't answer* rating received a numeric value of “0” for each study. To arrive at a comprehensive judgment of quality, each individual study was assigned a grade of “good”, “fair”, or “poor” based on the summary score of the individual review. For example,

- a good grade = the study received a summary score between 10-11 of the quality dimensions defined in the AMSTAR tool;
- a fair grade = the study received a summary score of 7-9 of the required quality dimensions defined by the AMSTAR tool; and
- a poor grade = the study received a summary score that is <7 of the required quality dimensions.

This grading scale adapted the attributes of the quality ratings used by the Agency for Healthcare Research and Quality (Hefland & Balshem, 2009). The ratings for quality appraisal for each review can be found in Table 2.

Inter-rater Reliability

Each author independently performed a preliminary evaluation of the three studies using the AMSTAR quality appraisal checklist comprising 11 questions. Both authors met to review their grades that resulted in a 73% agreement. Through a dialogue to identify, justify and discuss the questions and reviewer responses, areas of disagreement were overcome. The primary areas of disagreement focused upon differences in the interpretation of items such as item #4 (grey literature), item #5 (studies included and excluded), item #7 (scientific quality of studies assessed and documented) and item #11 (conflict of interest stated). These same items were also noted to present disparity in interpretation for Shea et al. (2009) and Kang et al. (2012) when examining the reliability and external validity of the AMSTAR tool. The grade range, based on the overall score, was fair (Martin et al, 2011) to good (Morgan et al., 2011; Fontanarosa et al., 2013).

Limitations

This review reports on existing systematic reviews and has several potential limitations. First, the potential for publication bias due to the limited number of databases searched ($n=3$) and the omission of searching grey literature. Second, there is the potential risk of bias by reporting the synthesis of existing systematic reviews who in themselves have limitations. Third, the findings are limited by what has been published on this topic and by the studies selected as part of the systematic reviews.

Results

The literature suggests that recidivism among offenders with addiction and mental disorders may be associated with poor coordination of services and treatment on release into the community. The first research question – *“Describe the effective treatment interventions used for offenders with mental illness and substance abuse who are preparing for reentry”* provided an overview of treatment interventions and their effectiveness on outcomes. As reflected in

Table 2, most treatment interventions for offenders with co-occurring disorders were targeted at a reduction in recidivism rate, or a reduction in psychiatric symptoms, or a reduction in both. Criminogenic outcomes often look at reduction in recidivism in terms of re-incarceration, re-arrest, violent crime, jail days, criminal history or time to failure. Mental health and substance abuse outcomes are defined in terms of a reduction in symptoms, reduced substance abuse, medication adherence, coping, independent functioning and decreased depressive symptoms.

Review One. The first review was a meta-analysis performed by Martin, Dorken, Wamboldt & Wootten (2012) analyzed 25 studies with a total sample size for statistical purposes of 15,678. Excluding one outlier, these authors indicated a positive effect of interventions with offenders with mental disorders for reducing criminal justice involvement of any type, $k = 36$, $N = 15,512$, $d = 0.19$, 95% CI [0.14, 0.23] with a significant amount of variability noted in the findings, $Q = 251.91$, $p < .01$. There was no significant effect for the aggregated mental health outcome measure (which included a variety of treatments), $k = 20$, $N = 3657$, $d = 0.00$, 95% CI [-0.06, 0.07] with significant variability in the effect sizes, $Q = 68.64$, $p < .01$.

A closer examination of outcomes was achieved by running separate meta-analyses. Now it can be seen that intervention participants had significantly fewer symptoms ($k = 12$, $N = 2641$, $d = 0.12$, 95% CI [0.04, 0.20]) and were assessed as higher functioning ($k = 5$, $N = 629$, $d = 0.20$, 95% CI [0.01, 0.39]) following treatment. The authors note publication space limitations and alert readers to increased risk of Type I errors for additional analyses in an examination of moderators upon the aggregated criminal justice outcome. Moderator analyses identified study/design characteristics (sample size, control for bias inherent in design and/or sampling procedures, and overall study quality ratings), intervention characteristics (treatment location, the extent to which it was voluntary, and whether treatment was of a predetermined duration), and

mental health outcomes (studies which did not collect mental health outcome data, had negative mental health effects) as significant as moderating variables.

Review two. In review two, Morgan, Flora, Kroner, Mills, Varghese, & Steffen (2011) conducted a meta-analysis of 26 empirical studies (1,649 offenders, with 1,369 participants in treatment groups and 280 participants in control groups) to examine outcomes in psychiatric and criminal functioning. In this review, the primary statistical procedures consisted of a series of univariate meta-analyses, with a separate meta-analysis reported for each outcome of interest. Outcomes were grouped into eight general categories: mental health symptoms, coping, institutional adjustment, behavioral functioning, criminal recidivism, psychiatric recidivism, treatment-related factors, and financial benefit. The small number of effect sizes (ESs) observed for each individual outcome precluded any formal assessment of moderator effects. While the goals of the reviewed interventions varied; the interventions lasted between 1.5 weeks to 78 weeks (offenders completing \bar{x} = 24.9 weeks, M = 15.0, SD = 27.2; k = 12) with a total number of sessions completed ranged from 3 to 20 (M = 11.8, SD = 7.0; k = 12), and session length ranged from 0.75 minutes to 4 hours (M = 1.6 h, SD = 0.9; k = 10). The number of treatment hours completed in an intervention ranged from 3.5 to 30 hours (M = 16.4, SD = 8.8; k = 7). These interventions were generally structured (k = 9, 56.3%) and incorporated a formal treatment manual.

These authors' utilized criteria specified by Andrews et al. (1990) as "appropriate for correctional settings"- defined as intensive in nature, to include structured programming, and incorporated cognitive-behavioral models, or targeted criminogenic needs. The underlying premise was that psychiatric rehabilitation principles, although not thoroughly tested with the offender mentally ill population, are promising. Sixty-five percent (65.2%, k = 15) of the studies

met the inclusion criteria. 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.

Elements of treatment interventions across designs that had an impact upon both psychiatric and criminal recidivism as an outcome were related to an open admission policy to join, results showed that 47% (n=9 studies) had *ES*'s equal to or greater than 1.00 compared to a closed group policy. Only one study assessed the comprehensive effectiveness (.54-criminal, 1.17-psychiatric) upon recidivism. Homework, an activity that requires the offender to practice new skills external to the treatment intervention, produce more favorable outcomes for offenders with mental illness (75%, $k = 6$, $ES \geq 1.00$). Practicing new skills outside of the treatment program helps to reinforce positive behaviors that can become more automatic and replace the negative or problematic behaviors and skills that offenders struggle with. Treatment programs that occurred during confinement are shown to be effective for offenders with mental illness (Morgan et al., 2011, p. 46).

The research synthesis by Morgan et al. (2012) further identified treatment outcomes as a group of eight categories: mental health symptoms, coping, institutional adjustment, behavioral functioning, and criminal recidivism. The principal findings from their synthesis is that interventions for offenders with mental illness were effective in "reducing symptoms of distress, improved ability to cope with problems, and improved behavioral markers including institutional adjustment and behavioral functioning" (p.45). There were $k = 15$ studies with general mental health outcomes (random-effects weighted mean *ES*s was 0.87, 95% CI: 0.64, 1.11), indicating a strong positive treatment effect on mental health symptoms. Coping as an outcome ($k = 6$ studies random-effects weighted mean *ES*s was 1.32, 95% CI: 0.56, 2.07), indicating a very strong

positive treatment effect on coping. The random-effects weighted mean of the $k = 6$ studies for the outcome of institutional adjustment (ESs was 0.57, 95% CI: 0.34, 0.80), indicated a moderate positive treatment effect, while there was a moderate to strong treatment effect in the $k = 4$ behavioral functioning ESs, which had a mean = 0.78 (95% CI: 0.23, 1.32). Results were inconclusive for both psychiatric and criminal recidivisms. Random-effects weighted mean ESs for the three psychiatric studies was 0.42 (95% CI: -0.84, 1.69), with random-effects weighted mean ESs of the four criminal studies was 0.11 (95% CI: -0.47, 0.69) were heavily influenced by one large negative outcome study.

Review three. In an AHRQ evidence-based report, Fontanaro, Uhl, Oyesanmi, & Shoelles (2013) systematically reviewed 16 intervention studies designed for adult offenders with serious mental illness to assess treatment effectiveness. An examination of setting (jail, prison or forensic hospital vs reentry or community) by type of treatment (pharmacological therapies, psychotherapies, housing and communities along with a mix of other types of treatments) provide the basis for a descriptive synthesis of the literature. Treatment effectiveness was guided by the Agency for Healthcare Research and Quality (AHRQ) "Methods Guide for Effectiveness and Comparative Effectiveness Reviews" (Fontanarosa et al., 2013, p. ES-8).

Mental health outcomes were defined as: (a) suicide and suicide attempts, (b) quality of life, (c) independent functioning, (d) psychiatric symptoms, (e) new mental health diagnosis, (f) substance abuse or alcohol use, (g) hospitalization for serious mental illness, (h) time to re-hospitalization, (i) time to relapse, (j) dangerousness to others, (k) recidivism, and (l) other criminal justice outcomes (Fontanaro et al, 2013). While each publication defined the outcomes of interest, the variations across studies made it difficult to generalize.

Due to the limited number of studies available for assessment, these authors report there is still a need for more comparative, randomized studies to confidently evaluate effectiveness of a particular type of intervention. The authors report evidence of low strength in support of pharmacologic therapy in an incarceration setting, and felt the evidence was insufficient regarding the comparative effectiveness of Cognitive Behavior Therapy versus treatment as usual or individual therapy. Evidence was also insufficient for comparative effectiveness of a Modified Therapeutic Community compared to more standard in-prison services for persons with co-occurring disorders. Evidence was rated low in strength as well for increasing services that include discharge planning and assistance in applying for health benefits when an examination of community-based treatments was conducted. Evidence did not support a reduction in psychiatric hospitalizations or service use among clients in dual diagnosis treatment programs; and, information was insufficient to compare generalist vs mental health specialist care upon outcomes. Sadly, evidence was also insufficient for assessing the effect of interpersonal therapy vs psychoeducation.

To answer the second research question: *“What effect do booster treatment interventions have upon outcomes for offenders with co-occurring disorders as part of the reentry process?”* this review of literature reports that *no* booster treatment interventions were identified in any of the studies reviewed. The inability to address the effect of booster treatment upon interventions is greatly impeded by the designs utilized by the studies included in these reviews. As noted by Fontanarosa et al. (2013), much of the research in this field utilizes case study designs with assessment of the same clients before and after treatment.

Discussion

The aims of this literature review were twofold: (1) to describe existing literature on effective treatment interventions for offenders with mental illness and substance abuse problems in the reentry process; and, (2) to add to the literature on this topic by evaluating the impact of booster interventions upon management of these co-occurring illnesses among soon to be released offender outcomes- specifically, a reduction in symptoms, reduced substance abuse, medication adherence, coping, independent functioning and decreased depressive symptoms.

Treatment interventions for offenders with co-occurring mental illness are few. The studies done that focused on mental health and criminal symptoms outcomes carefully suggest that they are effective and beneficial in reducing. However, the evidence to support these findings is based on a small body of disjointed treatment intervention outcome research studies that continues to be “almost non-existent” for this vulnerable population (Morgan et al, 2012; Skeem et al, 2011).

A national survey on reentry programs found that there were very few treatment programs that focused on reducing recidivism, improving psychiatric status, and enhancing quality of life (Wilson & Draine, 2006, p. 878). Despite the concerns raised by researchers and practitioners on how to best treat offenders with co-occurring illness to achieve these outcomes, empirical research and dissemination of this type of research is advancing at a slower rate than in other clinical areas. Factors that may contribute to the lack of this type of research includes: challenges of access to the population, poor design and ethical issues, small sample sizes followed by high attrition rates that can affect the power to detect a significant difference in treatment versus control groups, potential for “lock downs” that can halt treatment intervention sessions, and use of non-standardized measurements that limit effective analysis across studies.

For example, criminal justice systems are primarily interested in criminal justice outcomes, such as recidivism, while mental health providers are often concerned with reduced psychiatric symptoms and quality of life outcomes. This interferes with making comparisons between treatment programs.

As noted in this review the effect of booster treatment interventions were not examined, as this type of intervention, has never been tested in the correctional setting for offenders with mental illness and/or substance abuse disorders.

According to Morgan et al., (2012) significant treatment gains that begin during incarceration and that continue with treatment services provided in the community are more likely to improve recidivism (p. 47). The benefits of reinforcing treatment gains in the community include: (1) promoting engagement and adherence to treatment provided to the offender during incarceration and after release, (2) providing an opportunity for soon to be released offenders to practice and reinforce skills and behaviors that promote positive consequences (enhance self-care behaviors and manage mental health symptoms), and (3) supporting self-efficacy by boosting perceived confidence in their skills (re-skilling).

Conclusion

There is little evidence from this review to endorse a particular treatment intervention as being more effective for offenders with co-occurring disorders to support reentry process in answer to research question #1. Treatment interventions differed on location (correctional institution or community), intensity, duration, and measure outcomes that may have confounded the results. There are limited numbers of comparative trials that measure the same treatment intervention characteristics and the same outcome measures, therefore, diluting the strength of the evidence. Effect sizes were small for criminal outcomes and mental health outcomes, although more

positive for criminal outcomes alone. Treatment program fidelity was deficient and infrequently mentioned. Study quality also lacked strength (Fontanarosa et al, 2013).

However, there are some key points identified from each review that are beneficial to consider from a clinician and researcher viewpoint. Some treatment characteristics identified as effective in reducing symptoms of distress and improving ability to cope used an open door policy, included homework assignments, were time-limited interventions, and promoted continuity of care from correctional institutions to correctional community settings (Fontanarosa et al., 2013; Martin et al., 2012; Morgan et al., 2011). The most beneficial therapies were cognitive behavioral therapy, behavioral therapy, and assertive community therapy. Given these findings, clinicians implementing an open door policy that also allows some degree of choice to participate that will enhance therapeutic alliance. Considering a group intervention may also be of great benefit with an open-door policy to maintain progression of therapy over time in spite of the threats to group cohesiveness using this approach. In fact, individuals tend to learn from others and having new members may indeed increase knowledge gained from education and practice.

Although the authors could not answer research question #2, there were some significant findings that can be gleaned from this review that can support the reentry process. For example, having a time-limited intervention produced a larger positive effect size. So it may be important to consider a brief intervention instead of a booster intervention that is dependent upon following the original program. A four-group session treatment intervention had small to moderate significant results as a booster intervention in a Connecticut Department of Corrections facility (Maruca, Shelton, & Barta, 2015). Instead of a booster intervention that necessitates immediately

following the original program, a brief, time-limited intervention may be more feasible, cost-effective, and a practical intervention for successful reentry.

Based on our review, the next step to consider is to provide the brief intervention in correctional community settings, instead of correctional institutions that offer a variety of treatment interventions and programs. A brief treatment intervention in the community may better reinforce skills and behaviors learned during while in the correctional institution with the opportunity to practice in the community. The brevity of the intervention can also minimize offenders reentering the community from prematurely leaving a group intervention while trying to navigating the challenges of learning to use community resources and services. Additionally, incorporating homework assignments and practicing skills and behaviors in the context of reentry may indeed promote the success of dealing with the personal and contextual tasks of reentry. The Deputy Director of the *Center for Advancing Correctional Excellence* (ACE!) reported a discussion with Joan Petersilia (March, 2012) who stated that one of the next steps in addressing prisoner reentry issues is to explore contextual factors that contribute to reentry failures such as the culture of a supervising agency in the community (e.g., correction halfway houses). Exploring the feasibility of a brief treatment intervention in correctional halfway houses is in alignment with addressing contextual factors as well as encouraging community collaborations.

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*Articles with a * are included in the systematic review. A complete list of excluded articles can be obtained from the authors per request.*

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