



2016-11-01

Transition Services for Parolees with Co-Occurring Substance Use and Mental Health Disorders

Michaela Elizabeth Huber
Brigham Young University

Follow this and additional works at: <https://scholarsarchive.byu.edu/etd>



Part of the [Sociology Commons](#)

BYU ScholarsArchive Citation

Huber, Michaela Elizabeth, "Transition Services for Parolees with Co-Occurring Substance Use and Mental Health Disorders" (2016).
All Theses and Dissertations. 6183.
<https://scholarsarchive.byu.edu/etd/6183>

This Thesis is brought to you for free and open access by BYU ScholarsArchive. It has been accepted for inclusion in All Theses and Dissertations by an authorized administrator of BYU ScholarsArchive. For more information, please contact scholarsarchive@byu.edu, ellen_amatangelo@byu.edu.

Transition Services for Parolees with Co-Occurring
Substance Use and Mental Health Disorders

Michaela Elizabeth Huber

A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of
Master of Science

John P. Hoffmann, Chair
Stephen J. Bahr
Mikaela J. Dufur

Department of Sociology
Brigham Young University

Copyright © 2016 Michaela Elizabeth Huber

All Rights Reserved

ABSTRACT

Transition Services for Parolees with Co-Occurring Substance Use and Mental Health Disorders

Michaela Elizabeth Huber
Department of Sociology, BYU
Master of Science

A large portion of U.S. inmates and parolees experience co-occurring substance use and mental health disorders (COD). Offenders with COD exhibit significantly poorer outcomes than offenders who do not have COD, including less time to rearrest and reincarceration. Research shows that transition services for substance use and mental health disorders improve parolee outcomes, yet a majority of offenders with COD do not receive transition services prior to discharge or upon release from correctional facilities. Using a nationally representative sample of offenders with COD (secondary data from the CJ-DATS; N=811), this study analyzes the treatment effects of Transition Case Management (TCM) on parolees' drug use, rearrest, and reincarceration during the first nine months of parole, on a sample of offenders with COD. Results indicate there are no statistically significant differences between TCM treatment and control groups when predicting likelihood of rearrest, reincarceration, and drug use.

Keywords: COD, substance use, mental health disorders, corrections, parolees

ACKNOWLEDGEMENTS

Without the help of countless others, my thesis would not have been completed.

To my thesis committee—John Hoffmann, Steve Bahr, and Mikaela Dufur—I am incredibly grateful for your patience, encouragement, support, and shared knowledge. You have spent countless hours guiding me through this experience, and I would not have completed my degree or thesis without each of you. Steve, as my first advisor you were a friend to me, and taught me how to think outside the box when conducting research. Mikaela, you taught me how to “do” grad school and your example has shown me how to be an empowered, female scholar. John, you have taught me critical research skills and I will forever be referencing your textbooks. In times when I would compare myself to others or be worried about my thesis progress, you always set my mind at ease and left me feeling grounded and capable.

To my professor Curtis Child, you have taught me lessons that extend far beyond the scope of the classroom. You instilled in me a confidence in my abilities as a scholar, and encouraged my curiosities and passion for qualitative research. You have been a mentor and, more importantly, a friend to me during my time at BYU, and for this, I am eternally grateful.

To my parents, you have been my greatest cheerleaders for 25 years. Despite my many shortcomings, you never doubt my ability to succeed or accomplish any goal I make. Mom, your example of strength, independence, and unwavering patience is an inspiration to me every day. Dad, you have shown me how to work hard; you have provided a beautiful life for our family, and your support has made my academic achievements possible.

To Spencer—at the beginning of my master’s program you became my best friend, and somewhere in between you became my husband. Words cannot express my gratitude for your endless patience, support, and encouragement throughout this process.

TABLE OF CONTENTS

LIST OF TABLES	vii
INTRODUCTION	1
BACKGROUND	3
Substance Use Disorders and Treatment in Correctional Facilities	3
Obstacles to Successful Treatment Outcomes	4
Mental Health Disorders and Treatment in Correctional Facilities	5
Transition Services and Community-Based Aftercare Treatment	8
Co-Occurring Disorders.....	10
COD Treatment.....	10
Offenders with COD.....	11
Prison-Based COD Treatment Research.....	12
Research Needs.....	12
COD Transition Services and Community-Based Aftercare Treatment.....	13
Summary	14
Hypotheses.....	15
DATA & METHODS	15
Study Design.....	15
Sample.....	16
Recruitment.....	16
Treatment Conditions.....	16
Data Collection	17
Measures	17

Outcome Variables.....	17
Criminal recidivism.....	17
Drug use.....	18
Explanatory Variables.....	18
TCM participation.....	18
COD.....	18
Addiction severity.....	21
Recidivism risk.....	22
Demographic Variables.....	23
Analytic Plan.....	23
Missing Data.....	24
RESULTS.....	25
Descriptive Results.....	25
Total Sample.....	25
COD vs. SUD Only.....	26
Rearrest.....	26
Symptoms of COD as a Moderator.....	27
Reincarceration.....	27
Symptoms of COD as a Moderator.....	27
Drug Use.....	28
Symptoms of COD as a Moderator.....	28
DISCUSSION.....	29

Limitations	30
Future Studies	31
Measuring and Testing Mental Health.....	31
Conclusion	32
REFERENCES	34
TABLES	51

LIST OF TABLES

Table 1: Summary of Measures 51

Table 2: Sample Descriptives, COD vs. SUD Only 52

Table 3: Logistic Regression: Rearrest Predicted by TCM Participation..... 53

Table 4: Logistic Regression: Reincarceration Predicted by TCM Participation 54

Table 5: Logistic Regression: Drug Use Predicted by TCM Participation 55

INTRODUCTION

The Bureau of Justice Statistics (BJS) has estimated that up to 42 percent of prison inmates and 49 percent of jail inmates experience co-occurring mental health and substance use disorders (COD) (James & Glaze 2006). Prison inmates with COD exhibit significantly poorer outcomes than inmates who do not have COD (Baillargeon et al. 2010; Fletcher et al. 2009; Peters, Wexler, & Lurigio 2015). One study of Texas parolees reported that COD parolees were two times more likely to violate parole within one year, and two and one-half times more likely to commit a new crime than parolees with no disorders (Baillargeon et al. 2009). Data from a nationally representative sample found that parolees with COD were rearrested, on average, five months sooner than those with a serious mental illness (SMI), and three months sooner than parolees with a substance use disorder (SUD) (Wood 2014).

Successful outcomes for COD offenders depend largely on the quality of systems integration and continuum of care as they progress through different phases of the criminal justice system (Butzin & Inciardi 2002; Taxman & Bouffard 2000). Ideally, a continuum of care includes prison-based treatment, transition services, and community-based aftercare treatment. Transition services, which typically begin while parolees are still incarcerated shortly before their release, include strengths and needs assessments, discharge planning, and treatment referrals. Transition services also include any short-term services or care received immediately following release from prison, such as intensive treatment offered by halfway houses or residential treatment facilities (Butzin, Martin, & Inciardi 2005; De Leon 2000).

At this point, very few controlled studies have been conducted on specialized COD transition services or aftercare treatment in criminal justice settings, and experts have yet to produce any best practice policies or standards. Researchers have linked transition services and

aftercare treatment, noting a directional association between an absence of transition services, and low engagement in community-based aftercare treatment, as well as other unsuccessful outcomes (Fletcher et al. 2009; Freudenberg 2001). Conversely, research demonstrates a significant association between receiving transition services and increased rates of participation in community-based aftercare treatment, for inmates and parolees with SUD only and SMI only.

There is clear justification for clinical examination of transition services adapted for COD offenders. The quality of transition services for COD offenders and their access to them becomes a more poignant issue when considering previous findings from studies of SMI and SUD offenders. Research on treatment modalities for the COD correctional population is necessary in order to improve their long term criminogenic and health outcomes. It is not responsible to assume that preexisting treatments for general or single disorder offenders will be effective for treating co-occurring disorders.

The present study examines the effects of receiving transition services on parolee drug use and criminal recidivism outcomes. Secondary Criminal Justice Drug Abuse Studies (CJ-DATS) data from a previously conducted study on Transition Case Management (TCM), a model of care created for soon-to-be-released inmates, meant to increase their participation in community aftercare drug treatment (Prendergast & Cartier 2004). Previous analysis of TCM has not accounted for offenders' COD diagnosis status when predicting behavioral and criminal recidivism outcomes. The purpose of this study is to extend our understanding of TCM and its utility by accounting for parolees' COD. The statistical analysis performed allows experts to form more conclusive judgments regarding the efficacy of this treatment model to successfully refer and place parolees in community-based aftercare treatment, and reduce criminal recidivism among parolees with COD.

BACKGROUND

Substance Use Disorders and Treatment in Correctional Facilities

Extensive research has been conducted on the frequency and treatment of substance use and mental health disorders among inmates in the United States; conversely, research on offenders with COD is limited. Upon reviewing studies of offenders with SUD and SMI, a subsequent section discusses available research on COD offenders, and the current issues and concerns surrounding their treatment in the correctional system. The BJS reports that 74 percent of state prisoners and 76 percent of jail inmates have an SUD (James & Glaze 2006), and other sources estimate that as many as 85 percent of all federal, state, and local inmates have a history of regular illicit drug use (George et al. 2012). Offenders with SUD struggle with community reintegration and display high rates criminal recidivism. National Data gathered by the BJS reported that within three years of release, 67 percent of drug offenders were rearrested, and approximately 49 percent were reincarcerated (Langan & Levin 2002).

It is widely accepted that prison-based drug treatment can effectively reduce future drug use and criminal recidivism among offenders with SUD (Butzin & Inciardi 2002; Simpson 2004). In particular, Therapeutic Communities (TC) is one of the most effective treatment models of prison-based drug treatment, with higher rates of success than low-intensity treatments. Studies of prison-based TC report significant treatment effects including reductions in criminal recidivism (Wexler et al. 1992; McCollister et al. 2003).

Despite the overwhelming need to provide rehabilitation to inmates, drug treatment is yet to be universally provided by U.S. state and federal prisons. While drug education and other low-intensity services are typically offered by local and state correctional facilities, intensive prison-based drug treatment is available in a small portion of these institutions: only 29 percent

of prisons and 27 percent of jails offer intensive Therapeutic Communities (TC) drug treatment (McCarty & Chandler 2009). Additionally, even when correctional facilities do offer such treatments it is not guaranteed that all eligible inmates will have access to them. One 2005 report estimated that only 12.4 percent of inmates with a history of drug use receive any clinically or medically based drug treatment while incarcerated (Belenko & Peugh 2005). More recently, two studies found that only 15 percent of their sample of substance abusing inmates had received any treatment from a trained professional since prison admission (Belenko & Houser. 2012; Fletcher et al. 2009).

Obstacles to Successful Treatment Outcomes

Although widely recognized as an effective form of rehabilitation, even when administered properly, prison-based drug treatment must not be considered a “fix-all” solution for reducing future substance use and criminal recidivism. Research has shown that successful treatment outcomes are not always sustained longitudinally. Many follow-up studies have reported that initial significant differences in reincarceration rates between inmates who receive drug treatment and their untreated peers will decrease or become nonexistent over time (Larney et al. 2011; Martin et al. 1999; Prendergast, Wellisch, & Wong 1996; Wexler et al. 1999).

Prison-based treatment effects are often contingent upon several variables. For example, one issue affecting the quality of prison-based treatment is duration. It is well established that treatment must last a minimum of 90 days in order to show significant long-term changes in drug use and recidivism (Coviello et al. 2013; Friedmann, Taxman, & Henderson 2007; Hser et al. 2001; Simpson et al. 1997), yet research shows that only one-third of inmates actually complete 90 days of drug treatment (Longshore et al. 2004; Zanis et al. 2009). One randomized controlled trial of a methadone maintenance treatment program in Baltimore found that initially, prisoners

who received treatment were less likely to be reincarcerated than the control group, but this effect became statistically nonsignificant by six months post incarceration (Gordon et al. 2008; Kinlock et al. 2008.) Research also indicates that prison-based drug treatment may even be entirely ineffective when treating certain SUD's. A series of studies in the U.S. and France found that among heroin users, prison-based Opioid Substitution Treatment (OST) produced no significant difference in reincarceration rates between treatment and control groups (Johnson, van de Ven, & Grant 2001; Levasseur et al. 2002).

Mental Health Disorders and Treatment in Correctional Facilities

It is estimated that 56 percent of prison inmates and 64 percent of jail inmates have been clinically diagnosed with mental health problems, and 26 percent of all incarcerated offenders have been diagnosed with an SMI (James & Glaze 2006). However, it should be emphasized that these figures are estimates; the accuracy of these statistics is unclear, due to the frequency of jail and prison inmates with undetected mental health problems and SMI.

Persons with SMI are 50 percent more likely to be incarcerated than hospitalized for treatment (Morrissey, Meyer, & Cuddeback 2007). Only 3 percent of the general population experience SMI (non-institutionalized civilians), while 15 percent of the total correctional supervision (i.e., jails, prisons, probation) have SMI (Kaeble et al. 2016; Torrey et al. 2014). The number of persons with SMI in U.S. jails and prisons is now three times larger than the public psychiatric hospital population (Torrey et al. 2014). Many experts attribute the high rates of SMI in U.S. correctional facilities to key legislative decisions that have resulted in the closure of many state psychiatric hospitals, which has arguably caused a migration of mental health treatment from state hospitals to correctional facilities (Grob 1995; Grob 2008; Lurigio 2001; Torrey et al. 2014). The number of patients in state hospitals has been in consistent decline since

1960, and between 2005 and 2010 the number of beds in state psychiatric hospitals decreased by 14 percent (SAMHSA 2012).

Offenders with SMI serve a larger proportion of their sentences, serve longer sentences, and are more likely to recidivate than the general offender population (O'Connor, Lovell, & Brown 2002). One study found that upon release former inmates with a professionally diagnosed SMI were 70 percent more likely to be reincarcerated at least once than ex-inmates who did not have SMI (Gonzalez & Connell 2014).

Few empirical studies have investigated effective therapies for inmates with SMI, and a large portion of clinical examination that does take place has been conducted outside the U.S. There are several evidence-based models used to treat criminal behavior among *general* offenders including Cognitive Behavioral Therapy (CBT) and Social Learning Theory (Bourgon & Armstrong 2005; Morgan et al. 2012; Morgan & Flora 2002; Wormith & Olver 2002), but treatment experts have warned that these practices will not necessarily be effective on offenders with SMI (Morgan et al. 2014). Furthermore, it is important to understand that while some mental health treatment may improve psychiatric outcomes for the general population, not all treatment models are designed to treat patterns of criminality exhibited by offenders with SMI (Andrews & Bonta 2010; Morgan et al. 2014). In order to treat mental illness *and* criminal behavior, offenders with SMI must receive integrated and comprehensive treatment informed by both correctional strategies and psychiatric guidelines.

Despite federal policy mandating that all incarcerated offenders are to receive medical and mental health care, many inmates with mental health problems or SMI go undetected and untreated (Pillai et al. 2016). The need to improve frequency and quality of screenings, diagnosis, and treatment of SMI in correctional institutions is both a legal and humanitarian issue

(Gonzalez & Connell 2014). Yet, providing mental health treatment in jails and prisons is complex. Administrators face many practical challenges, and few regimens employ evidence-based practices (EBP's) (George et al. 2012).

Screenings and diagnosis play a large role in whether an inmate will receive treatment: prison staff members with no professional background in the field of mental health are often responsible for assessing and referring inmates to various forms of treatment (Lurigio 2006). In this scenario, while accessible, administrators rarely utilize EBP's in the screening and diagnosis process. This, in turn, significantly decreases the likelihood that an SMI will be diagnosed, especially when considering the myriad symptoms associated with various SMI's that are impossible to detect without assessment from a trained mental health professional (O'Connor et al. 2002). These issues have a negative effect from a research perspective: "little is known about the number of inmates who need different amounts or types of treatment, in part because of the absence of standardized and validated clinical screening and assessment in correctional facilities" (Belenko & Peugh 2005:270). Even when EBP's are implemented in correctional facilities, research shows this does not result in a higher rate of prison-based mental health treatment received by inmates (Pillai et al. 2016).

Furthermore, disciplinary actions that take place in prison facilities can prevent inmates from receiving mental health treatment. Many inmates with SMI end up in solitary confinement due to behavioral disciplinary action, eliminating their opportunity to receive mental health treatment (Butler, Johnson, & Griffin 2014; Gonzalez & Connell 2014). Budgetary restrictions may also prevent inmates from receiving proper mental health care. Many correctional facilities cannot provide or opt out of providing pharmacotherapy (use of medications in mental health

treatment), which can be a significant component in comprehensive mental health treatment (Gonzalez & Connell 2014).

Transition Services and Community-Based Aftercare Treatment

Experts agree that prison-based treatment is just one component of a comprehensive treatment system and longitudinal continuum of care for offenders with SUD and SMI. Research suggests that prison-based treatment effects often *depend upon* parolee engagement in community-based aftercare treatment. A large amount of evidence confirms the importance of transition services, especially for offenders who have completed prison-based treatment (Earthrowl, O'Grady, & Birmingham 2003; Sacks et al. 2012; Simpson 2004; Knight, Simpson, & Hiller 1999; Martin et al. 1999; Wolff et al. 2002). Studies have also demonstrated the cost-effectiveness of transition services; a longitudinal analysis of a Texas-based continuum of care program found that a three-tiered service program (prison-based treatment, residential aftercare, and outpatient aftercare) was cost-effective only when participants completed the entire treatment regimen (Griffith et al. 1999).

Studies of SMI transition services also demonstrate many successful outcomes. One study of SMI offenders found that reincarceration rates for those who received both prison-based treatment and aftercare were almost half the rate of the control group that received a standard mental health treatment (17 percent vs. 33 percent) (Sacks et al. 2004).

Research has shown that standard outpatient treatments as well as residential community-based treatments are both reliable and cost-effective methods of aftercare, especially for high-risk parolees with SUD or SMI (Griffith et al. 1999; Simpson 2004). Treatment effects include reduced substance use (French et al. 2002; Lipton et al. 2003; Fletcher et al. 2009), improved psychological well-being (Sacks et al. 2012), and larger reductions in recidivism for longer

periods of time in comparison to control groups (De Leon 1984; De Leon & Jainchill 1981; De Leon et al. 1999; De Leon et al. 2000; Hiller, Knight, & Simpson 1999; Sacks, Sacks, & Stommel 2003).

Evidence surrounding transition services and aftercare treatment has been so overwhelming that multiple government agencies have updated treatment policy to reflect an emphasis on aftercare. The Bureau of Justice Assistance (BJA) now requires that state grant programs give preference to prison facilities that provide aftercare services. Likewise, the Office of National Drug Control Policy (ONDCP) standard of care requires that community-based aftercare treatment have a minimum duration of six months (Urban Institute Justice Policy Center 2006; Visher & La Vigne 2003).

Despite these new policies and ample evidence demonstrating the benefits of transition services, parolees with SUD and SMI typically receive minimal-to-no follow-up upon release from correctional facilities, which significantly decreases their likelihood of successful reintegration, and increases their likelihood of criminal recidivism (Fisher et al. 2014). Moreover, transition services is one of the least frequently offered services in U.S. prisons (Kubiak, Zeoli, & Essemacher 2011). Many correctional facilities and parole agencies that provide transition services are ill equipped to assess, diagnose, and refer SUD and SMI parolees to appropriate community-based drug and mental health aftercare treatment (Ducharme et al. 2013). Additionally, because transition services and community-based aftercare treatment involve different “systems” of organization (community and corrections) they are commonly overlooked (Simpson 2004). This can be the result of a lack of funding, organizational complexity, and “service delivery gaps” due to fragmented coordination between these two organizations, all of which put soon-to-be parolees at risk of not receiving proper care and

services. Studies indicate that an absence of collaborative relationships between therapeutic communities and correctional facilities is significantly associated with poor aftercare treatment outcomes. Weak collaboration has led to many missed opportunities to provide drug and mental health treatment, and increases parolees' likelihood of criminal recidivism (Fletcher et al. 2009; Freudenberg 2001).

Co-Occurring Disorders

At an individual level, the term co-occurring disorder (COD) refers to persons with one or more SUD and one or more SMI that exist independently of the other (Sacks & Ries 2005). However, because an individual may not always meet DSM criteria for a diagnosable mental health or substance use disorder—ruling out a potential COD diagnosis—experts recommend using a “service definition” of COD, which includes individuals in a “prediagnosis” stage who have one established disorder (mental or substance) who show symptoms an additional disorder, or are at risk of developing one (SAMHSA 2006).

COD Treatment

Researchers using data from the National Comorbidity Survey (NCS) reported that less than 40 percent of Americans with COD have ever received professional care (SAMHSA 2016). As a group, persons with COD demonstrate lower rates of treatment entry (Verduin et al. 2005), show poorer retention in therapy (Baillargeon et al. 2010; Curran et al. 2003), and less successful treatment outcomes such as hospitalization and drug relapse, compared to persons with SMI or SUD only (Krupsi et al. 2009). This can be partially attributed to a lack of specialized screenings and treatments for COD utilized by community-based drug treatment facilities, and poor collaboration between the mental health and addiction therapeutic communities. Improper

practice decreases the likelihood that a COD will be diagnosed or treated (McGovern et al. 2010; Peters et al. 2015; Priester et al. 2016).

Offenders with COD

Compared to a single-disorder, COD is more strongly associated with a larger variety of individual and social health risks, including unemployment, homelessness, drug relapse and overdose, and suicide (Mueser, Drake, & Miles 1997; Osher & Drake 1996; Peters et al. 2015). COD is also associated with increased criminogenic behavior: persons with COD are more likely to be arrested and incarcerated (Monahan et al., 2000, 2001, 2005), and two to three times more likely to commit acts of violence (Drake et al. 2006; Peters et al. 2015; Taxman et al. 2008). Additionally, offenders with COD serve longer sentences, violate parole, and recidivate sooner than offenders with SUD or SMI (Morgan et al. 2010; Skeem, Nicholson, & Kregg 2008). These findings are verified by the increasing rates of SUD and SMI (co-occurring and independently-occurring) among the correctional population.

Many experts note that COD is the rule than the exception in correctional settings (Grant et al. 2004; Peters, Rojas, & Bartoi in press; Peters et al. 2015). BJS reports that approximately 42 percent of prison inmates and 49 percent of jail inmates experience COD (James & Glaze 2006). Across individual studies, researchers have estimated that a minimum of 42 percent of state prisoners experience symptoms of COD (Mumola & Karberg 2006; Wood 2014), and up to 80 percent of state prisoners with SUD also experience co-occurring mental health problems or SMI (Sacks and Ries 2005; Taxman et al. 2008).

Similar to SMI and SUD offenders, offenders with COD are severely undertreated in prison facilities and their symptoms are regularly undetected. As a group, offenders with COD are less likely to receive any drug or mental health treatment than offenders with SUD and SMI.

Additionally, prison-based COD treatment is typically unavailable. Compared to community-based corrections settings, jails, probation, and parole systems are significantly less likely to provide screenings, needs assessments, and treatment for COD (Taxman et al. 2008). Even when correctional facilities do offer separate mental health and drug treatment, evidence-based screenings and specialized treatment for COD are underutilized.

Prison-Based COD Treatment Research

Offenders with COD tend to be ignored in treatment research. Very few controlled studies have examined the efficacy of prison-based treatment, transition services, and aftercare treatment for this population (Harrison & Martin 2003; Peters et al. 2015; Wood 2014), and research on offender COD screening tools is a relatively new development. Literature that does exist is not widely disseminated, creating a research-to-practice gap in prison treatment settings (Lurigio et al. 2003; Peters & Pettila 2004). Although experts have agreed that prison-based treatment can lead to successful changes in drug use and mental health, what remain in question are the significant differences between treatment models and processes, where they can be improved, and to what degree they can significantly improve health and recidivism outcomes for offenders with COD (Simpson 2004).

Research Needs

In addition to prison-based treatment, there is limited literature on transition services and for offenders with COD. Research gaps methodological flaws prevent experts from drawing conclusions about effective components transition services. For instance, experts have called for an increase in both the variety and quality of outcome measurement in treatment literature that addresses COD (Pelissier, Jones, & Cadigan 2007), adding that multiple measures of behavioral

outcomes and criminal recidivism should be utilized in single studies to ensure the integrity of research findings (Harris, Gingerich, & Whittaker 2004).

Many researchers fail to address the conceptual differentiation between transition services and community-based aftercare treatment. In a review of transition and aftercare SUD treatment research, Pelissier et al. (2007) noted several instances when research articles did not provide any type of description or conceptualization of therapeutic models or treatment measures. Key aspects of therapy such as duration, intensity, and setting all contribute to the effectiveness of a therapy and should be explicitly outlined in study methodology. To omit conceptualizations and descriptions of such can be confusing and misleading, especially in the case of similar yet distinct services such as transition and aftercare. Additionally, poor methodology makes it difficult to compare results across studies and evaluate program effectiveness.

Treatment duration, intensity, and setting all affect program success; to leave out treatment descriptions when describing a model of care and research findings, makes it difficult to compare results across studies, and hinders a body of literature from approaching research consensus. In order to determine which models and components of transition services are most affective at treating parolees with COD, program conditions and measures of treatment should be explicitly outlined in study methodology.

COD Transition Services and Community-Based Aftercare Treatment

Unfortunately, many offenders with COD fail to receive transition services prior to discharge, and upon release from correctional facilities, most struggle to initiate and complete community-based aftercare treatment (Earthrowl et al. 2003; Kubiak et al. 2010; Sacks et al. 2012; Smith, Baxter, & Humphreys 2003). For example, one study of California offenders found

that only 34 percent of parolees in transition services who received referrals to community-based aftercare actually entered treatment, and 45 percent of those dropped out before completing 90 days of treatment (Hall et al. 2003).

While research on COD transition services and aftercare treatment is still in early development, there are some promising studies. Similar to offenders with SUD, studies of inmates with COD who receive treatment in correctional settings *followed by* formal community-based aftercare show significantly reduced levels of substance use and criminal recidivism (Sacks et al. 2004; Sacks et al. 2012). In particular, research on a modified TC model for COD has shown significant reductions in the likelihood of recidivism for participants (Sacks et al. 2012). One study of parolees with COD who received prison-based drug treatment as well as community-based aftercare reported that at 12-months post release, reincarceration rates for the treatment group were 50 percent lower than the control group (19 percent vs. 38 percent, when controlling for demographic measures and treatment received during incarceration).

Summary

Offenders with COD face several individual and social health risks. Research shows that prison-based COD treatment accompanied by transition services and aftercare treatment significantly decreases offenders' likelihood of drug relapse and criminal recidivism. In order to improve COD offender outcomes, it is crucial to understand which models of transition are most predictive of engagement in community-based aftercare treatment and reduced criminal recidivism.

Experts have noted that research on transition services is limited and community based treatment for offender populations are "typically not well grounded in evidence-based practices" (George et al. 2012:2; Taxman et al. 2008; Wood 2014). The purpose of this study is to extend

our understanding of transition services for parolees with COD. The present study tests the effects of a transition service program on drug use and criminal recidivism outcomes for parolees with COD. Secondary data from previously conducted research on the effects of Transition Case Management (TCM), a transition service program model developed for SUD offenders (Prendergast & Cartier 2004) is analyzed.

Hypotheses

Using logistic regression analysis the present study tested three hypotheses.

H₁ The odds of rearrest are lower for parolees with COD who receive TCM than for parolees with COD who receive SR.

H₂ The odds of reincarceration are lower for parolees with COD who receive TCM than for parolees with COD who receive SR.

H₃ The odds of illicit drug use are lower for parolees with COD who receive TCM than for parolees with COD who receive SR.

DATA & METHODS

Study Design

This study analyzed data from the CJ-DATS Transition Case Management Study (Prendergast & Cartier 2004), a short-term longitudinal study of a transition service intervention for recently paroled offenders with SUD, who received drug treatment while incarcerated. The TCM was developed to enhance system level service organization, test a transition service model meant to increase the quality of transition services from prison to community, and improve client-level outcomes such as aftercare participation and completion, substance use relapse, and criminal recidivism (Prendergast & Cartier 2004).

Sample

The target population for this study was two-tiered, with organizational and individual level samples. First recruited were criminal justice systems with therapeutic community partners that offered specific cognitive-behavioral treatments both in prison and during transition service administration. Once these sites were selected, the individual-level sample was recruited from each participating organization. The individual-level sample consisted of adult felony offenders who received prison-based treatment for an identified substance use, who also had a referral for community treatment upon discharge. In total, there were five participating state research sites across the United States, with 200 offender participants from each organization (Prendergast & Cartier 2004).

Recruitment

Researchers utilized monetary incentives to increase response rates and avoid study attrition. Participants were paid \$10 to complete a baseline assessment and \$25 to complete at three-and nine-month post release interviews. Additionally, those who completed both assessments were paid an additional \$10, and participants who voluntarily provided urine samples were given \$5 for each test. Follow-up incentives were also provided in the form of grocery script or other noncash monetary gifts.

Treatment Conditions

A comparison study design placed consenting respondents in two randomized treatment groups: (1) a control group that received SR services and (2) a treatment group that received TCM. Participants in the control group received Standard Referral services, which includes a referral to a community-based treatment, and upon release, standard parole supervision and services (Prendergast & Cartier 2004) (it should be mentioned that the SR services offered at

each site were all evidence-based models of care—a prerequisite for participating in the study). Participants in the treatment group received the TCM intervention which consists of two phases: first, each participants was assigned a TCM case manager and began receiving transition services approximately two months prior to release, and continued to have weekly sessions with their case managers for the first three months of parole. The second phase occurred for the first three months of parole and involved case management, monitoring, and facilitating access to designated treatments and services (Prendergast & Cartier 2004). Group assignment took place during Wave I at baseline interviews. A computer program used gender, race, risk of recidivism, substance use severity, and type of treatment institution as variables in “urn” randomization (Prendergast & Cartier 2004; Stout et al. 1994).

Data Collection

Data were collected at three assessment points: Wave I baseline interviews took place in correctional facilities and occurred approximately three months prior to offenders’ release; Waves II and III consisted of follow-up interviews with parolees at three- and nine-months post release. The final sample size upon completion of Wave I baseline interviews was 812.

Measures

Outcome Variables

Criminal recidivism. For the purpose of this study, criminal recidivism was defined as any rearrest or reincarceration that occurred within three- to nine-months post release. At Wave II (three-months post release), data on rearrest and reincarceration were collected via self-reporting from follow-up interviews with parolees and their case managers. At Wave III (nine-months post release), rearrest and reincarceration data were supplemented with official criminal justice data records. In total, two variables were created to measure criminal recidivism: (1) any

rearrest during the first and second recall periods (Waves II & III), and (2) any *reincarceration* during the first and second recall periods. These were binary variables, with “0” indicating no rearrest or reincarceration during either recall periods, and “1” indicating any rearrest or reincarceration during either recall periods.

Drug use. Self-reports and urine analysis were collected to measure parolees’ drug and alcohol use at Waves II and III. The only exceptions to collecting urine samples were in the case of parolee reincarceration or if there were cooperation difficulties with jail and prison administrators. One comprehensive, binary variable was created to represent any post release drug or alcohol use during the three- to nine-months post release period (any post release drug or alcohol use = 1, no post release drug or alcohol use = 0).

Explanatory Variables

TCM participation. A dummy variable was used to identify the treatment and control groups (TCM = 1, SR = 0).

COD. Because the TCM manual did not provide information regarding the professional COD diagnoses participants’ received following their mental health assessments, the present study used a “service definition” of COD to identify positive cases. As mentioned previously, a service definition of COD includes individuals in a “prediagnosis” stage—persons with one established disorder (in this case SUD)—who show symptoms of one or more additional SMI disorders (SAMHSA 2006). If participants’ mental health test scores met a certain numeric threshold they were identified as a positive COD case. Additional information about this threshold is provided below.

Mental health was measured at Wave I during baseline interviews using the Brief Symptom Inventory (BSI®), an evidence based, standardized mental health screening instrument

used to diagnose nine symptom dimensions (Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism) (Derogatis 1993b). Extensive analysis of the BSI has confirmed the internal consistency reliability, test-retest reliability, convergent and discriminant validity, predictive validity, and internal structure and construct validity of this measurement tool (Derogatis 1993a; Derogatis & Cleary 1977; Derogatis, Rickels, & Rock 1976; Harmon 1967; Nunally 1970).

The BSI is a 53-item inventory of symptoms such as “feeling lonely”, “nervousness or shakiness”, or “trouble getting your breath”. Participants rate their experience with these items on a 5-point Likert-scale of distress, ranging from “not at all” = 0 to “extremely” = 4.

Different symptom dimensions are associated with different inventory items, and measured by grouping these items together to calculate a dimension score. This is done through a two-step process; first by calculating a raw score, which is the total sum of the values attributed to each item in a dimension’s series, divided by the total number of items *endorsed* (for example, Depression has 6 items, but if only 5 symptoms are endorsed, meaning it has been assigned a value “1” or greater, the total sum is divided by 5 items, rather than 6) (Derogatis 1993b).

$$\frac{\text{sum of item series values}}{\text{\# of endorsed items}} = \text{raw score}$$

Second, participants’ raw scores are converted into standardized area T scores, which have a mean of 50 and a standard deviation of 10 (Derogatis 1993). T scores were compared to adult male and female nonpatient average T scores distributions; if respondents’ T scores were equal to or greater than 63 (the numeric threshold for “caseness”), they were identified as a positive case of COD.

This formula was repeated for all nine symptom dimensions, and nine binary variables were created to measure respondents' positive or negative "case" status for each dimension (i.e., Depression noncase = 0, Depression positive case = 1). The nine symptom dimension variables were then manipulated to construct one final dichotomous measure that represented all participants who were positive cases for one or more of the nine symptom dimensions (noncase = 0, positive case = 1).

Before proceeding, it is important to address potential concerns surrounding the measurement of intangible phenomena, such as the COD status of offender participants. It is impossible to account for every possible symptom or manifestation of an SMI, and many offenders have symptoms that do not conform to conventional notions of a particular disorder, or are not addressed in established criteria (Morrison 2014). Furthermore, the use and abuse of substances can both cause and exaggerate mental disorders, making it especially difficult to separate and distinguish symptoms as being two or more comorbid disorders (disorders that are interdependent) or two or more independently COD's (Morrison 2014).

The justification for this study's operational definition of COD is also worth discussing. Because of the difficulty in reaching a diagnosis with absolute surety, SMI and mental health symptoms are typically charted on a broad continuum of severity. While the measure of mental health in this study is technically a dichotomous variable, values were established according to a defined diagnostic construct of "caseness" that falls along a spectrum of normal, representative sample score distributions. This concept is referred to as "implied hierarchy," when a certain criteria or threshold is established (in this case a T score threshold), in order to apply a diagnostic label (Thornicroft & Tansella 2010:240). This is one of the principal aims of epidemiological research—to estimate prevalence of a particular disorder or condition (Thornicroft & Tansella

2010), and the creator of the BSI considers an operational definition of caseness as “fundamental to screening research of all kinds” (Derogatis 1993b:31). As such, it is common in mental health research to identify a threshold score on a dimensional scale in order to differentiate between cases and noncases, and experts note the utility in this practice (Thornicroft & Tansella 2010).

Conversely, it can be argued that this measure does not allow for sensitivity to minor deviations from the T score threshold for caseness. Although, considering the high frequency of respondents whose symptom dimension scores meet the numerical definition of caseness, and similar distribution to estimated population rates, it is likely that the study’s measure of mental health has effectively captured those who experience diagnosable symptoms of a COD.

Additionally, the BSI distribution scale is arguably more clinically relevant than other mental health instruments; empirical investigation has confirmed the symptom dimension caseness sensitivity of the BSI across several populations, including offenders (Singer et al. 1995; Tansella & Thornicroft 1996; Zabora 1990). It may be helpful to think of the present study’s measure of mental health as an indicator variable, representing those respondents whose BSI symptom dimension scores are severe enough to meet a reliable and internally valid numerical threshold representing diagnosable severity.

Addiction severity. Substance use and addiction severity were assessed at Wave I during baseline interviews using the TCU Drug Screen II (TCUDS II). The TCUDS II is an evidence-based, standardized assessment and treatment evaluation tool, created to measure SUD among offender populations (Knight 2007; Prendergast & Cartier 2004; Simpson & Joe 1993). Several studies have certified its predictive validity, sensitivity, and accuracy in comparison to other standardized addiction screening instruments (Knight 2007; Peters, Bartoi, & Sherman 2000),

and confirmed its particular utility when determining eligibility for treatment services in criminal justice settings (Knight, Simpson, & Hiller 2003; Peters et al. 2000).

The TCUDS II is comprised of fifteen yes/no questions that are based on DSM addiction criteria, with diagnosis protocol corresponding approximately with classifiable DSM drug dependence (American Psychiatric Association 2013). Items 1 through 9 measure addiction severity, while items 10 through 15 provide descriptive information regarding use and frequency of particular substances. Total scores can range from 0 to 9, with a score of 3 or greater indicating a relatively severe drug-related problem. In previous CJ-DATS studies the TCUDS II was coded as an indicator variable representing severe and non-severe addiction (score of 3 or greater = 1, score of 2 or less as = 0). The present study kept the TCUDS II in its original format as a numerical index measure with values ranging from 0 through 9.

Recidivism risk. Risk of Recidivism was measured during Wave I interviews using the Lifestyle Criminality Screening Form (LCSF) (Walters 1990, 1991, 1998). The LCSF is an evidence-based instrument used to assess risk of recidivism. Through statistical analysis, the screening form is confirmed to have strong internal consistency (Cronbach alpha= .70) as well as test-retest reliability ($r=.93$) (Walters & McDonough 1998). The test is composed of 14-items that measure likelihood of recidivism; topics in the questionnaire address irresponsibility, self-indulgence, criminal history, and social rule breaking. Scores lower than 7 are classified as “low risk” for recidivism, with 7 through 9 classified as “moderate risk”, and scores of 10 or greater considered “high risk”. The full-scale score of the LCSF was used in statistical analysis, with values ranging from 3 through 19.

Demographic Variables

Various demographic variables were used as control measures in the regression analysis, including sex, race, age, marital status, and educational attainment. Rather than create a variable with multiple race categories, the race measure was a dichotomous variable that compared whites to three other racial groups (blacks, Hispanics, and Native Americans—other ethnic groups were not frequent enough in the dataset to include in the analysis); white was coded as “1”, and nonwhite was coded as “0”. The original Wave I intake survey allowed participants to mark multiple categories to identify their race, making it difficult to create a variable with mutually exclusive race categories. To adjust for this, white participants who identified as biracial Hispanic, Native American, or black were assigned to the “nonwhite” category. Analysis conducted to test the effects of this dichotomous race variable showed no significant outcome differences when compared to a race measure that included biracial participants in the “white” category, and a variable with three mutually exclusive racial categories.

Sex was coded to identify females as the comparison group (female = 0, male = 1). Consistent with previous criminological studies (Belenko & Houser 2011; Fisher et al. 2014), educational attainment was coded as a dummy variable, based on whether the respondents graduated from high school or earned a GED equivalent (no = 0, yes = 1). Marital status was also a dichotomous variable that measured whether a person was single, legally married or living as married (not married = 0, married or living as married = 1). Age was a scale variable coded in years.

Analytic Plan

In the previous TCM study, treatment effects on criminal recidivism and drug relapse outcomes were estimated using multilevel models, hierarchical linear models, random-effects

mixed regression, Bernoulli distribution link test, and cox proportional hazard regression. Group differences were analyzed at two specific time points, to test group changes over time. Some models were estimated to allow for within group correlations, and other models used covariates to control for baseline differences between treatment and control groups (Prendergast & Cartier 2004). Because none of these regression models predicted statistically significant associations between explanatory and outcome variables, the present study used general binary logistic regression.

This study used two types of binary logistic regression models to estimate the odds ratios for three outcomes (rearrest, reincarceration, and drug use). The first logistic regression model estimated the effects of TCM participation, COD, sex, race, age, marital status, educational attainment, addiction severity, and recidivism risk, on rearrest, reincarceration, and drug use outcomes. The second logistic regression model was the same as the first, with the exception of adding an interaction term between TCM participation and COD.

The interaction term was used to account for effect modification in the regression models when testing the associations between the explanatory and outcome variables. This function will help to determine if COD caseness plays a role in the association between participating in TCM and rearrest, reincarceration, and drug use, or if these two explanatory variables are independently associated with the outcome variables (Hoffmann 2010; Hoffmann 2015).

Missing Data

Interviews and assessments were completed with an 84 percent follow-up rate at Wave II (n = 685), and an 83 percent follow-up at Wave III (n = 678). Forty-seven participants (25 TCM, 22 SR) were either not released from prison in time to participate in transition services and community-based aftercare treatment, or were paroled to a county or state where TCM services

were not available. Despite study attrition, official rearrest and reincarceration records were obtained to reconstruct the outcome data and maintain a sample size of 806. Through interim analyses and imputation strategies it was determined that missing cases due to drop out did not compromise the integrity of the data or impact heterogeneity between the treatment and control groups (Prendergast & Cartier 2004). Additionally, CJ-DATS researchers determined that the TCM and SR groups were comparable on demographic, criminal recidivism and post release drug use variables (Prendergast & Cartier 2004). Missing data was also supplemented with various statistical functions. When the frequency of missing data for particular variables was small, researchers employed mean substitution; if variables showed extensive patterns of missing data the estimation-maximization (EM) algorithm was used to provide maximum likelihood estimates of incomplete data (Little & Rubin 1987). In the case of missing data for outcome measures, data were analyzed using mixed regression models and generalized estimating equations, which accommodate missing data in longitudinal datasets (Hoffmann 2015; McPherson et al. 2013).

RESULTS

Descriptive Results

Descriptive statistics for the data are presented in Table 1; variables in the table include rearrest, reincarceration, drug use, TCM participation, COD, sex, race, age, marital status, educational attainment, addiction severity, and recidivism risk.

Total Sample

Comparison descriptive statistics are displayed in Table 2. The sample was 76 percent male, 26 percent white, with a mean age of 34.2. About 31.9 percent of the sample graduated from high school or earned a GED, and 17.4 percent were legally married or cohabiting.

Seventy-eight percent of the sample had BSI scores that met the numerical definition of caseness for at least one of the nine symptom dimensions; the mean addiction severity score was 5.7, and mean recidivism risk score was 11.3.

[Table 1 About Here]

COD vs. SUD Only

The COD group was about 75 percent male, 26 percent white, with a mean age of 34.2. In comparison, the SUD group was almost 87 percent male, while race (26.2 percent white) and mean age were about the same. Among the COD group, 32.3 percent graduated high school or earned a GED, while only 27.9 percent of those with SUD graduated. About 17 percent of the COD group was legally married or cohabiting, in comparison to 24.6 percent of the SUD group. Those with COD were at a higher risk for recidivism than the SUD group with a mean score of 11.3 compared to 10.7 for SUD parolees. Those with SUD had slightly higher addiction severity than the COD group (SUD mean score of 5.9 vs. COD mean score of 5.7). The SUD group also had a higher rearrest rate at 70 percent compared to the COD group at 63.5 percent. Conversely, the COD group had a higher reincarceration rate at 44.7 percent, with the SUD group at 40.4 percent. Approximately 25 percent of those with SUD and 26.6 percent of those with COD tested positive for drug use.

[Table 2 About Here]

Rearrest

The first hypothesis—that the odds of rearrest are lower for parolees with COD who receive TCM than for parolees with COD who receive SR—was tested through the estimation of two regression models. The first model estimated the independent effects of TCM participation on rearrest while controlling for the effects of COD, sex, race, age, marital status, educational

attainment, addiction severity, and risk of recidivism (summarized in Table 3). The results showed no significant differences in odds of rearrest between the treatment and control groups (OR = .89, $p=.44$). Likewise, there were no significant differences in odds of rearrest for any of the control variables.

Symptoms of COD as a Moderator

The second model estimated the odds of rearrest with the addition of the interaction term TCM participation \times symptoms of COD, while holding constant the effects of sex, race, age, marital status, educational attainment, addiction severity, and risk of recidivism (summarized in Table 3). While the odds of rearrest technically increased from .89 in the first model to 1.56 in the second, these differences were not statistically significant.

[Table 3 About Here]

Reincarceration

The second hypothesis—that the odds of reincarceration are lower for parolees with COD who receive TCM than for parolees with COD who receive SR—was tested by regressing TCM participation on reincarceration, while holding constant the effects of COD symptoms, sex, age, race, marital status, educational attainment, addiction severity, and risk of recidivism (summarized in Table 4). Overall, the regression effect was not statistically significant.

Symptoms of COD as a Moderator

The second model estimated the odds of reincarceration by adding the interaction term TCM participation \times symptoms of COD, while controlling for the effects of sex, race, age, marital status, educational attainment, addiction severity, and risk of recidivism (summarized in Table 4). Results showed no significant differences in reincarceration.

[Table 4 About Here]

Drug Use

The third hypothesis predicted that the odds of drug use are lower for parolees with COD who receive TCM than for parolees with COD who receive SR (summarized in Table 5). This was tested by regressing TCM participation on drug use, while controlling for the effects of COD symptoms, sex, race, age, marital status, educational attainment, addiction severity, and risk of recidivism. The primary relationship between TCM and drug use was not significant, but age significantly predicted likelihood of drug use, with each year increase associated with a 5 percent decrease in the odds of drug use (OR = .95, $p = .000$).

Symptoms of COD as a Moderator

The second model used the interaction term TCM participation \times symptoms of COD to predict the odds of drug use, while controlling for the effects of sex, race, age, marital status, educational attainment, addiction severity, and risk of recidivism (summarized in Table 5). In this model, the primary relationship between TCM participation and drug use was insignificant; the odds ratio for the TCM \times COD interaction term was also insignificant. Age was the only variable that remained a significant predictor, with each year increase associated with a 5 percent decrease in the odds of drug use (OR = .95, $p = .000$).

[Table 5 About Here]

DISCUSSION

Researchers have estimated that up to 80 percent of state prisoners with SUD experience co-occurring mental health problems or SMI, while overall, a minimum of 42 percent of state prisoners experience symptoms of COD (Mumola & Karberg 2006; Sacks and Ries 2005; Taxman et al. 2008; Wood 2014). Offenders with COD are more vulnerable than both general offenders and offenders with SUD or SMI; they are more likely to experience drug relapse and overdose, and are rearrested and reincarcerated sooner (Baillargon et al. 2009; Morgan et al. 2010; Skeem et al. 2008; Wood 2014).

Previous studies have established the importance of transition services for offenders with SUD (Urban Institute Justice Policy Center 2006; Visher & La Vigne 2003). Furthermore, research shows that these services are especially beneficial when offenders have completed prison-based drug treatment (Earthrowl et al. 2003; Knight, Simpson, & Hiller 1999; Martin, Butzin, Suam, & Inciardi 1999; Sacks et al. 2012; Simpson 2004; Wolff et al. 2002). In contrast, offenders with COD rarely receive prison-based treatment or transition services prior to discharge and upon release from correctional facilities (Earthrowl et al. 2003; Kubiak et al. 2010; Sacks et al. 2012; Smith, Baxter, & Humphreys 2003). Models of transition services have been developed for COD offenders but show limited success, and research on these services remains in early development.

The aim of the present study was to extend criminologists' and treatment experts' understanding of transition services for offenders with COD. Using data from the CJ-DATS TCM Study on parolees with SUD (Prendergast & Cartier 2004), this study conducted further analysis on the sample by examining the frequency of COD, and accounting for parolees' COD status when testing the effects of TCM. Outcome measures analyzed in the study included drug

use, rearrest, and reincarceration between three- and nine-months post release. Previous studies of TCM accounted for COD during group randomization, but not in any statistical analysis. Researchers found no statistically significant differences between parolees who received TCM and those who received SR and authors recommended that enhancements to their study model be conducted in the future (Prendergast & Cartier 2004; Prendergast et al. 2011).

The findings of the present study echo previous TCM research; when accounting for parolees' COD there were no statistically significant differences between TCM and SR groups in the areas of drug use, rearrest, and reincarceration. Coupled with previous findings, this evidence further indicates that TCM is not a suitable model of care for SUD offenders with co-occurring SMI. This is not completely unexpected, considering the lack of significant findings in previously conducted examination of TCM. While the results of this analysis were not statistically significant, it is worth noting that in some cases, parolees who received SR actually showed lower odds of drug use and criminal recidivism outcomes than parolees who received TCM. This further suggests that TCM is unremarkable in comparison to the evidence-based SR services.

Limitations

It is important to address potential concerns surrounding this study that may limit the extent of inferences to be made from the data. Because data on the frequency of parolees diagnosed with COD was not freely available, it was impossible for this study to report an accurate percentage of parolees from the original sample with COD. Additionally, it should be noted that as a requirement, parolees who were diagnosed with COD were only permitted to participate if their assigned correctional facility could provide a referral to a community program specialized for COD (Prendergast & Cartier 2004). This requirement could have potentially

decreased the frequency of COD participants, creating the potential for biased and inaccurate findings.

Requiring study participants to drop out if they did not have referrals to specialized COD aftercare treatment leads us to infer that aftercare treatment is equally or more influential than transition services on parolee drug use and criminal recidivism outcomes. Even when transition services are specialized for COD, unless parolees also receive specialized aftercare, on its own, transition services may be ineffective. Because the participants with COD received or were required to have a referral to specialized, evidence-based aftercare treatment, it further points to the conclusion that TCM is not an effective transition model for offenders with COD, even if it is followed-up with specialized COD aftercare treatment.

Future Studies

Measuring and Testing Mental Health

Although methodological justification was discussed in detail in a previous section, it is worth mentioning again that the mental health measures used in this analysis could be more refined in future, more elaborate studies.

Using the T scores for all nine symptom dimensions of the BSI to measure mental health would have allowed for a wider spectrum of empirical investigation. Using T scores would ensure more accurate representations of symptom dimension distributions, as well as provide insight about the specific symptoms offenders with COD experience. Additionally, future studies that use BSI T scores could test which COD's are more strongly associated with or predictive of certain outcomes. A knowledge of which symptom dimensions are significantly associated with a lower likelihood of participating in aftercare treatment, or an increased risk for drug use and criminal recidivism would inform decisions regarding the types of transition and

aftercare services that should be a priority for SUD offenders, depending on the type of COD they experience (i.e., depression, OCD, anxiety).

It has been established that future studies should measure mental health at multiple points in time in order to accurately monitor changes in symptom severity that may be caused or exaggerated by participants' drug and alcohol use (Trauer 2010). While follow-up interviews in Waves II and III included psychiatric reevaluation with the BSI, data were not freely accessible, preventing this study from using multiple and longitudinal measures mental health. Future follow-up studies with access to this data, and new studies that collect such data, would increase the quality of methodology and depth of insight by including these measures in their analysis.

A deep understanding of the transition process for parolees with COD is lacking in COD treatment research. Testing the association between mental health and drug use overtime, the effects of transition services and aftercare treatment on changes in mental health and drug use, and creating interaction terms between these measures to predict criminal recidivism longitudinally, would all be worthwhile analyses.

Likewise, including BSI T scores as outcome measures predicted by transition and aftercare service participation would help experts determine which models and combinations of models are most effective, over time. Conversely, time series or longitudinal measures of BSI T scores could also be used as explanatory variables, used to predict criminal recidivism and prolonged participation in community-based aftercare treatment.

Conclusion

This study was conducted to reassess TCM as a suitable model of care for offenders with COD. These findings, as well as previous examination of the TCM, show no statistically significant differences between treatment and control groups in the areas of drug use, rearrest,

and reincarceration. Considering prior research that demonstrates the benefits of transition services for general offenders and offenders with SUD, the nonsignificant findings of this study point to the ineffectiveness of this particular transition model, rather than the ineffectiveness of COD transition services in general. These results call for future examination of new, specialized transition service models for parolees with COD. It is critical to design and implement evidence-based models of transition services for offenders with COD, in order to effectively increase their participation in community-based aftercare treatment, decrease COD symptom severity, future drug use, and rates of criminal recidivism.

REFERENCES

- American Psychiatric Association. 2013. *Diagnostic and Statistical Manual of Mental Disorders (DSM-5®)*. 5th ed. Washington, DC: American Psychiatric Association.
- Andrews, D. A. and James Bonta. 2010. *The Psychology of Criminal Conduct*. 5th ed. New Providence, NJ: Matthew Bender and Company.
- Baillargeon, Jacques, Ingrid A. Binswanger, Joseph V. Penn, Brie A. Williams, and Owen J. Murray. 2009. "Psychiatric Disorders and Repeat Incarcerations: The Revolving Prison Door." *American Journal of Psychiatry* 166(1):103–109.
- Baillargeon, Jacques, Joseph V. Penn, Kevin Knight, Amy Jo Harzke, Gwen Baillargeon, and Emilie A. Becker. 2010. "Risk of Reincarceration among Prisoners with Co-Occurring Severe Mental Illness and Substance Use Disorders." *Administration and Policy in Mental Health* 37:367–374.
- Belenko, Steven and Kimberly Houser. 2012. "Gender Differences in Prison-Based Drug Treatment." *International Journal of Offender Therapy and Comparative Criminology* 56(5):790–810.
- Belenko, Steven and Jordon Peugh. 2005. "Estimating Drug Treatment Needs among State Prison Inmates." *Drug and Alcohol Dependence* 77:269–281.
- Bourgon, Guy and Barbara Armstrong. 2005. "Transferring the Principles of Effective Treatment into a 'Real World' Prison Setting." *Justice and Behavior* 32(1):3–25.
- Butler, Daniel H., W. Wesley Johnson, and O. Hayden Griffin, III. 2014. "The Treatment of the Mentally Ill in Supermax Facilities." *Criminal Justice and Behavior* 41(11):1338–1353.
- Butzin, Clifford A. and James A. Inciardi. 2002. "Evaluating Component Effects of a Prison-Based Treatment Continuum." *Journal of Substance Abuse Treatment* 28:351–358.

- Butzin, Clifford A., Steven S. Martin, and James A. Inciardi. 2005. "Treatment during Transition from Prison to Community and Subsequent Illicit Drug Use." *Journal of Substance Abuse Treatment* 28:531–558.
- Coviello, Donna M., Dave A. Zanis, Susan A. Wesnoski, Nicole Palman, Arona Gur, Kevin G. Lynch, and James R. McKay. 2013. "Does Mandating Offenders to Treatment Improve Completion Rates?" *Journal of Substance Abuse Treatment* 44:417–425.
- Curran, Geoffrey M., Greer Sullivan, Keith Williams, Xiaotong Han, Kirsten Collins, Judy Keys, and Kathryn J. Kotrla. 2003. "Emergency Department Use of Persons with Comorbid Psychiatric and Substance Abuse Disorders." *Annals of Emergency Medicine* 41:659–667.
- De Leon, George. 1984. *The Therapeutic Community: Study of Effectiveness*. National Institute on Drug Abuse (NIDA) Research Monograph. ADM84-1286. Washington, DC: Superintendent of Documents, U.S. Government Printing Office.
- De Leon, George. 2000. *The Therapeutic Community: Theory, Model and Method*. New York: Springer Publishers.
- De Leon, George and Nancy Jainchill. 1981. "Male and Female Drug Abusers: Social and Psychological Status 2 Years after Treatment in a Therapeutic Community." *American Journal of Drug and Alcohol Abuse* 8:465–497.
- De Leon, George, Gerald Melnick, George Thomas, David Kressel, and Harry K. Wexler. 2000. "Motivation for Treatment in a Prison-Based Therapeutic Community." *American Journal of Drug and Alcohol Abuse* 26:33–46.

- De Leon, George, Stanley Sacks, Graham L. Staines, and Karen McKendrick. 1999. "Modified TC for Homeless MICAs: Emerging Subtypes." *American Journal of Drug and Alcohol Abuse* 25:493–513.
- Derogatis, Leonard R. 1993a. *BSI Bibliography*. Minneapolis: NCS Pearson, Inc.
- Derogatis, Leonard R. 1993b. *BSI® Brief Symptom Inventory: Administration, Scoring, and Procedures Manual*. Bloomington, MN: Pearson.
- Derogatis, Leonard R. and Patricia A. Cleary. 1977. "Confirmation of the Dimensional Structure of the SCL-90-R: A Study in Construct Validation." *Journal of Clinical Psychology* 33(4):981–989.
- Derogatis, Leonard R., Karl Rickels, and Anthony F. Rock. 1976. "The SCL-90 and the MMPI: A Step in the Validation of a New Self-Report Scale." *British Journal of Psychiatry* 128:280–289.
- Drake, Robert E., Kim T. Mueser, Mary F. Brunette, and Gregory J. McHugo. 2004. "A Review of Treatments for People with Severe Mental Illnesses and Co-Occurring Substance Use Disorders." *Psychiatric Rehabilitation Journal* 27(4):360–374.
- Ducharme, Lori J., Redonna K. Chandler, and Tisha R. A. Wiley. 2013. "Implementing Drug Abuse Treatment Services in Criminal Justice Settings: Introduction to the CJ-DATS Study Protocol Series." *Health and Justice* 1(5):1–6.
- Earthrowl, Mark, John O'Grady, and Luke Birmingham. 2003. "Providing Treatment to Prisoners with Mental Disorders: Development of a Policy." *British Journal of Psychiatry* 182:299–302.
- Fisher, William H., Stephanie W. Hartwell, Xiaogang Deng, Debra A. Pinals, Carl Fulwiler, and Kristen Roy-Bujnowski. 2014. "Recidivism among Released State Prison Inmates Who

- Received Mental Health Treatment While Incarcerated.” *Crime and Delinquency* 60(6):811–832.
- Fletcher, Bennett W., Harry K. Wexler, Gerald Melnick, Faye S. Taxman, and Douglas W. Young. 2009. “Measuring Collaboration and Integration Activities in Criminal Justice and Substance Abuse Treatment Agencies.” *Drug and Alcohol Dependence* 103S:S54–S64.
- French, Michal T., Kathryn E. McCollister, Stanley Sacks, Karen McKendrick, and George De Leon. 2002. “Benefit–Cost Analysis of a Modified TC for Mentally Ill Chemical Abusers.” *Evaluation and Program Planning* 25:137–148.
- Freudenberg, Nicholas. 2001. “Jails, Prisons, and the Health of Urban Populations: A Review of the Impact of the Correctional System on Community Health.” *Journal of Urban Health* 78:214–235.
- Friedmann, Peter D., Faye S. Taxman, and Craig E. Henderson. 2007. “Evidence-Based Treatment Practices for Drug-Involved Adults in the Criminal Justice System.” *Journal of Substance Abuse Treatment* 32:267–277.
- George, Joe W., Kevin Knight, Dwayne D. Simpson, Patrick M. Flynn, Janis T. Morey, Norma G. Bartholomew, Michele S. Tindall, William M. Burdon, Elizabeth A. Hall, Steve S. Martin, and Daniel J. O’Connell. 2012. “An Evaluation of Six Brief Interventions that Target Drug-Related Problems in Correctional Populations.” *Journal of Offender Rehabilitation* 51(1-2):9–33.
- Gonzalez, Jennifer M. and Nadine M. Connell. 2014. “Mental Health of Prisoners: Identifying Barriers to Mental Health Treatment and Medication Continuity.” *Research and Practice* 104(12):2328–2333.

- Gordon, Michael S., Timothy W. Kinlock, Robert P. Schwartz, and Kevin E. O'Grady. 2008. "A Randomized Clinical Trial of Methadone Maintenance for Prisoners: Findings at 6 Months Post-Release." *Addiction* 103:1333–1342.
- Grant, Bridget F., Frederick S. Stinson, Deborah A. Dawson, S. Patricia Chou, Mary C. Dufour, Wilson Compton, Roger P. Pickering, and Kenneth Kaplan. 2004. "Prevalence and Co-Occurrence of Substance Use Disorders and Independent Mood and Anxiety Disorders Results from the National Epidemiologic Survey on Alcohol and Related Conditions." *Alcohol Research and Health* 61:807–816.
- Griffith, James D., Matthew L. Hiller, Kevin Knight, and Dwayne D. Simpson. 1999. "A Cost-Effectiveness Analysis of In-Prison Therapeutic Community Treatment and Risk Classification." *The Prison Journal* 79(3):352–368.
- Grob, Gerald N. 1995. "The Paradox of Deinstitutionalization." *Society* 32(5):51–59.
- Grob, Gerald N. 2008. "Mental Health Policy in the Liberal State: The Example of the United States." *International Journal of Law and Psychiatry* 31:89–100.
- Hall, Elizabeth A., Ronald Zuniga, Jerome Cartier, M. Douglas Anglin, Birgit Danila, Tim Ryan, and Kean Mantius. 2003. *Staying in Touch: A Fieldwork Manual of Tracking Procedures for Locating Substance Abusers for Follow-Up Studies*. 2nd ed. Los Angeles: UCLA Integrated Substance Abuse Programs.
- Harmon, Harry H. 1967. *Modern Factor Analysis*. Chicago: University of Chicago Press.
- Harris, Patricia M., Raymond Gingerich, and Tiffany A. Whittaker. 2004. "The 'Effectiveness' of Differential Supervision." *Crime and Delinquency* 50(2):235–271.

- Harrison, Lana D. and Steven S. Martin. 2003. *Residential Substance Abuse Treatment for State Prisoners: Implementation Lessons Learned*. U.S. Department of Justice. Special Report NCJ 195738. Washington, DC: National Institute of Justice.
- Hiller, Matthew L., Kevin Knight, and Dwayne D. Simpson. 1999. "Prison-Based Substance Abuse Treatment, Residential Aftercare, and Recidivism." *Addiction* 94(6):833–842.
- Hoffmann, John P. 2010. *Linear Regression Analysis: Applications and Assumptions*. 2nd ed. Electronic Production: Adobe Acrobat Professional.
- Hoffmann, John P. 2015. *Generalized Linear Models an Applied Approach*. 2nd ed. Electronic Production: Adobe Acrobat Professional.
- Hohmann, Ann A. and M. Katherine Shear. 2002. "Community-Based Intervention Research: Coping with the 'Noise' of Real Life in Study Design." *American Journal of Psychiatry* 159(2):201–207.
- Hser, Grella Y., Robert L. Hubbard, Douglas M. Anglin, Bennet W. Fletcher, and Barry S. Brown. 2001. "An Evaluation of Drug Treatments for Adolescents in Four U.S. Cities." *Archives of General Psychiatry* 58(7):689–695.
- James, Doris J. and Lauren E. Glaze. 2006. *Mental Health Problems of Prison and Jail Inmates*. Bureau of Justice Statistics. Special Report NCJ 213600. Washington, DC: U.S. Department of Justice.
- Johnson Sara L., Jennifer T. C. van de Ven, and Brian A. Grant. 2001. *Institutional Methadone Maintenance Treatment: Impact on Release Outcome and Institutional Behaviour*. (R-119). Ottawa: Correctional Service Canada.

- Kaeble, Danielle, Lauren Glaze, Anastasios Tsoutis, and Todd Minton. 2016. *Correctional Populations in the United States, 2014*. Bureau of Justice Statistics. Special Report NCJ 249513. Washington, DC: National Institute of Justice.
- Kinlock, Timothy W., Michael S. Gordon, Robert P. Schwartz, and Kevin E. O'Grady. 2008. "A Study of Methadone Maintenance for Male Prisoners: 3-Month Post Release Outcomes." *Criminal Justice Behavior* 35(1):34–47.
- Knight, Kevin. 2007. *TCUDS II – TCU Drug Screen II: Scoring Guide*. Fort Worth, TX: Texas Christian University Institute of Behavioral Research.
- Knight, Kevin, Dwayne D. Simpson, and Matthew L. Hiller. 1999. "Three-Year Reincarceration Outcomes for In-Prison Therapeutic Community Treatment in Texas." *The Prison Journal* 79(3):337–351.
- Knight, Kevin, Dwayne D. Simpson, and Matthew L. Hiller. 2003. *Outcome Assessment of Correctional Treatment*. Fort Worth, TX: Texas Christian University Institute of Behavioral Research.
- Krupski, Antoinette, Kevin Campbell, Jutta M. Joesch, Barbara A. Lucenko, and Peter Roy-Byrne. 2009. "Impact of Access to Recovery Services on Alcohol and Drug Treatment Outcomes." *Journal of Substance Abuse Treatment* 37:435–442.
- Kubiak, Sheryl P., April M. Zeoli, and Julie Hanna Essemacher. 2011. "Transitions between Jail and Community-Based Treatment for Individuals with Co-Occurring Disorders." *Psychiatric Services* 62(6):679–681.
- Langan, Patrick A. and David J. Levin. 2002. *Recidivism of Prisoners Released in 1994*. Bureau of Justice Statistics. Special Report NCJ 193427. Washington, DC: National Institute of Justice.

- Larney, Sarah, Barbara Toson, Lucy Burns, and Kate Dolan. 2011. "Effect of Prison-Based Opioid Substitution Treatment and Post-Release Retention in Treatment on Risk of Reincarceration." *Addiction* 107:372–380.
- Levasseur Ludovic, Jean-Noël Marzo, Neil Ross, and Catherine Blatier. 2002. "Frequency of Reincarcerations in the Same Detention Center: Role of Substitution Therapy: A Preliminary Retrospective Analysis." *Annales de Médecine Interne (Paris)* 153:1S14–1S19.
- Lipton, Douglas S., Frank S. Pearson, Charles M. Cleland, and Dorline S. Yee. 2003. "The Effects of Therapeutic Communities and Milieu Therapy on Recidivism: Meta-Analytic Findings from the Correctional Drug Abuse Treatment Effectiveness (CDATE) Study." Pp. 39-77 in *Offender Rehabilitation and Treatment: Effective Programmes and Policies to Reduce Reoffending*, edited by J. McGuire. London: John Wiley.
- Little, Roderick J. and Donald B. Rubin. 1987. *Statistical Analysis with Missing Data*. New York: John Wiley and Sons.
- Longshore, Douglas, Darren Urada, Elizabeth Evans, Yih-Ing Hser, Michael Prendergast, Angela Hawken, Travis Bunch, and Susan Ettner. 2004. *Evaluation of the Substance Abuse and Crime Prevention Act: 2003 Report*. Los Angeles, CA: UCLA Integrated Substance Abuse Programs.
- Lurigio, Arthur J. 2001. "Effective Services for Parolees with Mental Illnesses." *Crime and Delinquency* 47(3):446–461.
- Lurigio, Arthur J. 2006. "Mental Illness in Correctional Populations: The Use of Standardized Screening Tools for Further Evaluation or Treatment." *Federal Probation* 70(2):29–35.

- Lurigio, Arthur J., Young I. Cho, James A. Swartz, Timothy P. Johnson, Ingrid Graf, and Lillian Pickup. 2003. "Standardized Assessment of Substance-Related, Other Psychiatric, and Comorbid Disorders Among Probationers." *International Journal of Offender Therapy and Comparative Criminology* 47(6):630–652.
- Martin, Steven S., Clifford A. Butzin, Christine A. Saum, and James A. Inciardi. 1999. "Three Year Outcomes of Therapeutic Community Treatment for Drug-Involved Offenders in Delaware: From Prison to Work Release Aftercare." *The Prison Journal* 79:294–320.
- McCarty, Dennis and Redonna K. Chandler. 2009. "Understanding the Importance of Organizational and System Variables on Addiction Treatment Services within Criminal Justice Settings." *Drug and Alcohol Dependence* 103S:S91–S93.
- McCollister, Kathryn E., Michael T. French, Michael Prendergast, Harry K. Wexler, Stanley Sacks, and Elizabeth A. Hall. 2003. "Is In-Prison Treatment Enough? A Cost-Effectiveness Analysis of Prison-Based Treatment and Aftercare Services for Substance-Abusing Offenders." *Law and Policy* 25(1):63–82.
- McGovern, Mark P., Chantal Lambert-Harris, Gergory J. McHugo, Julinee Giard, and Laurel Mangrum. 2010. "Improving the Dual Diagnosis Capability of Addiction and Mental Health Treatment Services: Implementation Factors Associated with Program Level Changes." *Journal of Dual Diagnosis* 6:237–250.
- McPherson, Sterling, Celestina Barbosa-Leiker, Michael McDonell, Donelle Howell, and John Roll. 2013. "Longitudinal Missing Data Strategies for Substance Use Clinical Trials Using Generalized Estimating Equations: An Example with a Buprenorphine Trial." *Human Psychopharmacology* 28:506–515.

- Monahan, John, Richard J. Bonnie, Paul S. Appelbaum, Pamela S. Hyde, Henry J. Steadman, and Marvin S. Swartz. 2001. "Mandated Community Treatment: Beyond Outpatient Commitment." *Psychiatric Services* 52:1198–1205.
- Monahan, John, Henry J. Steadman, Pamela Clark Robbins, Paul S. Applebaum, Steven Banks, Thomas Grisso, Kirk Heilbrun, Edward P. Mulvey, Loren H. Roth, and Eric Silver. 2005. "An Actuarial Model of Violence Risk Assessment for Persons with Mental Disorders." *Psychiatric Services* 56:810–815.
- Monahan, John, Henry J. Steadman, Pamela Clark Robbins, Eric Silver, Paul S. Applebaum, Thomas Grisso, Edward P. Mulvey, and Loren H. Roth. 2000. "Developing a Clinically Useful Actuarial Tool for Assessing Violence Risk." *British Journal of Psychiatry* 176(4):312–319.
- Morgan, Robert D., William H. Fisher, Daihua Duan, Jon T. Mandracchia, and Danielle Murray. 2010. "Prevalence of Criminal Thinking among State Prison Inmates with Serious Mental Illness." *Law and Human Behavior* 34:324–336.
- Morgan, Robert D. and David B. Flora. 2002. "Group Psychotherapy with Incarcerated Offenders: A Research Synthesis." *Group Dynamics: Theory, Research, and Practice* 6(3):203–218.
- Morgan, Robert D., David B. Flora, Daryl G. Kroner, Jeremy F. Mills, Femina Varghese, and Jarrod S. Steffan. 2012. "Treating Offenders with Mental Illness: A Research Synthesis." *Law and Human Behavior* 36:37–50.
- Morgan, Robert D., Daryl G. Kroner, Jeremy F. Mills, Rebecca L. Bauer, and Catherine Serna. 2014. "Treating Justice Involved Persons with Mental Illness." *Criminal Justice and Behavior* 41(7):902–916.

- Morrison, James. 2014. *Diagnosis Made Easier, Second Edition: Principles and Techniques for Mental Health Clinicians*. 2nd ed. New York: The Guilford Press.
- Morrissey, Joseph P., Piper S. Meyer, and Gary Cuddeback. 2007. "Extending Assertive Community Treatment to Criminal Justice Settings: Origins, Current Evidence, and Future Directions." *Community Mental Health Journal* 43(5):527–544.
- Mueser, Kim T., Robert E. Drake, and Keith M. Miles. 1997. "The Course and Treatment of Substance Use Disorder in Persons with Severe Mental Illness." Pp. 86-109 in *Treatment of Drug-Dependent Individuals with Comorbid Mental Disorders (NIDA Research Monograph 172)*, edited by Lisa Simon Onken, Jack D. Blaine, Sander Genser, and Arthur MacNeill Horton, Jr. Rockville, MD: U.S. Department of Health and Human Services.
- Mumola, Christopher J. and Jennifer C. Karberg. 2006. *Drug Use and Dependence, State and Federal Prisoners, 2004*. Bureau of Justice Statistics. Special Report NCJ 213530. Washington, DC: U.S. Department of Justice.
- Nunally, Jum C. 1970. *Introduction to Psychological Measurement*. New York: McGraw-Hill.
- O'Connor, Frederica W., David Lovell, and Linda Brown. 2002. "Implementing Residential Treatment for Prison Inmates with Mental Illness." *Archives of Psychiatric Nursing* 16(5):232–238.
- Osher, Fred C. and Robert E. Drake. 1996. "Reversing a History of Unmet Needs: Approaches to Care for Persons with Co-Occurring Addictive and Mental Disorders." *American Journal of Orthopsychiatry* 66(1):4–11.

- Pelissier, Bernadette, Nicole Jones, and Timothy Cadigan. 2007. "Drug Treatment Aftercare in the Criminal Justice System: A Systematic Review." *Journal of Substance Abuse Treatment* 32:311–320.
- Peters, Roger H., Marla G. Bartoi, and Pattie B. Sherman. 2000. "Effectiveness of Screening Instruments in Detecting Substance Use Disorders among Prisoners." *Journal of Substance Abuse Treatment* 18(4):349–358.
- Peters, Roger H. and John Petrila. 2004. "Introduction to this Issue: Co-Occurring Disorders and the Criminal Justice System." *Behavioral Sciences and the Law* 22:427–429.
- Peters, Roger H., L. Rojas, and Marla G. Bartoi. In press. *Screening and Assessment of Co-Occurring Disorders in the Justice System*. Delmar, NY: SAMHSA's National GAINS Center for Behavioral Health and Justice Transformation.
- Peters, Roger H., Harry K. Wexler, and Arthur J. Lurigio. 2015. "Co-Occurring Substance Use and Mental Disorders in the Criminal Justice System: A New Frontier of Clinical Practice and Research." *American Psychological Association* 38(1):1–6.
- Pillai, Krishna, Pual Rouse, Brian McKenna, Jeremy Skipworth, James Cavney, Rees Tapsell, Alexander Simpson, and Dominic Madell. 2016. "From Positive Screen to Engagement in Treatment: A Preliminary Study of the Impact of a New Model of Care for Prisoners with Serious Mental Illness." *BMC Psychiatry* 16(9):1–7.
- Prendergast, Michael A. and Jerome Cartier. 2004. *Criminal Justice Drug Abuse Treatment Studies (CJ-DATS): Transition Care Management Study Research Protocol*. UCLA, Pacific Coast Research Center. Ann Arbor, MI: Inter-University Consortium for Political and Social Research.

- Prendergast, Michael A., Linda Frisman, JoAnn Y. Sacks, Michele Staton-Tindall, Lisa Greenwell, Hsiu-Ju Lin, and Jerry Cartier. 2011. "A Multi-Site, Randomized Study of Strengths-Based Case Management with Substance-Abusing Parolees." *Journal of Experimental Criminology* 7:225–253.
- Prendergast, Michael A., Jean Wellisch, and Mamie M. Wong. 1996. "Residential Treatment for Women Parolees Following Prison-Based Drug Treatment: Treatment Experiences, Needs and Services, Outcomes." *The Prison Journal* 76:253–274.
- Priester, Mary Ann, Teri Browne, Aidyn Iachini, Stephanie Clone, Dana DeHart, and Kristen D. Seay. 2016. "Treatment Access Barriers and Disparities Among Individuals with Co-Occurring Mental Health and Substance Use Disorders: An Integrative Literature Review." *Journal of Substance Abuse Treatment* 61:47–59.
- Sacks, Stanley, Michael Chaple, JoAnn Y. Sacks, Karen McKendrick, and Charles M. Cleland. 2012. "Randomized Trial of a Reentry Modified Therapeutic Community for Offenders with Co-Occurring Disorders: Crime Outcomes." *Journal of Substance Abuse Treatment* 42:247–259.
- Sacks, Stanley and Richard K. Ries. 2005. *Substance Abuse Treatment for Persons with Co-Occurring Disorders: A Treatment Improvement Protocol TIP 42*. Substance Abuse and Mental Health Services Administration. Rockville, MD: U.S. Department of Health and Human Services.
- Sacks, Stanley, Joann Y. Sacks, Karen McKendrick, Steven Banks, and Joe Stommel. 2004. "Modified TC for MICA Offenders: Crime Outcomes." *Behavioral Sciences and the Law* 22:477–501.

- Sacks, Stanley, Joann Y. Sacks, and Joe Stommel. 2003. "Modified TC for MICA Inmates in Correctional Settings: A Program Description." *Corrections Today* (October):90–99.
- Simpson, Dwayne D. 2004. "A Conceptual Framework for Drug Treatment Process and Outcomes." *Journal of Substance Abuse Treatment* 27:99–121.
- Simpson, Dwayne D. and George W. Joe. 1993. "Motivation as a Predictor of Early Dropout from Drug Abuse Treatment." *Psychotherapy* 30:357–368.
- Simpson, Dwayne D., George W. Joe, Kirk M. Broome, Matthew L. Hiller, Kevin Knight, and Grace A. Rowan-Szal. 1997. "Program Diversity and Treatment Retention Rates in the Drug Abuse Treatment Outcome Study (DATOS)." *Psychology of Addictive Behaviors* 11(4):279–293.
- Singer, Mark I., Janet Bussey, Li-Yu Song, and Lisa Lunghofer. 1995. "The Psychosocial Issues of Women Serving Time in Jail." *Social Work* 40(1):103–112.
- Skeem, Jennifer, Eliza Nicholson, and Christine Kregg. 2008. "Understanding Barriers to Reentry for Parolees with Mental Disorder." Presented at the annual meeting of the American Psychology-Law Society, March 12, Jacksonville, FL.
- Smith, Stephanie S., V. J. Baxter, and Michael S. Humphreys. 2003. "Psychiatric Treatment in Prison: A Missed Opportunity?" *Medicine Science and the Law* 43:122–126.
- Stout, Robert L., Philip Wirtz, J. P. Carbonari, and F. K. Del Boca. 1994. "Ensuring Balanced Distribution of Prognostic Factors in Treatment Outcome Research." *Journal of Studies on Alcohol Supplement* 12(S12):70–75.
- Substance Abuse and Mental Health Services Administration. 2006. *Definitions and Terms Relating to Co-Occurring Disorders*. COCE Overview Paper 1. (SMA) 06-4163. Rockville, MD: U.S. Department of Health and Human Services.

- Substance Abuse and Mental Health Services Administration. 2012. *Mental Health, United States, 2010*. (SMA) 12-4681. Rockville, MD: U.S. Department of Health and Human Services.
- Substance Abuse and Mental Health Services Administration. 2016. "Co-Occurring Disorders." Retrieved November 11, 2016 (<http://www.samhsa.gov/disorders/co-occurring>).
- Tansella, Michele and Graham Thornicroft. 1996. *Mental Health Outcome Measures*. 1st ed. Berlin, Heidelberg: Springer Verlag.
- Taxman, Faye S. and Jeff Bouffard. 2000. "The Importance of Systems Issues in Improving Offender Outcomes: Critical Elements of Treatment Integrity." *Justice Research and Policy* 2:9–30.
- Taxman, Faye S., Karen L. Cropsey, Gerald Melnick, and Matthew L. Perdoni. 2008. "COD Services in Community Correctional Settings: An Examination of Organizational Factors That Affect Service Delivery." *Behavioral Sciences and the Law* 26:435–455.
- Thornicroft, Graham and Michele Tansella. 2010. *Mental Health Outcome Measures*. 3rd ed. London: The Royal College of Psychiatrists.
- Torrey, E. Fuller, Mary T. Zdanowics, Aaron D. Kennard, H. Richard Lamb, Donald F. Eslinger, Michael C. Biasotti, and Doris A. Fuller. 2014. *The Treatment of Persons with Mental Illness in Prisons and Jails: A State Survey*. The Treatment Advocacy Center. Retrieved November 11, 2016 (<http://tacreports.org/storage/documents/treatment-behind-bars/treatment-behind-bars.pdf>).
- Trauer, Tom. 2010. *Outcome Measurement in Mental Health*. Cambridge, UK: Cambridge University Press.

- Urban Institute Justice Policy Center. 2006. *Understanding the Challenges of Prisoner Reentry: Research Findings from the Urban Institute's Prisoner Reentry Portfolio*. Washington, DC: The Urban Institute.
- Verduin, Marcia L., Rickey E. Carter, Kathleen T. Brady, Hugh Myrick, and Mary Ann Timmerman. 2005. "Health Service Use among Persons with Comorbid Bipolar and Substance Use Disorders." *Psychiatric Services* 56:475–480.
- Visher, Christy and Nancy La Vigne. 2003. *Returning Home: Understanding the Challenges of Prisoner Reentry: Maryland Pilot Study: Findings from Baltimore*. Washington, DC: The Urban Institute.
- Walters, Glenn D. 1990. *The Criminal Lifestyle: Patterns of Serious Criminal Conduct*. Newbury Park, CA: Sage.
- Walters, Glenn D. 1991. "Predicting the Disciplinary Adjustment of Maximum and Minimum Security Prison Inmates Using the Lifestyle Criminality Screening Form." *International Journal of Offender Therapy and Comparative Criminology* 35(1):63–71.
- Walters, Glenn D. 1998. *Multivariate Taxometric Procedures: Distinguishing Types from Continua*. Thousand Oaks, CA: Sage.
- Walters, Glenn D. and John R. McDonough. 1998. "The Lifestyle Criminality Screening Form as a Predictor of Federal Parole/Probation/Supervised Release Outcome: A 3-Year Follow-Up." *Legal and Criminological Psychology* 3(2):173–181.
- Wexler, Harry K., George De Leon, George Thomas, David Kressel, and Jean Peters. 1999. "The Amity Prison Evaluation: Reincarceration Outcomes." *Criminal Justice and Behavior* 26:147–167.

- Wexler, Harry K., G. P. Falkin, Douglas S. Lipton, and Andrew B. Rosenblum. 1992. "Outcome Evaluation of a Prison Therapeutic Community for Substance Abuse Treatment." Pp. 156-175 in *Drug Abuse Treatment in Prisons and Jails, (NIDA Research Monograph 118)*, edited by Carl G. Leukefeld and Frank M. Tims. Rockville, MD: U.S. Department of Health and Human Services.
- Wolff, Nancy, Dena K. Plemmons, Bonita M. Veysey, and Angela Brandli. 2002. "Release Planning for Inmates with Mental Illness Compared with Those Who Have Other Chronic Illnesses." *Psychiatric Services* 53(11):1469–1471.
- Wood, Steven R. 2014. "Co-Occurring Psychiatric and Substance Dependence Disorders as Predictors of Parolee Time to Rearrest." *Journal of Offender Rehabilitation* 50(4):175–190.
- Wormith, Stephen J. and Mark E. Olver. 2002. "Offender Treatment Attrition and its Relationship with Risk, Responsivity, and Recidivism." *Criminal Justice and Behavior* 29(4):447–471.
- Zabora, James R. 1990. "An Efficient Method for Psychosocial Screening of Cancer Patients." *Psychosomatics* 31(2):192–196.
- Zanis, David A., Donna M. Coviello, Jacqueline J. Lloyd, and Barry L. Nazar. 2009. "Predictors of Drug Treatment Completion among Parole Violators." *Journal of Psychoactive Drugs* 41:173–180.

TABLES

Table 1: Summary of Measures

	Range	Mean	Std. Dev.
Outcome Variables			
<i>Any Rearrest</i>	0-1	.48	.50
<i>Any Reincarceration</i>	0-1	.64	.48
<i>Any Drug Use</i>	0-1	.29	.45
Explanatory Variables			
<i>Treatment Group</i>	0-1	.50	.50
<i>Any Mental Health COD</i>	0-1	.78	.41
<i>Male</i>	0-1	.78	.43
<i>White</i>	0-1	27.7	.45
<i>High School Graduate</i>	0-1	.32	.47
<i>Married or Cohabiting</i>	0-1	0.17	0.38
<i>Age</i>	18-66	34.2	9.1
<i>Addiction Level</i>	0-9	5.7	2.8
<i>Recidivism Risk</i>	0-19	11.3	2.9
Sample $n = 811$			

Table 2: Sample Descriptives, COD vs. SUD Only

	<u>Range</u>	<u>Total</u> <u>%</u>	<u>SUD</u> <u>%</u>	<u>COD</u> <u>%</u>
Any Rearrest	0-1	64.0	70.0	63.5
Any Reincarceration	0-1	44.2	40.4	44.7
Any Drug Use	0-1	28.8	25.0	26.6
Treatment Group	0-1	50.5	54.1	50.1
Male	0-1	76.0	86.9	74.9
White	0-1	27.7	26.2	28.0
High School Graduate	0-1	31.9	27.9	32.3
Married or Cohabiting	0-1	17.4	24.6	16.9
	<u>Range</u>	<u>Total</u> <u>Mean</u>	<u>SUD</u> <u>Mean</u>	<u>COD</u> <u>Mean</u>
Age	18-66	34.2	34.2	34.2
Addiction Level	0-9	5.7	5.9	5.7
Recidivism Risk	0-14	11.3	10.7	11.3
Sample $n = 811$				

Table 3: Logistic Regression: Rearrest Predicted by TCM Participation (n = 806)

	Model 1		Model 2	
	Odds Ratio	P-Value	Odds Ratio	P-Value
<i>Key Independent Variables</i>				
TCM	.89	.44	1.56	.40
COD	.83	.49	1.15	.73
<i>Interaction Term</i>				
TCM#COD	-	-	.54	.19
<i>Controls</i>				
Male	.94	.75	.95	.67
Age	.99	.45	.99	.98
White	.94	.94	.94	.67
Marital	.98	.93	.96	.65
High School Graduate	.94	.68	.93	.68
TCUD Score	1.02	.55	1.02	.96
LCSF Score	1.02	.44	1.02	.97
<i>n=806</i>				

Table 4: Logistic Regression: Reincarceration Predicted by TCM Participation (n = 806)

	Model 1		Model 2	
	Odds Ratio	P-Value	Odds Ratio	P-Value
<u>Key Independent Variables</u>				
TCM	1.05	.75	1.42	.56
COD	.73	.30	.85	.72
<u>Interaction Term</u>				
TCM#COD	-		.73	.60
<u>Control Variables</u>				
Male	.81	.28	.82	.29
Age	.99	.26	.99	.28
White	.99	.94	.98	.93
Marital	.86	.44	.85	.42
High School Graduate	1.10	.56	1.10	.56
TCUD Score	1.00	.70	.99	.80
LCSF Score	1.02	.85	1.00	.86
<i>n=806</i>				

Table 5: Logistic Regression: Drug Use Predicted by TCM Participation (n = 806)

	Model 1		Model 2	
	Odds Ratio	P-Value	Odds Ratio	P-Value
<i>Key Independent Variables</i>				
TCM	.76	.22	1.64	.55
COD	1.12	.78	1.82	.38
<i>Interaction Term</i>				
TCM#COD	-		.44	.34
<i>Control Variables</i>				
Male	1.16	.67	1.17	.58
Age	.95	.000*	.95	.000*
White	.73	.21	.73	.19
Marital	.73	.32	.71	.28
High School Graduate	1.03	.90	1.02	.92
TCUD Score	1.02	.56	1.02	.56
LCSF Score	.95	.18	.95	.18
<i>n=806</i>				