

Co-occurring Disorders and Treatment Completion:

Comparison with the
Criminal Justice System

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Comparison with the Criminal Justice System

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Abstract

Co-occurring disorders became a growing concern in the United States beginning in the early 1980s. This research is a secondary analysis of data derived from the Substance Abuse & Mental Health Data Archive (SAMHDA) Treatment Episode Data Set—Discharges (TEDS-D), 2011. Findings are based on 343,430 individuals with co-occurring substance abuse and mental health problems. I test the following hypothesis: Individuals with co-occurring disorders who are allotted to a program through the criminal justice system are more likely to complete treatment programs rather than those referred through non-criminal justice settings. In addition, I explore the type of referrals within the criminal justice system to see which referral source yields a better outcome than other criminal justice referrals by containing more supervision. The findings indicate that criminal justice referrals have high completion rates relative to non-criminal-justice referrals. It was also found that among the criminal justice referrals the highest completion rates were associated with DUI/DWI, diversion, and prison//jails and the lowest with probation.

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CHAPTER I

Introduction

The criminal justice system bears a disproportionate responsibility in the care of individuals who have co-occurring substance abuse and mental-health disorders (COD). These people have a tendency to become violent, and their ability to make rational choices is compromised (Hartwell, 2004; Swartz, 1998). According to the Substance Abuse and Mental Health Services Administration (SAMHSA), approximately 4 percent of American adults suffer from co-occurring disorders while 16 percent of jail and prison inmates are diagnosed with COD (Drake, 2003; SAMHSA 2013). Within the criminal justice system, the overlap between the need of treatment for both substance abuse and mental illness is high: Melnick et al. (2008) found that 78 percent of offenders had a vast range of co-occurring mental disorders when they were entering their prison substance abuse treatment program. Peters, Bartoi, & Sherman (2008) reported that approximately 80 percent of individuals who are on probation and are sentenced to substance abuse treatment have COD.

Furthermore, those with COD are at a higher risk of recidivism due to issues relating to personal and environmental factors and are correlated with substance use. Baillargeon et al. (2010) examined 61,000 Texas inmates and found that the presence of COD increased the risk of criminal recidivism and reincarceration. They also discovered that those with COD had a significantly higher risk of numerous incarcerations within a 6-year period compared to inmates with only mental illness or substance abuse disorder. Blank, Draine, Barrenger, Hadley, & Evans (2014) observed that individuals with COD

had a risk of reincarceration which was more than 40 percent higher than those with no diagnoses.

Even without the involvement of the criminal justice system, individuals with COD have trouble finding and receiving demonstrative treatment, despite the fact that these problems frequently are as treatable as other interminable sicknesses (Anderson & Gittler, 2005; Koegl & Rush, 2012; Urbanoski, Cairney, Bassani, & Rush, 2008). The challenges are often seen as more acute once these people are identified as offenders (Chandler, Peters, Field, & Juliano-Bolt, 2004). The inability of the criminal justice system to deliver on constitutional obligations to support the medical and mental-health care of those under its supervision are well documented (Daniel, 2007; Human Rights Watch, 2003; Peters, Matthews, & Dvoskin, 2005).

Given the inadequacy of the handling of mentally ill offenders, it would be reasonable to assume that criminal justice system is failing in addressing the concerns of those with COD. Individuals with COD are more susceptible to becoming involved in the criminal justice system, and previous studies have found that those mandated through criminal justice settings to treatment are less motivated to partake in treatment programs (Marshall & Hser, 2002). If the system does not start formulating proper programs, then those with COD will recidivate, cause more problems for society, and increase facility costs.

Treatment completions in the criminal justice system are the main focus for this study. Referral to treatment is important for the criminal justice system because this places individuals with COD into programs that can possibly aid in their disorders, and help individuals understand the issues that are caused by the disorders. In this thesis, I

ask two questions: Are individuals referred to treatment from the criminal justice system as likely to complete treatment as those referred from outside the criminal justice system? Are there variations in completion rates within the criminal justice system? To find the answers, this thesis examines data from the Discharge file of the Treatment Episode Data Set (TEDS-D) (SAMHSA, 2011). Chapter 2 contains a review of the literature that provides a more thorough description of COD and how it is handled in the criminal justice system. Chapters 3 and 4 contain the analysis of the TEDS-D data. My final comments and a discussion of possible best practices come in Chapter 5.

Summary

The combination of mental illness and substance is causing hardships for those with the disorders and the nation as a whole. As this study progresses, we will be exploring the evolution of COD, development of terminology, barriers with COD treatment programs, and criminal justice referrals. In the conclusion, discussion of screening, treatment, and reentry will be explored in fully understanding the process those with COD encounter.

CHAPTER II

Literature Review

Practitioners became aware of the relationship of mental disorders and substance abuse and the implications of these disorders when occurring together in the 1970s and 1980s as they started to deal with the effects of the deinstitutionalization and subsequent criminalization of the mentally ill (Sacks & Ries, 2005; Sung, Mellow, & Mahoney, 2010; U.S. Department of Health & Human Services, 2014).

In 2011, there were approximately 11.5 million individuals over the age of 18 in the United States who had a serious mental illness (SMI), a number representing 5 percent of adults (Matejkowski & Osterman, 2015). Among the correctional population, 56 percent state, 45 percent federal, and 64 percent of jail detainees reported having mental health issues in the 12 months prior to incarceration (Stephens, 2011). The frequency of substance abuse among offenders is also rather large, ranging between 70 percent and 85 percent. Thirty days prior to arrest, 36 percent of adult individuals reported heavy drug use. Upon arrest 40 percent of individuals were determined to be at risk for alcohol or drug dependence. Understanding the prevalence of both mental health and substance abuse within the criminal justice system helps explain the increasing number of individuals with COD.

A Description of COD

Drug abuse alters the mental capabilities of all individuals; however, if an individual has a mental illness involved, the mental capabilities are drastically altered (U.S. Department of Health & Human Services, 2014). Many individuals do not receive any treatment for COD due to a wide range of reasons, such as long waiting lists for care

in local areas or private insurance companies excluding or limiting care. Some individuals may believe that the drug use is aiding the mental disorder one has and masks the problems that are caused from the co-occurring disorder. Each individual will have different symptoms, which can vary over time through the severity, chronicity, and degree of impaired function.

The terminology for this dual disorder has evolved. Until recently, common terms included mentally ill chemically addicted (MICA), chemically abusing mentally ill (CAMI), mentally ill substance abuser (MISA), substance abusing mentally ill (SAMI), mentally ill chemically dependent (MICD), co-occurring addictive and mental disorders (COAMD), dually diagnosed, dually disordered, and addiction and co-occurring disorders (ACD). The U.S. Department of Health & Human Services (2014) explains that “While some of these terms represent an attempt to identify which problem or disorder is seen as primary or more severe. . . many have been criticized for insufficient specificity, accuracy, and sensitivity” (see also Osher & Drake, 1996). With the need for better language, the term co-occurring disorder is consistent with the definition developed by the expert consensus panel who crafted SAMHSA’s revised Treatment Improvement Protocol (TIP). Thus, the term co-occurring disorders (COD) refers to one or more disorders that relate to the use of alcohol and/or other drugs of abuse as well as one or more mental illnesses (Peters & Hills, 1997).

The etiology of COD is not quite clear. There are three contributions that the U.S. Department of Health & Human Services (2014) identified to help explain the relationship between substance abuse disorders and mental disorders. The first contribution is that each disorder may occur independently. The second contribution is

that those with mental illnesses are prone to greater risk for substance abuse disorders to coincide. The third contribution is that there is potential for a temporary mental disorder to occur due to withdrawal or drug abuse intoxication.

Four theories of the cause of COD, based on two decades of reported literature, are the common factor model, secondary substance abuse disorders, secondary mental/psychiatric disorder model, and bi-directional model (Mueser, Drake, & Wallach, 1998). The common factor model is a result of risk dynamics, such as low socioeconomic status that cause a higher co-morbidity in both severe mental illness and substance abuse disorders. Individuals with COD are normally unemployed, homeless, lack vocational skills, have little financial or social support, and compromised have psychosocial functioning (Peters et al., 2008). About 39 percent of individuals who are homeless have a mental disorder. It is estimated that 50 percent of adults who are homeless with serious mental illnesses also have a co-occurring substance abuse disorder (U.S. Department of Health & Human Services, 2014). The common factor model can also be related to social drift because the downward shift in social class is influenced by the mental illness (Marshall, 1998). Secondary substance abuse disorders occur when severe mental illness expands an individual's possibility of contributing to a substance abuse disorder (Mueser et al., 1998). The secondary mental/psychiatric disorder model occurs when substance abuse causes a severe mental illness in an individual; whereas, if the substance abuse is not present, the mental illness would not occur. The bi-directional model is when one disorder, severe mental illness or substance abuse, increases the susceptibility of developing the other disorder. Some individuals may not fall within the four causes of co-

occurring disorder models; however, some individuals may be classified to more than one of the models.

COD and the Criminal Justice System

The criminal justice system deals with a large number of mentally ill individuals, many of which have COD, by having numerous encounters of police with citizens, arrests, and processed criminal cases that occur on a daily basis (White, Goldkamp, & Campbell, 2006). Offenders with COD can be difficult to manage while incarcerated and after release into the community due to patterns of spontaneous, unpredictable, and occasionally erratic behavior (Chandler et. al., 2004). In some parts of the criminal justice system, the accessibility to comprehensive treatment for offenders with COD may not be available. A level of collaboration may be needed in managing the health, mental illness, drug abuse, and supervision of those with COD (Bender, 2003; Stephens, 2011, 240; Watt, Robing, Fleming, & Graf, 2013); however, by involving multiple systems, institutions, and agencies can cause dissimilar missions, values, structures, and responsibilities making it difficult to achieve proper treatment. Since many justice departments are gaining more individuals with COD, there are two important questions need to be addressed. What barriers are preventing offenders from receiving the treatment that they need? Are referrals from some parts of the criminal justice system more effective than other parts?

Barriers to Treatment

There are multiple steps that need to be taken in the criminal justice system when dealing with individuals that have COD. Many criminal justice departments do not have the proper programs needed to effectively assist people with COD because they do not have enough funding or properly educated staff on the combination of both disorders.

Individuals with COD encounter many obstacles when being diagnosed, leading to individuals receiving improper treatment or lacking of a proper diagnosis. There are multiple barriers that hinder the most effective and organized service for those requiring treatment. These barriers inhibit individuals from receiving proper care for COD, such as policy, funding, program, clinical, family, and re-entry.

Policy barriers. Policy barriers in the federal, state, and community level can cause a major obstruction in providing effective care needed for those with COD. Inadequate coordination between the federal agencies, conflicting statutory requirements, and regulations prohibit any single agency from providing effective care for individuals with COD (U.S. Department of Health & Human Services, 2014). Issues that occur at the state level due to high requirements for training and certification disheartens clinicians from looking for joint qualifications as experts who serve individuals with COD or joint licenses to programs that offer both substance abuse and mental health services. Zoning ordinances are a problem within the community level because some ordinances may authorize one type of facility to be administered and not the other within the community.

Policies within the correctional system need to contain an outline of goals and strategies to appropriately accommodate the needs of individuals with COD (Stephens, 2011). Within the correctional system there needs to be appropriate screening, assessment, and diagnosis of the disorders to effectively plan treatment for each individual. Once a diagnosis is formulated, integrated treatment needs to commence which provides enhanced motivation within treatments and management of treatment and medication distributions. Before treatment is completed, reintegration or reentry services need to be aligned to properly prepare the individual for returning to the community.

Funding barriers. Funding is insufficient to provide a full array of integrated, multidisciplinary services. Today what money is available comes from a variety of federal, state, local, and private funding resources that are already overburdened (Ridgely, Goldman, & Willenbring, 1990; U.S. Department of Health & Human Services, 2014). The largest source of state funding comes from the Substance Abuse Prevention and Treatment (SAPT) block grant that provides 40 percent of expenditures. Between 3 and 4 percent of state expenditures for community-based mental health care comes from the Community Mental Health block grant. The majority of mental health services comes from other state and federal money including Medicaid. Approximately \$20 billion is spent on mental health services and \$1 billion on drug and alcohol treatment services provided by Medicaid. Often Medicaid programs differ from state to state on the types of programs it funds, and very few providers have access or the ability to provide all services that can be reimbursed with Medicaid funds. Private health insurance and other service sectors, such as the criminal justice system, are other types of resources of funding for individuals with COD.

Program barriers. Many program barriers are due to the lack of sufficiently trained staff on treating individuals with COD (Ridgely et al., 1990; U.S. Department of Health & Human Services, 2014). As cases increase of individuals with co-occurring disorders, it has been recognized that the significance of incorporating mental health and substance abuse treatments are beneficial for clients to complete treatments. However, educational establishments that teach the proper approach on how to accurately aide individuals with COD are minimal. Local level proprietors of clinics, centers, and programs lack in implementing clear service models, administrative guidelines,

contractual inducements, quality assurance procedures, and outcome measures needed for proper services supporting COD (Drake et al., 2001). Criminal justice programs offer limited funding when trying to cross-train existing employees to increase their capability of working with COD (U.S. Department of Health & Human Services, 2014). COD treatment programs in the correction environment affects the stigma of individuals with COD because they are being ridiculed by other inmates, and are neglected by correctional staff due to negative stereotypes and disbelief regarding the efficacy of treatment for inmates with COD (Peters, LeVasseur, & Chandler, 2004).

Clinical barriers. Clinical barriers are similar to the program barriers due to the lack of trained staff for individuals with COD (U.S. Department of Health & Human Services, 2014). There is a gap between the ways each disorder is believed to be the best treatment causing a hardship for clinical staff to learn the appropriate techniques in aiding those with both disorders. There is an absence between needed service delivery and staffs who have inadequate role lucidity or skill training (Baylankia et. al., 2014).

Providers in mental health systems and substance abuse systems ought to modify their approach to the specific needs of individuals with COD (Peters et. al., 2004). They should educate individuals on the mental health issues and persuade them in seeking help for the mental health issues. Clinical staff need to be able to identify specific substance abuse problems, assess the severity of the substance abuse, and plan proper treatment for the mental illness and substance abuse. There are key concepts around which the mental health system and substance abuse system unite by attributing to specific principles: respect for the individual, engagement of those who are difficult to reach, belief in human capacity to change, and the importance of community, family, and peers during the

recovery period. Burnout and fatigue are major issues for staff who treat individuals with COD.

Many correctional institutions were not designed to house treatment needs for individuals who are incarcerated (Stephens, 2011). Private treatment, individual counseling, and group counseling is difficult to deliver when there is inadequate space for those who are segregated.

Consumer/family barriers. The perception of COD by the individual itself or family members can cause major barriers when treatment is needed. Many people lack the knowledge of co-occurring disorders and its interaction of both disorders, let alone the treatment needed for the disorders. Individuals with COD may be in denial of his or her substance abuse or believe that the substance use helps ease psychiatric symptoms (U.S. Department of Health & Human Services, 2014). There are few programs on psychoeducational services to help make families and clients aware of COD (Drake et al., 2001). Family members may be oblivious of substance abuse and substance use to willful misbehavior. Individuals with both disorders usually deny issues related to substance abuse because they believe alcohol or other drugs are helpful in relieving distress. When alcohol or other drugs are used the individual is only viewing the immediate effects rather than the long term consequences related to mental illness.

Re-entry barriers. Re-entry barriers are likely to occur for individuals with COD. When individuals are released from prison, jail, or community treatment facilities, those with COD usually do not have access to proper medicine that steadied them prior to release because psychotropic medications that are needed for their mental illness are not affordable due to termination of benefits (Peters et al., 2008; Peters, Kremling, Bekman,

& Caudy, 2012). Individuals with COD often experience difficulties participating in community mental health and drug treatment programs. People with COD have a higher rate of recidivism once released from jail, on probation, or on parole (Osher, 2013). Transportation issues as well as absence of affordable transitional and permanent housing are major strains on individuals with COD. During the early stages of the community re-entry process, offenders have a higher risk of contracting HIV because they have lower motivation to engage in community treatment services, especially individuals with COD (Rasch et al., 2013). Individuals re-entering the community need to have a positive outlook on the information that was obtained during treatment programs. Following specific information given from the treatment program and obtaining support from family, friends, and the community can aid in the progress of the individual dealing with his or her COD.

Criminal Justice Referral to Treatment

The consequence of this increasing occurrence is apparent from findings that individuals who have COD are at exceptional risk for criminal justice involvement and are more likely to fluctuate between the community and justice systems (Sacks, Melnick, & Grella, 2008a; 2008b). Offenders with COD are a population that acquires additional costs, requires intense service to meet their needs, and management resources that provides effective security. Reports from the year 2000 found that 21 percent of all correctional facilities were under court order for an entirety of conditions, many targeted for lack of adequate mental health treatment services (Primm et al., 2005). A national survey found that most agencies in the criminal justice system could provide 25% or less of their population with COD treatment services (Sacks et al., 2008b).

Courts/Diversions Programs. Diversion is implemented to include any alternative programs to incarceration that involves community-based treatment. The alternative programs can be voluntary or involuntary. Diversionary programs may involve existing criminal justice supervision while criminal charges or sentence are continued or held in a state of suspension for a specified period during which the client must meet terms and conditions of treatment (SAMHSA, n.d.). Therefore, opportunities for diversion would include treatment as a condition of bail, deferred prosecution, deferred sentencing, and pleading guilty with treatment as a condition of probation. Extensive collaboration and cooperation is needed for the process of providing diversionary alternatives (Shafer et al., 2004).

Rates of COD detected in the justice system are significantly higher than those found in the general population (Peters et al., 2012). Richard Rogers and Elizabeth Hornberger have identified 364 mental health courts across the United States.¹ Many mental health courts have adopted diversionary programs that provide voluntary involvement; however, the program influences involvement by incorporating ongoing treatment for offenders who are at risk for incarceration (Steadman, Redlich, Griffin, Petrila, & Monahan, 2005). Many court-based programs have implemented specialized approaches for offenders with COD which include specialized co-occurring disorder dockets and co-occurring disorder services available in both drug and mental health courts (Peters et al., 2012). Drug courts and mental health courts provide ongoing judicial supervision through regularly scheduled status hearings where judges work closely with

¹ I appreciate Professor Rogers sharing this ongoing, unpublished research on the number and location of mental health courts.

treatment and community supervision staff to implement endorsements and rewards by monitoring treatment progress.

Addressing the needs of this population is possible. The Treatment Alternatives for Dually Diagnosed (TADD) was developed to address the need for criminal justice diversion of felons with COD and persistent misdemeanants (Broner, Nguyen, Swern, & Goldfinger, 2003). One hundred and thirty clients were diverted through TADD, and after 6 months, 87 percent were still connected to the diversion team, 80% stayed in community treatment services, and the majority of the clients tested free of drugs during the period. Sixty-six percent of clients were in long-term residential treatment settings that were oriented for mental health or substance abuse. Twenty-seven percent of individuals were able to return home or received outpatient treatment.

Another study was performed by viewing 54 court-based treatment programs that provide specialized approaches for offenders with co-occurring disorders (Peters et al., 2012). A survey was issued to 13 mental health courts, 33 drug courts, and 6 freestanding court dockets that examines approaches revised for co-occurring disorders. This study found that there are various models that have developed in providing COD services within court diversion programs. The different models demonstrate the ability to design co-occurring disorder services according to the size of the jurisdiction, level of financial resources, and community services.

Jails/Prisons. Throughout the course of a year, approximately 11 million individuals are booked in U.S. jails (Mire et al., 2007). Of those individuals, about 800,000 undergo serious mental illness, and 72 percent of these individuals suffer from COD. American jails have dramatically increased the number of substance abusers with

mental illness due to the convergence of the deinstitutionalization of individuals with mental illness and the enormous incarceration of drug offenders (Sung et al., 2010). The Bureau of Justice Statistics found that 76 percent of jail inmates who had a mental illness also met conditions for substance abuse.

Offenders with substance abuse and mental illness who are incarcerated have more distinct psychosocial problems, poorer institutional adjustment, and greater cognitive and functional discrepancies in comparison to other individuals (Edens, Peters, & Hills, 1997). Peters et al. (2012) highlights that in justice settings, co-occurring disorders are often undetected and results in prolonged periods of incarceration, behavior problems, and improper placement in program services. Due to undetected COD's offenders have experienced poor outcomes in community settings, including low rates of treatment retention and program graduation.

There are only a few specialized co-occurring disorder treatment services that have been available in jails, prisons, and community corrections (Peters et al., 2012). Some co-occurring disorder prison program admission standards are general by requiring only a history of mental health treatment or psychotropic medication use combined with a history of substance abuse within the last year, whereas other prison programs may base admission upon referrals from judges, wardens, and psychiatric staff (Edens et al., 1997). Some prison programs contain three phases that include initial assessment, intensive treatment, and prevention. In some facilities, each phase is based on a strict timeframe that requires all phases to be completed before graduation. Programs include 20 to 35 hours of individual and group treatment and education per week in the intensive phase (Peters et al., 2012). Offenders released from prison normally have fewer resources to

support community transition and follow-up treatment activities to implement the knowledge learned from the program.

Developing substance abuse, mental health, or integrated treatment programs in jails is difficult because the population of jail inmates is temporary. The average length of stay in jails ranges from 11 days to 27 days wherein the length of stay for 57 percent of jail inmates is less than a month. Jail inmates are less likely than inmates in state or federal prisons to participate in substance abuse or mental health treatments.

Peters et al. (2004) identified ten structural modifications to prison CDT programs to incorporate better service for those with COD: (1) Expand the duration of treatment so that information can cover new material, and also to incorporate repetition of material. (2) Organize time spent in the programs by having a structured schedule and routine for those with COD to keep them on track during treatment. (3) Contain smaller amounts of time spent in group sessions or other treatment activities. (4) Include treatment preventions in stages that provides an early focus to motivate offenders, and explain engagement issues. (5) Design a multidisciplinary method to treatment. (6) Incorporate psychiatry, psychology, and substance abuse services in prison needs to collaborate and coordinate treatment plans for those offenders with COD. (7) Cross-train all staff in treatment, supervision, and management issues. (8) Incorporate daily updates on treatment and case plans that are needed to help reflect on treatment progress. (9) Provide case management and outreach staff to help transition and assist those returning to the community. (10) Deliver information on community treatment services that are similar to the prison CDT program will be allotted to offenders with COD.

Probation/Parole. Within the community are a majority of offenders with COD on probation under supervision. These offenders are roughly twice as likely to fail probation by having their community term rescinded due to technical violation or for committing a new offense (Skeem, Louden, Manchak, Vidal, & Haddad, 2009). Individuals with co-occurring disorders on probation can cause the strains of social controls in which formal and informal social controls may promote conformity and compliance with societal rules. These individuals are required to take all psychotropic medicines proscribed to them and participate in substance abuse or other treatment services. A study performed by Stephan and Karberg reported that over a 12-month period from 1999 thru 2000 there were 3,175 inmates who died while in the correctional system (cited in Primm et al., 2005). Between 5 and 9 percent the deaths were caused by suicide, and between 1 and 9 percent of the deaths were caused by other causes including drug overdose. Balaykina et al. (2014) observed a sample of 2,077 probationers wherein those who screened positive for COD were more likely to be at moderate to high risk of future crime and violence compared to those who screened positive for one disorder alone or none at all.

Little information is available on the impact of COD among inmates released on parole. Each year there is nearly 500,000 offenders in the United States that are released under parole supervision (Baillargeon et al., 2009). Parolees with co-occurring disorders are often required to attend community-based treatment programs as a condition of their supervised release. This requirement provides correctional officers with the control necessary to coerce treatment participation and obedience. Parolees who violate their parole conditions can face a variety of sanctions that range from minor measures to the

most severe sanctions, for example, increased drug testing, confinement to residential treatment programs, parole revocation, and reincarceration in the prison system. Each year, roughly 40% of parolees are reverted to prison as a result of revocation.

DUI/DWI. Repeat DUI offenders are an important target population for alcoholism treatment because about one third of repeat offenders will repeat their dangerous behavior (McMillan et al., 2008). To date, actual clinical practice in this population has not been assessed. Mental health professionals advise that repeat DUI offenders should be treated for co-occurring conditions or have these conditions diagnosed so that specific treatment programs can be established. McMillan et. al. (2008) performed a study of 233 repeat DUI offenders finding that comorbid bipolar disorder, depression, obsessive compulsive disorder, and drug use disorders were frequently undiagnosed during treatment. Some research suggests that rates of psychiatric disorders, including substance use disorders and depression, are elevated among DUI offenders and that there might be an association between various psychiatric disturbances and disorders and DUI re-offense (Shaffer et al., 2007).

Hypothesis

Most researchers and policy makers believe that the treatment for criminal offenders with COD is ineffective. Taken as a whole, the literature seems to indicate enormous problems in treating criminal offenders. While there are some successful programs, the barriers to implementing successful programs across the national as a whole seem insurmountable at this time due to the lacking of funding and training.

However, the lack of research assessing the effectiveness of these programs is stunning, as is the case with many types of drug and mental-health treatments in

corrections generally (MacKenzie, 2006). To address this gap in the literature, this project can be described as having two parts. First, consistent with the negative view that has been taken toward the effectiveness of the treatment of COD among criminal offenders, the following hypothesis is tested: *Individuals with co-occurring disorders who are allotted to a program through the criminal justice system are less likely to complete treatment programs rather than those who are referred through non-criminal justice sources.* The second part of this study is an exploratory analysis that attempts to determine whether some parts of the criminal justice system are more successful than others in referring offenders who succeed in completing treatment.

Summary

The information provided in this chapter contains background knowledge of the progression of COD throughout the past several decades. COD became an issue in the 1980s due to deinstitutionalization. We have looked at the different referral sources within the criminal justice system, and the different studies that have been performed in each referral. This study is important to undergo due to the small amount of literature that studies the completed programs from justice referrals.

The research presented in this thesis will help further research to explore different ways in bettering programs within the criminal justice system that handle clients with COD. There has not been much focus on the discharge of clients, but more so on the different types of programs available and unavailable, due to funding reasons. The following section will explain the development of this study, and how we will achieve our answers to test this hypothesis.

CHAPTER III

Methods

This research is a secondary analysis of data derived from the Substance Abuse & Mental Health Data Archive (SAMHDA) Treatment Episode Data Set—Discharges (TEDS-D), 2011. This information is from individual-level administrative data supplied to the federal government from state-licensed or certified substance abuse treatment sentence that receive federal funding and is used to develop national and state-level rational outcome measures (U.S. Department of Health & Human Services, [2013]). Individuals were not directly contacted for this research—the information on individuals was supplied by the treatment program. The subjects within the study are unknown to the researcher, and the respondents for this study are already de-identified. Cases that could be potentially identified in their raw form underwent routine coding by the data provider to prevent high and low codes from distinguishing a respondent's record.

Previous publications based on the TEDS-D data sets have contributed to our understanding of substance abuse and mental illness. For example, Monti, Barnett, & MacKinnon (2009) discussed the fluctuation of substance abuse and mental health that occurred between the years 1997 and 2007. Sahker, McCabe, and Arndt (2015) explored the characteristics of substance abuse treatment completion of pregnant and non-pregnant women. Another study was done focusing on the racial differences by examining substance abuse treatment completion between black and white individuals based on their referral source (Sahker, Toussaint, Ramirez, Ali, & Arndt, 2015). TEDS data has also been used as a source of data for the United States when making cross-national comparisons (Ajami et al., 2014; Sahker, Acion, & Arndt, 2015).

Stephanie Brooks Holliday and her colleagues are beginning to use the TEDS data to answer questions about the effectiveness of the treatment of offenders similar to those addressed in this thesis. Brooks Holliday and Yasuhara (2014) identify factors related with treatment completion and the attrition of drop outs and incarceration. Brooks Holliday, Yasuhara, & Bertulis (2014) examine the characteristics of veterans who are referred through the criminal justice system to substance abuse treatment.

The dataset used in this project was from 2011 and contains 1,732,741 individuals, all of whom were in drug treatment programs. Restricting the data to those individuals with co-occurring disorders, defined by the presence of a psychological problem, and removing those who died or were transferred to another facility reduces the number of people in the study to 343,430.

The data for this thesis required a Human Subjects Review due to information on individuals being reported. A claim of exemption form was filled out for this research project to show that no risk to human subjects would occur. As previously stated, respondents for the analysis had already been de-identified through SAMSHA.

Dependent Variable

The dependent variable used is treatment completed. The data file lists four other reasons why individuals might not complete the program:

1. *Left against professional advice*: Clients chose not to complete program, with or without specific advice to continue treatment. This includes clients who “drop out” of treatment for unknown reason and clients who have not received treatment for some time and are discharged for “administrative” reasons.

2. *Terminated by facility*: Treatment is terminated by action of facility, generally because of client non-compliance or violation of rules, laws, or procedures (not because client dropped out of treatment, client incarcerated, or other client motivated reason).
3. *Incarcerated*: Clients whose course of treatment is terminated because the client has been incarcerated. Includes jail, prison, and house confinement.
4. *Other*: Moved, illness, hospitalization, or other reason somewhat out of client's control (U.S. Department of Health & Human Services, [2013]).

For the purpose of this research, the cases that were transferred to another substance abuse treatment program or facility and death was taken out of the analysis, so a more accurate representation of those who have and have not completed treatment programs are represented. The reason for discharge is the focus dependent variable to gain a better understanding of success rates for individuals in the criminal justice co-occurring disorder programs. By focusing on the reason for discharge, this can help gain an insight on the different factors that aid in completion of the treatment programs.

Independent Variables

Two independent variables were used in determining the outcome of this study. The first independent variable is the source of the referral for treatment. This variable identifies seven different sources: individual (self-referral), alcohol/drug abuse care provider, other health care providers, school, employer, other community referral, and criminal justice referrals. Table 2 shows each category and the percent of those who have or have not completed treatment. These categories were used to create the criminal justice/non-criminal justice split of the data in Table 4.

The second independent variable that was used is the detailed criminal justice referral, which contains 6 categories: courts, probation, diversion programs, prison, DUI/DWI, and other legal entities. This variable is used to break up all criminal justice referrals to obtain the outcome of each category. Detail criminal justice referrals show the representation of the different categories that show the completion or non-completion of treatments—these results can be found in Table 3. The multivariate model is shown in Table 5. There's a discrepancy in the number of criminal justice referrals between the two different referrals because of missing values in the detailed referral field.

Control Variables

I used 10 variable groups as control variables. The first variable group contains age which measures the age range in years of the individuals reported in the sample and consists of six independent variables: 12-17, 18-24, 25-34, 35-44, 45-54, and 55 or more. Male and female measure gender. The race and ethnicity of individuals is summarized through 10 categories; Alaska Native , American Indian, Asia/Pacific Islander, Black, White, Asian, other single race, two or more races, Native Hawaiian/Pacific Islander, and Hispanic.

Marital status includes never married, now married, separated, and divorced/widowed. The education variable has five different levels of education of the population being studied: 8th grade or less, some high school, high school graduate, some college, college graduate. The living arraignment variable contains three specific categories—homeless, dependent living, and independent living. Length of stay is how long the client stayed within the facility before treatment completion or non-treatment

completion; its categories are 30 days, 31 to 45 days, 46 to 60 days, 61 to 90 days, 91 to 120 days, 121 to 180 days, 181 to 365 days, and more than one year.

Table 1 reports the descriptive statistics of the variables for this study. These descriptive statistics are utilized to portray the frequencies and percentages of each variable.

Analytic Strategy

To perform this study, I used IBM SPSS Statistics Version 20 (SPSS Statistics, 2014). This software was chosen because it is capable of performing the appropriate analysis for this study. Multivariate analysis was conducted using binary logistic regression. A binary logistic regression predicts the probability of an event occurring. This model uses treatment completed as the dependent variable. In Table 4, the odds ratios are reported for all referral sources that have completed treatment programs.

To compare treatment completed with non-completed treatments a *sort case* step was performed to only run the dependent variable with only criminal justice referrals against the independent variables. To run this action in SPSS, under *sort case* it filtered by whether or not person was referred by the criminal justice system. Table 4 also shows the odds ratios of the independent variables that only ran criminal justice referrals for the treatment completed (dependent variable).

The third study was to perform a multivariate regression by using the *split file* command. To perform a *split file*, detailed criminal justice referral is separated by its categories and multivariate regression results are reported for the specified categories individually. Once split files are selected then another logistic regression is ran.

The reference categories for each logistic regression are ages 55 and older, females, white, now married, college graduate, homeless, length of stay ≤ 30 days, and self-referral. The Results section will explain the output of each analysis. The odds ratios that are reported will be interpreted by which variables were significant, and the likelihood of the most significant independent variables occurring within each model.

CHAPTER IV

Results

The following section will discuss the findings in Tables 2 through 5. Table 2 shows a breakdown of all principal source referrals by showing the percentage of who did and did not complete treatment. Table 3 shows the breakdown of the detailed criminal justice referrals by also show who did and did not complete treatment. Both Tables 2 and 3 give a clear insight on which type of referral source contains more completion rates. By showing these two tables, it will show which referrals have the highest completion rates without using any statistical controls.

Table 4 shows the binary logistic regression. The first column, shows all referrals to treatment, and only those who completed treatment. The second column, reports only criminal justice referrals for treatment completion. The third column, reports non-criminal justice referrals with treatment completion.

Table 5 is a multivariate logistic regression that breaks down the criminal justice referrals. In this table, each criminal justice referral shows the significance of which referral source contains more treatment completion.

Completion Rates

In Table 2, the highest treatment completion rate is shown to be referred through the individual's employer at 51.69%. Individuals who are referred through alcohol/drug abuse care provider is also very high in treatment completion at 50.32%. Those who are referred through the criminal justice system showed that 50.03% completed treatment. Those who are self-referrals, complete treatment at 41.19%.

Table 3 shows the breakdown for the criminal justice referrals into six categories: court, probation/parole, diversion, prison, DUI/DWI, and other legal entities. Individuals who are referred to treatment through DUI/DWI showed to have the highest completion percentage at 69.14%. Diversionary programs and other legal entities reported to also have higher completion of treatments, 58.79% and 57.92% respectively. Prison treatment referrals displayed a 51.87% completion of treatment for offenders. The two lowest completion of treatment were courts and probation/parole reporting at 49.51% and 43.45% respectively.

Multivariate Analysis for Effects of Principal Source of Referrals

Table 4 shows a substantial change in the rank order of completion rates once statistical controls are added. Using self-referral as the reference category, criminal justice referrals now rank highest with a 57% increase over self-referral, though the difference between second-ranked employer referral at 47% is not statistically significant. Individuals who are referred to a treatment program through an alcohol/drug abuse care provider are 44% more likely to complete the program than those who are self-referrals. Those who are referred to a program through other health care providers are 8% more likely to complete the program than those who self-referred. Those who are referred through school are 15% more likely to complete the program than those who are self-referrals.

The results of the binary logistic regression are displayed in Table 4 under the first column. Males are 12% more likely than females to complete treatment programs. All individuals who are referred to treatment programs that are between the ages of 12 and 54 showed to be less likely than those who are ages 55 and older to complete the

program. The percentages of the results are as followed: between ages 12 to 17 are 18% less likely, ages 18-24 are 43% less likely, 25 to 34 are 38% less likely, 35 to 44 are 31% less likely, and 45 to 54 are 16% less likely. Surprisingly, only Alaskan Native and American Indian showed to be more likely (77% and 42%, respectively) to complete treatment programs than those who are White. Hispanics are 21% less likely, Asian/Pacific Islanders are 27% less likely, Black/African American are 29% less likely, and those with other single race are 32% less likely to complete treatment programs than those who are white.

Individuals who are referred to treatment programs who are separated from their spouse are 8% less likely to complete than those who are now married. Those who have 8 years or less of education are 36% less likely to complete treatment programs than those who have 16 or more years of education. Likewise, those who have obtained 9 to 11 years are 41% less likely, 12 years are 25% less likely, and 13 to 15 years are 18% less likely to complete treatment programs than those who have 16 or more years of education. Unexpectedly, individuals who are dependently living are 11% less likely, as well as, those independently living are 24% less likely to complete treatment than those who are homeless.

Individuals who stay in a treatment program between 181 to 365 days are 26% more likely and those who stay more than a year 5% more likely to complete the programs than those who stay less or equal to 30 days. Those who stay 31 to 45 days in a treatment program are 40% less likely to complete the program than those who stay less or equal to 30 days. Similarly, individuals who stay 46 to 60 days are 49% less likely, 61

to 90 days are 37% less likely, and 91 to 120 days are 19% less likely to complete treatment programs than those who stay less or equal to 30 days.

Criminal Justice Referral versus Non-Criminal Justice Referrals

Table 4, in the second column shows the results for the odds ratio of the independent variables of only criminal justice referrals to treatment. Males are 7% more likely to complete treatment programs referred through the criminal justice systems than females. Individuals who are between the ages of 12 and 17 are 40% less likely to complete treatment referred through criminal justice than those who are ages 55 and older. Those who are between the ages of 18 to 24 and 25 to 34 are less likely (59% and 53%, individually) to complete treatment referred through criminal justice than those who are ages 55 and older. Equally, those who are between the ages of 35 to 44 and 45 to 54 are 45% and 31% less likely to complete programs referred through criminal justice than those who are 55 and older. American Indians are the only race that is more likely (78%) to complete treatment than those who are white. Those who are Alaska Native are 35%, Asian/Pacific Islander are 46%, Black/African American are 38%, other single race are 28%, and Hispanics are 19% less likely to complete treatment programs through criminal justice referrals than those who are white.

Those who are separated from their spouse are 9% less likely to complete treatment when referred by the criminal justice system than those who are now married. Individuals who have 8 to less years of education are 49% less likely to complete treatment referred through the criminal justice system than those who have 16 or more years of education. Respectively, those who have 9 to 11 years are 53%, 12 years are 39%, and 13 to 15 years are 29% less likely to complete treatment referred through

criminal justice than those who have 16 or more years of education. Individuals who are independently living are 10% less likely to complete treatment referred through criminal justice than those who are homeless.

Compared to individuals who stay in programs less or equal to 30 days, those who stay between 31 and 45 days are 18% less likely to complete treatment referred through the criminal justice system. Individuals who stay 61 to 90 days are 16%, 91 to 120 days are 62%, and 121 to 180 days are 100% more likely to complete treatment referred through the criminal justice system than those who stay less or equal to 30 days. Those who stay in treatment programs referred through criminal justice 181 to 365 days are 2.32 times more likely to complete the program also those who stay more than a year are 2.35 times more likely to complete the program than those who stay less or equal to 30 days.

The third column in Table 4 shows the results for non-criminal justice referrals. Males are 12% more likely to complete treatment referred through non-criminal justice settings than females. Individuals who are between the ages of 12 to 17 are 8% less likely to complete treatment than those who are 55 years or older. Those who are between the ages of 18 to 24 and 25 to 34 are 38% and 34% less likely to complete treatment when referred by non-criminal justice than those who are 55 and older. Individuals between the ages of 35 and 44 are 28% less likely to complete treatment referred through a non-criminal justice setting than those who are 55 and older. Those who are ages 45 to 54 are 17% less likely to complete treatment than those who are ages 55 and older when referred through a non-criminal justice setting. Alaska Native individuals are 88% more likely to complete treatment referred through non-criminal justice settings than white individuals. Also, American Indian individuals are 30% more likely to complete treatment than white

individuals when referred through a non-criminal justice setting. On the other hand, Hispanic's are 21%, blacks are 25%, and those with other single races are 34% less likely to complete treatment programs than white individuals when referred through non-criminal justice settings.

Individuals who are separated from their spouse are 8% less likely to complete treatment than those who are now married when referred through a non-criminal justice setting. Those who have 13 to 15 years of education are 17% less likely to complete treatment than those who have 16 or more years of education when referred through a non-criminal justice setting. Correspondingly, those who have 8 years or less, 9 to 11 years, and 12 years of education are less likely to complete treatment than those who have 16 years or more of education: 37%, 40%, and 23% respectively. Individuals who are dependently living were surprisingly only 7% less likely to complete treatment than those who are homeless when referred through a non-criminal justice setting. Likewise, those who are independently living and are referred through a non-criminal justice setting are 27% less likely to complete treatment than those who are homeless.

Interestingly, the length of stay for individuals who are referred through non-criminal justice settings showed that those who stay over 30 days in a treatment program are less likely to complete the program. Columns one and two in Table 4 (all referrals and criminal justice referrals) show that the longer time spent in a treatment program are more likely to complete. Individuals who stay in treatment between 31 and 45 days are 41% less likely to complete treatment referred through non-criminal justice referrals than those who stay less or equal to 30 days in treatment. Those who stay 46 to 60 days in treatment are 58% less likely to complete treatment than those who stay 30 days or less

when referred through non-criminal justice settings. Individuals who stay 61 to 90 days are less likely to complete treatment than those who stay less than or equal to 30 days when referred through non-criminal justice settings. Those who stay in treatment 91 to 120 days are less likely to complete treatment than those who stay 30 days or less when referred through a non-criminal justice service. Individuals who are referred through non-criminal justice services that stay between 121 to 180 days are less likely to complete treatment than those who stay less than or equal to 30 days in treatment. Individuals who stay more than a year are 22% less likely to complete treatment programs than those who stay 30 days or less when referred through a non-criminal justice setting.

The pseudo-R² in all three outputs were different. The criminal justice referrals had a higher pseudo-R² of .084 compared to all principle referral sources at .058 and non-criminal justice referrals at .050.

Odds Ratio for Binary Logistic Regression – Multivariate Analysis

Table 5 shows the odds ratio of a multivariate analysis of the binary logistic regression. This table is categorized into 6 control variables using detailed criminal justice referrals (DETCRIM): court, probation/parole, diversionary, prison, DUI/DWI, and Other legal entities.

Courts. Males are 10% more likely to complete treatment programs when referred by the courts than females. Individuals who are referred through the courts and are between the ages of 12 to 17 years of education are less likely to complete the programs than those who are 55 or older. Court referrals for individuals that are between the ages of 18 and 24 are less likely to complete treatment compared to those who are 55 or older. Likewise, individuals between the ages of 25 to 34 are 46%, ages 35 to 44 are

39%, and those who are ages 45 to 54 are 26% less likely to complete programs referred through the courts than those who are 55 and older. Hispanic individuals are 24% and those with other single race are 28% less likely to complete treatment programs when referred by the court than those who are white. Correspondingly, black/African American individuals are 40% less likely to complete treatment when referred by the courts compared to white individuals.

Those who have less than 16 years of education are less likely to complete treatment programs than those who have 16 or more years of education: less than or equal to 8 years are 36% less, 9-11 years are 47% less, 12 years are 26% less, and 13-15 years are 16% less. Individuals who are dependently living are 18% less likely to complete programs referred by the courts than those who are homeless. Correspondingly, those who are independently living are 24% less likely to complete treatment when referred by the courts than those who are homeless.

Individuals who stay in a program between 31 and 45 days are 26% and those who stay 46 to 60 days are 14% less likely to complete treatment referred by the courts than those who stay equal or less than 30 days. On the contrary, those who stay 91 to 120 days are 37% and those who stay 121 to 180 days are 63% more likely to complete treatment referred through the courts than those who stay less than or equal to 30 days. Individuals who stay between 181 to 365 days in treatment are 2.17 times more likely to complete those programs than those who stay less or equal to 30 days. Similarly, those who stay more than a year are 2.59 times more likely to complete treatment referred by the courts than those who stay less than or equal to 30 days.

Probation/Parole. Individuals who are referred to a treatment program through probation or parole that are between the ages of 18 and 24 are less likely to complete the program than those who are 55 and older. Those who are between the ages of 25 and 34 are 42% and those who are 35 to 44 years old are 38% less likely to complete treatment that is referred through probation or parole than those who are 55 or older. Individuals 45 to 54 years old are 29% less likely to complete treatment than those who are 55 years or older. Those who are Asian/Pacific Islanders are 13%, Hispanic's are 21%, and those with other single race are 23% less likely than those who are white to complete programs referred through probation or parole. Black/African Americans are 27% less likely than white individuals to complete treatment referred by probation or parole.

Individuals who are referred to treatment through probation or parole who have 8 years or less or 9 to 11 years of education are 32% less likely to complete the program than those who have 16 or more years of education. Those who have 12 years of education are 25% less likely to complete treatment referred by probation or parole than those who have 16 or more years of education.

Individuals who stay in treatment between 46 to 60 days are 13% and those who stay 61 to 90 days are 68% more likely to complete the program referred by probation or parole than those who stay less than or equal to 30 days. Those who stay in treatment 91 to 120 days are 2.8 times more likely to complete programs referred by probation or parole than those who stay less than or equal to 30 days. Those who stay in treatment 121 to 180 days are 3.4 times more likely to complete program than those who stay 30 days or less. Similarly, those who stay 181 to 365 days are 4 times more likely and those who

stay more than a year are 3.4 times more likely to complete treatment referred through probation or parole than those who stay 30 days or less.

Diversionary. Many of the variables became insignificant in this section of the multivariate analysis. Individuals between the ages of 12 and 17 are 61% less likely to complete programs referred through diversion than those who are 55 and older. Those who have 8 or less years of education are 62% less likely to complete programs referred through diversion than those who have 16 or more years of education. Also, those who have 9 to 11 years of education are 61% less likely to complete treatment referred through diversion than those who have 16 or more years of education.

Individuals who stay in treatment 31 to 45 days are 32% less likely to complete treatment referred by diversion than those who stay 30 days or less. Interestingly, those who stay in treatments 61 to 90 days are 45% and those who stay more than a year are 67% more likely to complete programs referred through diversion than those who stay less or equal to 30 days. Individuals who stay 91 to 120 days are 2.8 times more likely to complete treatment referred through diversion than those who stay less than or equal to 30 days. Similarly, those who stay 121 to 180 days and those who stay 181 to 365 days are 3.6 times and 4.7 times more likely to complete programs referred through diversion than those who stay 30 days or less.

Prison. Males are 42% more likely to complete prison referrals to treatment than females. Individuals who are ages 12 to 17 are 97% less likely to complete prison referral to treatment than those who are 55 or older. Those who are 18 to 24 are 66%, 25 to 34 are 54%, 35 to 44 are 52% less likely to complete treatment referred by prison than those who are 55 or older. Also, those who are 45 to 54 years old are 48% less likely to

complete treatment referred by prison than those who are 55 years or older. Individuals who are black/African American are 34% less likely to complete treatment programs referred by the prison system than white.

Those who stay in treatment 31 to 45 days are 61% more likely to complete the programs when referred in the prison system than those who stay 30 days or less. Those who stay in treatment 61 to 90 days are 2.5 times more likely to complete programs referred by the prison than those who stay less than or equal to 30 days. Those who stay 91 to 120 days are 3.7 times, 121 to 180 days are 4.4 times, 181 to 365 days are 6.4 times, and those who stay more than a year are 3.9 times more likely to complete treatment referred through prison than those who stay 30 days or less.

DUI/DWI. Those who are ages 12 to 17 and those ages 18 to 24 are 49% less likely to complete treatment referred through DUI/DWI than those who are 55 or older. Individuals who are between the ages of 25 to 34 are 33% less likely to complete referred DUI/DWI treatment programs than those who are 55 or older. Similarly, those ages 35 to 44 and those ages 45 to 54 are 33% and 25% less likely to complete treatment programs referred through DUI/DWI than those who are 55 and older. Individuals who are black/African American are 45% less likely to complete prison referral treatments than those who are white.

Individuals who are separated from their spouse are 21% less likely to complete treatment referred by the prison than those who are married. Individuals who have 8 years of less of education are 50% less likely to complete treatment referred through the prison than those who have 16 or more years of education. Those who have 9 to 11 years of education are 58% less likely to complete programs referred through prison than those

who have 16 or more years of education. Those with 12 years of education are 46% and those with 13 to 15 years of education are 38% less likely to complete treatment referred through prison than those who have 16 years or more of education.

Those who stay 31 to 45 days are 59% and those who stay 46 to 60 days are 65% more likely to complete programs referred through prison than those who stay 30 or less days. Individuals who stay 61 to 90 days are 2.2 times, 91 to 120 days are 2.9 times, and 121 to 180 days are 5.2 times more likely to complete treatment referred through prison than those who stay 30 or less days. Those who stay 181 to 365 days are 3.7 times and those who stay more than a year are 2.2 times more likely to complete treatment referred through prison than those who stay 30 days or less.

Other Legal Entities. Males are 11% more likely to complete treatment referred through other legal entities than females. Individuals who are ages 12 to 17 are 54% less likely to complete treatment referred by other legal entities than those who are ages 55 and older. Those who are 18 to 24 are 71% less likely to complete treatment referred by other legal entities than those who are ages 55 and older. Individuals who are 25 to 34 are 62%, 35 to 44 are 53%, and 45 to 54 are 39% less likely to complete treatment referred by other legal entities than those who are ages 55 and older. American Indians (and Native Hawaiian/Pacific Islanders are 3.9 times and 2.5 times more likely to complete programs referred through other legal entities than those who are white. Hispanics are 21% less likely to complete programs referred through other legal entities than those who are white. Other single race individuals are 50%, Alaska Natives are 49%, those with two or more races are 41%, and black/African Americans are 40% less likely to complete treatment referred by other legal entities than those who are white.

Individuals who have 8 years or less of education are 34% less likely to complete treatment referred by other legal entities than those who have 16 or more years of education. Those who have 9 to 11 years of education are 33% less likely to complete treatment that is referred by other legal entities than those who have 16 or more years of education.

Individuals who stay in treatment between 31 and 45 days and those who stay 46 to 60 days are 43% less likely to complete treatment referred through other legal entities than those who stay 30 days or less. Those who stay in treatment 61 to 90 days are 35% less likely to complete treatment referred by other legal entities than those who stay 30 days or less. Individuals who stay 91 to 120 days are 18% and those who stay 121 to 180 days are 20% less likely to complete treatment referred by other legal entities than those who stay less than or equal to 30 days. Those who stay 181 to 365 days are 25% less likely to complete treatment referred by other legal entities than those who stay 30 days or less.

Similar to Table 4, the pseudo-R² in the output for Table 5 were all different. Courts had the smallest pseudo-R² at .075. Both probation and parole's pseudo-R² both showed in the output as .116. DUI/DWI's pseudo-R² is .129. Diversionary programs showed to have the second largest pseudo-R² represented at .152, and prison pseudo-R² is shown in the output as .194.

Summary

The majority of all variables were statistically significant in the binary logistic regression model. All ages were less likely to complete treatment compared to those ages 55 and older. Compared to all other races Black/ African Americans were 29% less likely

to complete, whereas those who are another single race reported at being 32% less likely to complete treatment than white individuals. Surprisingly, men are only 12% more likely than women to complete treatment programs. It was also unexpected that individuals who are homeless are more likely to complete treatment programs than those who are dependent living and independent living. It was not astonishing to see that compared to self-referrals, those who are referred through the criminal justice system are 57% more likely to complete programs.

All criminal justice referrals stayed significant except for a few variables in which males were only 7% more likely to complete treatment referred through criminal justice than women. Consistently individuals under the age of 55 were less likely to complete programs referred through the criminal justice system than those who are 55 and older. Black/African Americans were still highly significant with 38% less likely to complete treatment programs when referred through the criminal justice system. The only race that was more likely to complete programs than white individuals was American Indians at 78%. Individuals who are separated were 9% less likely to complete treatment referred through criminal justice than those who are married.

More variables under the court referral stayed more significant than those throughout any other criminal justice referral in completing programs. Males showed to be 10% more likely to complete treatment when referred through the courts than females. Black/African Americans showed a significant 40% less likely to complete programs referred through the courts than white individuals.

Probation and Parole are significant in treatment completion rates; however, there is an exceptional amount of individuals who are less likely than others to complete

treatment programs. This refers back to the literature review, where it was discussed that those in probation or parole have more outside influences which can cause them to not complete treatment programs.

Diversionary programs are reported to be less likely over all other criminal justice referrals to have individuals complete treatment programs. This result is significant with the information previously addressed when those in jail diversion programs have less time to participate in treatment programs than those referred by other criminal justice agencies.

There are a lot of non-significant variables in the referral of prisons. This shows that there are less individuals completing treatment programs when referred through the prison. Those in prison settings go through more internal barriers than those referred through other programs, due to transitioning into the prison system, lack of COD being diagnosed, and less one on one treatments with professionals.

DUI/DWI showed some significance. Many of the variables showed that they are less likely to complete treatment than the reference variables. Black/African Americans are 45% less likely to complete treatment referred through DUI/DWI than white individuals.

Referrals by other legal entities were remarkably showed more significant than may other criminal justice referral sources. Males referred by other legal entities were 11% more likely to complete treatment than females. Hispanics are 21% and Black/African Americans are 40% less likely to complete treatment when referred by other legal entities than white individuals.

The length of stay in each model reported to be statistically significant. The main issue with this variable is that depending on the referral source limited time frames may occur and may be analyzed properly for the specific outcomes. For example, jail diversion programs do not have as much time with an individual with COD where it could be up to a month, whereas those in a prison treatment program can participate in the program for more than a year.

The following chapter will discuss the major findings that are related to the hypotheses. That section will explain if the hypotheses were correct or not correct based on the models that have been analyzed.

CHAPTER V

Conclusion

It was hypothesized that individuals with co-occurring disorders who are allotted to a program through the criminal justice system are less likely to complete treatment programs rather than those who are non-criminal justice services. The output of the binary logistic regression identified that the hypothesis was not accurate according to this statistical data model.

Table 2 shows that those who are referred from the criminal justice system have a 50% treatment completion rate. This percent is slightly lower than employer referrals (52%) about the same as alcohol/drug providers (50%). If an individual does not complete his or her treatment then their employer may terminate the individual. Motivation is important for those completing treatment programs. Factors such as employment, family, and education can help motivate individuals in completing treatments because they have the support and knowledge in what is right and wrong. It is noteworthy that all three of these types of referrals score way above self-referral: While the largest single source of referrals, self-referrals complete at a rate of only 41%.

By only focusing on the outcome in Table 2, we might conclude that criminal justice referrals are a good but not the best source of referral for treatment. However, the case for criminal justice becomes stronger in Table 4, where criminal justice referrals become the best form of referral once statistical controls are added, though the difference with employee-based referrals is not statistically significant.

While exploring the different parts of the criminal justice referrals it was found that higher rates of completion are present in diversionary programs, prison programs,

and other legal entities. Those referred through DUI/DWI represented the highest completion rates at 69%. These programs offer more supervision to individuals with COD to help organize a routine, and to keep the individuals on track in which corresponds with the hypothesis. Those with mental illness and substance abuse problems require more supervision than those with the disorders individually or not diagnosed at all. When diagnosed in the prison system there are many drawbacks of COD treatment; however, there are more programs amplified to help those with COD.

The criminal justice system reported to have high rates of treatment completion; however, do those who have completed treatment recidivate and become reincarcerated? Reentry issues are a major problem for individuals with COD, but in the literature (Peters et. al., 2008) discussed 10 structural modifications associated with Co-occurring Disorder Treatments (CDT) to provide better service for those with in the prison system. Institutional settings provide atmospheres wherein the individual is expected to attain abstinence and moderate mental health symptoms (Sacks, Melnick, & Grella, 2008).

Probation and parole officers play a dire role in the supervision of probationers and parolees by the discretion of their supervision strategies (Ricks & Eno Louden, 2015). The manner in which the officers make decisions during supervision can directly impact the offenders' success. Individuals referred through probation or parole may not truly complete programs as much as those in prison due to external factors causing the individual to recidivate. Those who are on probation or parole treatment programs do not have as much supervision, and may only be in contact with their officer every few weeks to a month. Large caseloads for probation and parole officers can cause issues for individuals with COD. Smaller caseloads are more ideal for officers to provide better

supervision of individuals with COD which will allow more contact between the individual and his or her officer.

Supervision in courts may or may not occur since they only refer individuals to a program, like diversionary. However, with the courts being highly significant it could be possible that once an individual with COD is given an ultimatum to either participate in treatment programs or be issued with the original sentencing can cause those individuals to participate and complete the treatment programs.

Males were shown to be more likely than females to complete treatment programs in all principal referral sources. Black individuals stayed consistent in each model showing that they are less likely to complete treatment than those who are white. Relating back to information discussed in the literature, individuals who are homeless are more likely to complete treatment than those who are dependent and independently living. Those who are homeless seek stability, and by being placed within the criminal justice setting allows homeless individuals to be off the streets. It also goes back to incentive for homeless individuals. Many reentry programs help individuals find housing and employment which can motivate those who are homeless. Based on the results of this study, it appears that supervision is key when providing treatment to individuals with COD in the criminal justice department.

Throughout this study, information regarding barriers to treatment has been highlight; however, a thorough discussion is needed to capture the process of treatment for individuals with COD. The following discussion section will help tie loose ends that pertains to the process of screening, treatment, and reentry for individuals with COD.

Discussion

The findings suggest that the criminal justice system can provide solid referrals for the treatment of COD. While the criminal justice system has many barriers preventing it from getting the needed care to offenders with COD, this study raises the possibility that the system is effective once the referral is made. What best practices can be introduced to expand this success? The following section will discuss the three main processes for individuals with COD being diagnosed and obtaining treatment within the criminal justice system, and finally what happens once released back into the community

Screening, Treatment, and Reentry

Throughout the literature review, information on COD viewed the background information, barriers for treatment, and criminal justice referrals; however, information needs to be highlighted on the process that needs to be followed to properly treat those with COD. The following information is what has been found as the best practices for individuals with COD; however, these programs are not used at all treatment facilities. There are many obstacles when trying to decide on the best program for individuals with COD because each individual's diagnosis is diverse. Peters and Hills (1997) clarify that, "this diversity is reflected in the choice of primary drugs, the etiology and history of criminal justice involvement and violent behavior, level of impairment in psychosocial functioning, and level of social support." By focusing closely at the screening process, treatment, and reentry for those with COD will explain the process the criminal justice system has to endure to properly treat individuals with COD.

Screening. Screening is one of the first steps that should be addressed when an individual enters the justice system, and a continuing screening should be done as the

offender is transferred through supervision officers, agencies, and jurisdictions (Peters & Hills, 1997). Since co-occurring disorders are common within the criminal justice system, supervision officers should take notice that if one disorder, either substance abuse or mental illness, is identified then screening should be done for the other disorder. It is important for a timely screening of substance abuse because a failure in detecting substance abuse in an individual can cause a misdiagnosis of mental disorders, negligence of appropriate interventions for substance abuse, and unsuitable planning and referral for the individuals COD (U.S. Department of Health & Human Services, 2014).

Traditional screening tools have been used on individuals with COD, such as the Beck Depression Inventory, the Addiction Severity Index, K6, and CODSI. The Beck Depression Inventory (BDI) is a self-report containing 21 multiple choice questions that measures attitude characteristics and symptoms of depression (American Psychological Association, 2015).

The Addiction Severity Index (ASI) is a one hour interview designed to detect and measure the severity of potential treatment problems in seven areas that are commonly affected by alcohol and drug dependence (Addiction Severity Index, 2015). These seven areas include medical, employment, alcohol use, drug use, legal status, family/social status, and psychiatric problems. There have been concerns with these types of screenings because they narrow results on a specific problem or measures addiction severity in multiple domains, but they do not provide useful information pertaining to treatment for COD.

A K6 scale had been developed, and an analysis had been performed to see if it is an accurate screening tool (Pratt, Deyn, & Cohen, 2007). The K6 scale contains 6

questions that measure nonspecific psychological distress rather than specific mental illness to help identify those with mental health problems that are severe enough to cause moderate to serious impairments. The findings of the analysis showed that the K6 scale was an accurate screening tool for assessing the presence of an SMI (serious mental illness) of individuals with substance abuse disorders (Swartz & Lurigio, 2006). The K6 scale was able to detect psychiatric disorders, and it was also able to identify an individual with severe psychiatric impairment.

Other screening tools used in the criminal justice system include the Co-occurring Disorders Screening Instruments for any Mental Disorder (CODSI-MI) and Co-occurring Disorder Screening Instrument for Severe Mental Disorder (CODSI-SMD) to screen offenders in prison substance abuse treatment programs for the occurrence of mental disorders (Duncan et. al., 2008). Co-occurring Disorder Screening Instruments (CODSI) can be used as a foundation for referring prisoners for further assessment but also a way of collecting mental health data in prison substance abuse treatment programs. The CODSI-MI is a screening instrument used for any mental disorder by using a six-item instrument, whereas, the CODSI-SMD to screen for severe mental disorders uses a three-item instrument. In comparison to other screening tools, both the CODSI-MI and CODSI-SMD created corresponding accuracy across all three of the major racial/ethnic groups, and demonstrated sensitivity and specificity toward the findings of the disorders.

Screening for mental health and substance abuse are performed separately. There is not a uniform screening instrument that is adopted by the various criminal justice settings which can cause differences in diagnosis across the spectrum (Peters et. al., 2008). The development of a COD screening instrument is needed to identify both mental

and substance use disorders, and can be used in criminal justice settings. Screening devices need to demonstrate their accuracy across the different diagnostic categories, race/ethnic groups, and gender. Once the initial screening has been completed and referral to treatment has been implemented, then an assessment of the individual is performed.

The assessment is conducted by a clinical interview, which includes the following information of the individual: symptoms of co-occurring disorder, substance abuse history and current use patterns, mental health history and current status, interaction of co-occurring disorders, family and social relationships, medical history and current health status, and criminal justice history and current status (Peters & Hills, 1997). Service providers and the individual with the co-occurring disorder will use the assessment information to plan out individual goals that coincides with the treatment, and it will help identify the needs to help achieve the goals (Osher, 2013).

By understanding the diverse diagnoses for each offender, it allows providers to decide on the types of interventions needed for each individual. Co-occurring disorders need two types of interventions, treatment and rehabilitation (Drake, Mueser, and Brunette, 2007). The treatment aspect of an intervention includes medication or psychosocial strategies that help control or reduce symptoms of the illness; Rehabilitation is used to help the individuals overcome the disabilities and reinforces skills.

Treatment. Treatment approaches have been around for many years; however, individuals with co-occurring disorders have been excluded from treatment or shuffled around between different providers (Osher, 2013). Many differences occur for treatment of COD when being treated in separate mental health and substance abuse settings. The

beliefs, training, behavior, and philosophy cause significant barriers to the effective treatment for patients with COD (Sterling, Chi, & Hinman, 2011). Mental health settings argued that substance abuse problems are indications of deeper psychological suffering and once the other disorders are properly treated, substance abuse problems will reduce or diminish. This approach imposes that substance abuse disorders and treatment are seen as less reasonable and less deserving of attention and resources. On the other hand, the substance abuse treatment field pose disagreements with the mental health field on proper diagnosis and treatment often have been combative. Funding is supported separately for mental health and substance abuse services within the criminal justice system causing difficulties in sharing the funds for COD services (Chandler et. al., 2004). Separate treatments can cause problems in treatment retention and the focus on the main issues needing to be resolved. Separate services cause hardships for those in the programs whereas, integrated services can more effectively provide proper treatment for those with COD.

Integrated services are the involvement of professionals within substance abuse and mental illness. This is used to unite the two disorders, creating a single treatment setting and schedule for an individual with co-occurring disorders. Studies have demonstrated by integrating both mental health and substance abuse treatment settings improves the retention of the treatment (Duncan et. al., 2008). This type of setting also allows individuals with COD to stay in a routine, and use the knowledge obtained when placed back into the community.

In 1993, a four-quadrant framework was adopted in New York for co-occurring disorders (U.S. Department of Health & Human Services, 2014). The four sub-groups are

categorized based on the individuals co-occurring disorder, which he or she is placed on the multiplicity and severity levels of mental health and substance abuse (Chandler et al., 2004). By having different severity sub-groups, it allows providers to understand how to assist in developing strategies to match the offender's intensity of treatment and supervision. It is important for providers to recognize that individuals with co-occurring disorders may move back and forth among the different quadrants during the course of his or her illness (U.S. Department of Health & Human Services, 2014). There are three categories wherein the quadrants can fall into: consultation, collaboration, and integrated services. Consultation is for Quadrant I, which is for a less severe diagnosis for both substance abuse and mental disorders. This category contains informal interactions between the providers and clients. The providers address the disorders to the client by explaining and identifying each disorder, prevention for the disorders, meeting with the clients, and early interventions for the disorders. Collaboration is for Quadrants II and III, which consists of one disorder less severe than the other disorder. These quadrants have a more formal relationship between the providers and client in which the providers confirm that both disorders are included in the treatment program. The third category, integrated services, is represented by Quadrant IV, where both substance abuse and mental illness disorders are severe. This quadrant contains a very formal relationship, which both substance abuse and mental health providers merge their contributions to make a single treatment setting and schedule for the client. Each category is addressed in this quadrant.

By understanding the severity of the co-occurring disorder, this can help decide what type of integrated treatment that is needed to be used for the individual. The following are types of integrated treatments for individuals in the criminal justice system

with co-occurring disorders: Modified Therapeutic Community (MTC), The Integrated Dual Disorder Treatment (IDDT), and the Assertive Community Treatment (ACT) (Osher, 2013). The Modified Therapeutic Community (MTC) is an integrated residential treatment program, and it has a specific focus on public safety outcomes and helps individuals with their co-occurring disorders, and also their criminogenic needs. MTC has been found to help lower the rates of reincarceration as well as the individual's criminal activities. The Integrated Dual Disorder Treatment (IDDT) is a combined model that integrates both programs and treatment that is provided by the same team. IDDT is an evidence-based intervention for integrated treatment for individuals with co-occurring disorders, and it is found to reduce the amount of arrests of persons with co-occurring disorders (Young, Barrett, Englehardt, & Moore, 2014). Assertive Community Treatment is an evidence based program that merges programs and treatments together that are specific for individuals with co-occurring disorders (Osher, 2013). Treating people with co-occurring disorders has high costs for treatments; however, by using Assertive Community Treatment, it reduces treatment costs for high service utilizers (Essock et al., 2006). The National Criminal Justice Treatment Practices survey found that higher capacity organizations tend to lean towards evidence-base practices than any other practice (Taxman, Cropsey, Melnick, & Perdoni, 2008). One of the main challenges for executing evidence based treatment programs is due to the partnership between the integration of mental health and substance abuse services (Chandler et al., 2004).

Proper evidence-based transition planning has found to be very beneficial for jails to incorporate for individuals with co-occurring disorders. A best practice model was established to aide all jails within the United States to help give basic guidance in

transitioning individuals with co-occurring disorders back into the community. The APIC Model follows four steps in administering a transitioning plan which are assess, plan, identify, and coordinate (Osher, Steadman, & Barr, 2002). Sacks et al. (2008), highlights that findings suggest that the justice system has specific organizational characteristics that are more pronounced in the correctional agencies who have adopted evidence-based practices for treating COD.

Reentry. Individuals with COD have proved to be particularly resistant to community-based treatment (Baillargeon et. al., 2010). Inmates with COD may encounter substantial barriers to successful community reentry after being released from prison (Peters and Hills, 1997). As discussed in Chapter 2, accessing proper community-based treatment services, those with COD must also deal with socioeconomic barriers to community reentry. Many of those individuals are disadvantaged and return to the community with no health insurance or government benefits. Those who have been convicted of felony drug-related offenses may be unqualified for subsidized housing, food stamps, and other government assistance (Baillargeon et al., 2009; Hoge, 2007). Stigma related with COD may be intensified when the distressed individual has a history of incarceration, causing prominent difficulties in obtaining housing and employment. “Triple Stigma” of COD and criminal history cause many community-based mental health and rehabilitation programs to unwillingly provide services to those individuals. Little research on COD ex-prisoners is available.

In New York, the Central New York Psychiatric Center (CNYPC) was developed to provide mental health services for the New York State Department of Correctional Services (DOCS). The CNYPC helps organize an appropriate and comprehensive

discharge plan to meet the individuals' needs by finding the best placement and services once the individual is released on parole (Smith et. al., 2002).

Limitations

One of the major limitations in this study is that each state is not equally represented due to the funding within the states. The facilities which report to the TEDS data set is from those drug and alcohol facilities that have Federal Block Grant funds. There are many facilities that are not included because they are not licensed through the state. There will not be an exact analysis on the reason why people with co-occurring disorders are discharged; however, with the information that has been provided and the amount of samples given, it can reflect a truthful result.

Another limitation within the study is that there was no documentation of recidivism rates of individuals with COD. By not having data on the relapse rates of those individuals observed we are unable to conclude if those who have or have not completed programs reverted back into the justice system.

Due to time restraints, this study could be taken a step further by discussing juveniles, females, and males separate rather than as a whole. There are multiple studies performed on women with COD in the justice system, as well as, juveniles. By studying each group separate can illustrate what types of referral sources have the best completion rates for each of those variables. This can then represent what types of treatment programs are more beneficial for each group.

The length of stay reported in the analysis did not represent a meaningful outcome for each model. Various referral sources may only have a specific amount of time allotted

with an individual before he or she is released from their custody. This causes a limitation in the study which needs to be further researched.

Throughout researching COD, it became apparent that the different types of drug and mental illnesses can cause diverse reactions. This study could go further, and incorporate the different drugs related to COD, and the reactions mental illnesses (or vice versa) can cause. By performing these analyses would not be useful in what was observed in this study and does not correspond with the hypothesis.

Contributions & Future Recommendations

Future research can compare the differences of the reason for discharge for those who report data to the state and those that are private facilities. This can offer major steps in the criminal justice system by examining the differences of discharge for those in private facilities, and to examine the concepts private facilities implement in their treatment programs.

As discussed in the limitations section, future studies need to incorporate the allotted length of stay for each criminal justice referral source to gain better information if more time in treatment is what causes the success rates or if it is the types of treatment being used within each referral source.

The mental illness reported in this study was derived by using the DSM IV which represents the classification of mental disorders with related measures intended to enable more consistent diagnoses of the disorders (American Psychiatric Association, 2013). Since then, a new DSM V has been produced for individuals with mental disorders. Further research may want to focus on what the older version has represented, and

compare with the newer version to recognize the changes that have been incorporated. This can help provide information on which version has given more success rates.

Many contributions have been made in the discussion of the different types of treatment programs for individuals with co-occurring disorders; however, there were minimal results stating if those individuals have completed or not completed treatment programs. By focusing on all types of treatment programs can help facilities produce adequate service, and determine what types of programs produce more completion rates.

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Table 1
Descriptive Statistics for Entire Sample (N=343,430)

Variable	N	%
<i>Dependent Variable</i>		
Treatment Completed	154,382	45%
Non-Completed Treatments		
Left Against Professional Advice	120,780	35%
Terminated by Facility	36,091	11%
Incarcerated	9,484	3%
Other	22,693	7%
<i>Independent Variables</i>		
Principal Source of Referral		
Individual (Self- referral)	113,037	33%
Alcohol/Drug abuse care provider	48,523	14%
Other Health Care Provider	37,908	11%
School	1,470	0%
Employer/EAP	1,120	0%
Other community referral	44,275	13%
Criminal Justice Referral	93,811	27%
Detailed Criminal Justice Referrals		
State/Federal/Other Courts	25,589	8%
Probation/Parole	26,436	8%
Diversionsary Programs	2,068	1%
Prison	2,482	1%
DUI/DWI	7,686	2%
Other Legal Entity	13,511	4%
<i>Control Variables</i>		
Ages 12-17	19,901	6%
Ages 18-24	59,757	17%
Ages 25-34	99,478	29%
Ages 35-44	75,635	22%
Ages 45-54	68,224	20%
Ages 55 or more	20,435	6%
Male	197,956	58%
Female	145,420	42%

Table 1 (con't.)

Descriptive Statistics for Entire Sample (N=343,430)

Variable	N	%
Alaska Native	1,264	0.40%
American Indian	7,751	2%
Asian/Pacific Islander	394	0%
Black/African American	60,156	18%
White	230,413	67%
Asian	1,076	0%
Other single race	3,422	1%
Two or more races	2,921	1%
Native Hawaiian/Pacific Islander	848	0%
Hispanic	34,388	10%
Never Married	198,385	58%
Now Married	44,977	13%
Separated	24036	7%
Divorced/Widowed	57521	17%
Education: 8 th grade or less		
Education: Some high school	86,164	25%
Education: High school graduate	134,453	40%
Education: Some college	69,998	20%
Education: College graduate	19,676	6%
Living Arrangement: Homeless	46,670	14%
Living Arrangement: Dependent Living	58,923	17%
Living Arrangement: Independent Living	234,687	68%
Program Length of Stay: <= 30 days	154,873	45%
Program Length of Stay: 31 to 45 days	24,924	7%
Program Length of Stay: 46 to 60 days	19,153	6%
Program Length of Stay: 61 to 90 days	29,973	9%
Program Length of Stay: 91 to 120 days	24,302	7%
Program Length of Stay: 121 to 180 days	31,310	9%
Program Length of Stay: 181 to 365 days	40,040	12%
Program Length of Stay: more than a year	18,855	6%

Table 2

Principal Source of Referral

Treatment Completed	No	Yes	N
Employer	48.31%	51.69%	1,124
Alcohol/Drug abuse care provider	49.68%	50.32%	48,636
Criminal Justice referral	49.97%	50.03%	94,025
Other health care provider	56.47%	43.53%	38,032
Individual/ Self-referral	58.81%	41.19%	113,452
School	59.55%	40.45%	1,471
Other community referral	61.29%	38.71%	44,366

Table 3

Detailed Criminal Justice Referral

Treatment Completed	No	Yes	N
Court	50.49%	49.51%	25,649
Probation	56.55%	43.45%	26,494
Diversion	41.21%	58.79%	2,070
Prison	48.13%	51.87%	2,483
DUI/DWI	30.86%	69.14%	7,703
Other Legal Entities	42.08%	57.92%	13,539

Table 4

Binary Logistic Regression: Odds Ratio Comparison

Variables	All Referrals	CJ Referrals	Non-CJ Referrals
12 to 17 years old	.823***	.597***	.923**
18 to 24 years old	.571***	.412***	.621***
25 to 34 years old	.623***	.474***	.656***
35 to 44 years old	.694***	.550***	.721***
45 to 54 years old	.844***	.692***	.872***
Male	1.115***	1.074***	1.124***
Alaska Native	1.768***	.654*	1.882***
American Indian	1.421***	1.784***	1.298***
Asian/Pacific Islander	.728**	.543***	.851
Black	.708***	.621***	.746***
Asian	1.021	1.024	1.026
Other single races	.676***	.724***	.656***
Two or more races	.980	.959	.982
Native Hawaiian/P.I. ²	1.110	1.220	1.095
Hispanic	.787***	.810***	.793***
Never married	.992	.988	1.001
Separated	.923***	.908**	.921***
Divorced/Widowed	1.003	.970	1.005
8 or less years education	.639***	.507***	.663***
9-11 years education	.586***	.472***	.603***
12 years education	.753***	.614***	.771***
13-15 years education	.817***	.713***	.826***
Dependent living	.892***	.981	.932***
Independent living	.764***	.903***	.727***
LOS – 31 to 45 days	.596***	.824***	.586***
LOS – 46 to 60 days	.512***	.977	.418***
LOS – 61 to 90 days	.635***	1.161***	.524***
LOS – 91 to 120 days	.812***	1.618***	.618***

² P.I.- Pacific Islander

Table 4 (con't.)

Binary Logistic Regression: Odds Ratio Comparison

Variables	All Referrals	CJ Referrals	Non-CJ Referrals
LOS – 121 to 180 days	1.007	1.995***	.766***
LOS – 181 to 365 days	1.261***	2.315***	1.023
LOS – more than a year	1.046**	2.353***	.781***
Alcohol/drug provider	1.438***		
Other health care provider	1.076***		
School	1.147*		
Employer	1.473***		
OCR ³	1.003		
Criminal Justice	1.571***		
Pseudo R ²	.058	.084	.050
N	315,353	88,197	227,156

Note: *p<.05 **p<.01 ***p<.001

³ OCR – Other community referral

Table 5

Odds Ratio for Binary Logistic Regression

Variables	Court	Probation/Parole	Diversionary	Prison	DUI/DWI	Other
12 to 17 years	.766**	.839	.388*	.027***	.514*	.463***
18 to 24 years	.492***	.529***	.629	.342***	.508***	.292***
25 to 34 years	.540***	.583***	.787	.461**	.586***	.376***
35 to 44 years	.611***	.617***	.967	.480*	.672***	.469***
45 to 54 years	.739***	.710***	1.105	.523*	.746**	.609***
Male	1.096***	.980	.977	1.424***	1.003	1.112**
Alaska Native	.609	.597	1.325	2.147	.406	.509*
American Indian	.894	.972	.464	.786	1.140	3.847***
Asian/Pacific Islander	.513	.867*	. ⁴	.000	.162	.660
Black	.605***	.735***	.863	.663***	.547***	.596***
Asian	.987	1.124	1.130	.693	.546	.971
Other Single Race	.718*	.770*	.211	.432	1.091	.501**
Two or more races	1.069	.953	.596	1.232	1.006	.593*
Native Hawaiian/P.I. ⁵	.868	.802	. ⁶	1.513	.504	2.467**
Hispanic	.758***	.792***	.879	.990	.891	.788***
Never married	.993	.934	1.036	1.138	.868	.990
Separated	.904	.931	1.197	.871	.786*	.873

⁴ Cases too small⁵ P.I. - Pacific Islander⁶ Cases too small

Table 5 (con't.)

Odds Ratio for Binary Logistic Regression

Variables	Court	Probation/Parole	Diversionary	Prison	DUI/DWI	Other
Divorced/Widowed	.971	.917	1.121	.920	.891	.955
8 years or less education	.637***	.676***	.380*	.877	.496***	.660***
9-11 years education	.528***	.676***	.394**	.714	.423***	.668***
12 years education	.732***	.754**	.526	.834	.537***	.819
13 to 15 years education	.837*	.874	.541	.764	.625***	.823
Dependent living	.817***	1.060	1.308	1.346	1.264	.969
Independent living	.759***	1.012	1.170	.709	1.239	.886
LOS – 31 to 45 days	.741***	.980	.683*	1.610**	1.590***	.573***
LOS – 46 to 60 days	.858**	1.134*	.786	1.189	1.649***	.569***
LOS – 61 to 90 days	1.072	1.679***	1.453*	2.468***	2.211***	.655***
LOS – 91 to 120 days	1.372***	2.799***	2.770***	3.726***	2.893***	.832*
LOS – 121 to 180 days	1.630***	3.404***	3.613***	4.421***	5.247***	.804**
LOS – 181 to 365 days	2.165***	3.981***	4.712***	6.367***	3.682***	1.245***
LOS – more than a year	2.587***	3.368***	1.674*	3.936***	2.155***	1.122
Pseudo R ²	.075	.116	.152	.194	.129	.116
N	24,520	24,669	2,030	2,440	7,449	11,788

Note: *p<.05 **p<.01 ***p<.001

Appendix

Dear Investigators,

Your project “Reason for Discharge of Offenders with Co-occurring Disorders” has been reviewed by the YSU IRB for determination of exemption from further IRB oversight. You propose to use data housed by the Substance Abuse and Mental Health Services Administration which is an agency within the U.S. Department of Health and Human Services. The data you will download from the SAMHSA agency’s database is categorized as public use/freely available datasets

(http://www.icpsr.umich.edu/icpsrweb/SAMHDA/studies/30122?utm_source=web&utm_medium=website&utm_campaign=TEDS-D_concat2011dwnld) and do not contain personal identifiers. Part of your agreement for using the already de-identified data you will receive is that you will not intentionally try to identify anyone. Your project has been determined to meet the criteria of exemption for minimal risk existing data research.

The principal investigator will receive a signed letter of exemption for this project via inter-office mail. While waiting for this letter, you may begin recruitment and data collection. If the co-investigator needs the signed letter for her records, she should contact the principal investigator for a copy. Please reference protocol #170-15 on all future communications about this project.

Best wishes for the successful completion of your research.

Cathy Bieber Parrott Chair, YSU
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