

AN EXAMINATION OF THE RELATIONSHIP BETWEEN INDIVIDUAL RISK  
FACTORS AND DRUG COURT SUCCESS: AN APPLICATION OF THE RISK,  
NEEDS, AND RESPONSIVITY MODEL

A Dissertation  
Submitted to the Graduate Faculty  
of the  
North Dakota State University  
of Agriculture and Applied Science

By

Katie Ann Richardson

In Partial Fulfillment of the Requirements  
for the Degree of  
DOCTOR OF PHILOSOPHY

Major Department:  
Criminal Justice and Political Science

May 2010

Fargo, North Dakota

North Dakota State University  
Graduate School

---

Title

An Examination of the Relationship Between Individual Risk  
Factors and Drug Court Success: An Application of the Risk,  
Needs, and Responsivity Model

---

By

Katie Ann Richardson

---

The Supervisory Committee certifies that this *disquisition* complies with North Dakota State University's regulations and meets the accepted standards for the degree of

DOCTOR OF PHILOSOPHY

---

North Dakota State University Libraries Addendum

To protect the privacy of individuals associated with the document, signatures have been removed from the digital version of this document.

## ABSTRACT

Richardson, Katie Ann; Ph.D.; Department of Criminal Justice and Political Science; College of Arts, Humanities, and Social Sciences; North Dakota State University; May 2010. *An Examination of the Relationship Between Individual Risk Factors and Drug Court Success: An Application of the Risk, Needs, Responsivity Model*. Major Professor: Dr. Kevin Thompson.

Research has documented that drug courts can and do work; however, recent attention has focused on how individual characteristics may be related to program success and post program recidivism. It was the purpose of this study to further examine how participant characteristics may impact post program recidivism by applying the Risk, Needs and Responsivity framework. A sample of 104 drug court participants and a matched sample of similar offenders who received treatment as usual was used to test the hypotheses that those who possess certain risk factors may be less likely to recidivate post program because they have been appropriately matched to drug courts—a high intensity treatment experience. Gender and group membership were also explored as potential moderators of the relationships between individual risks and post program recidivism. Results found no support for the hypotheses, and no evidence was found suggesting an interaction effect. Among the entire sample of drug court participants and comparison group members, only the control variable age was significantly related to post program recidivism; those who were older were less likely to recidivate. Among only a subsample of completers, group membership was the only variable significantly related to post program recidivism; those who were drug court participants were less likely to recidivate.

**TABLE OF CONTENTS**

ABSTRACT.....	iii
LIST OF TABLES.....	v
CHAPTER 1. INTRODUCTION.....	1
CHAPTER 2. LITERATURE REVIEW.....	15
CHAPTER 3. IMPACT OF DRUG COURTS.....	41
CHAPTER 4. CURRENT STUDY.....	54
CHAPTER 5. METHODS.....	58
CHAPTER 6. RESULTS.....	69
CHAPTER 7. DISCUSSION.....	103
REFERENCES .....	110

## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Drug Court Participant and Comparison Sample Characteristics —Entire Sample.....	70
2. Drug Court Participant and Comparison Sample Characteristics —Completers Only.....	72
3. Drug Court Participant and Comparison Sample Characteristics —Non-Completers Only.....	73
4. The Impact of Arresting Offense—Primary Drug on Post Program Recidivism—Entire Sample.....	74
5. The Impact of Arresting Offense—Primary Drug on Post Program Recidivism—Completers Only.....	75
6. Arresting Offense—Primary Drug, Post Program Recidivism & Group Membership—Entire Sample.....	76
7. Arresting Offense—Primary Drug, Post Program Recidivism & Group Membership—Completers Only.....	77
8. Arresting Offense—Primary Drug, Post Program Recidivism & Gender—Entire Sample.....	78
9. Arresting Offense—Primary Drug, Post Program Recidivism & Gender—Completers Only.....	79
10. Logistic Regression Table for Post Program Recidivism & LSI-R Score—Entire Sample.....	81
11. Logistic Regression Table for Post Program Recidivism & LSI-R Score—Completers Only.....	82
12. Logistic Regression Table for Post Program Recidivism & Group Membership X LSI-R Score—Entire Sample.....	82
13. Logistic Regression Table for Post Program Recidivism & Group Membership X LSI-R Score—Completers Only.....	83
14. Logistic Regression Table for Post Program Recidivism & Gender X LSI-R Score—Entire Sample.....	83

15. Logistic Regression Table for Post Program Recidivism & Gender X LSI-R Score—Completers Only.....	84
16. The Impact of Gender on Post Program Recidivism—Entire Sample.....	85
17. The Impact of Gender on Post Program Recidivism—Completers Only.....	85
18. Gender, Post Program Recidivism & Group Membership—Entire Sample.....	86
19. Gender, Post Program Recidivism & Group Membership—Completers Only.....	86
20. Regression Analysis Predicting Post Program Recidivism: Regression #1—Entire Sample.....	91
21. Regression Analysis Predicting Post Program Recidivism: Regression #1—Completers Only.....	92
22. Regression Analysis Predicting Post Program Recidivism: Regression #2—Entire Sample.....	94
23. Regression Analysis Predicting Post Program Recidivism: Regression #2—Completers Only.....	96
24. Regression Analysis Predicting Post Program Recidivism: Regression #3—Entire Sample.....	99
25. Regression Analysis Predicting Post Program Recidivism: Regression #3—Completers Only.....	101

## CHAPTER 1. INTRODUCTION

Illicit drug and alcohol use in America is extensive and costly leaving behind many negative consequences. According to a recent Substance Abuse and Mental Health Services (SAMHSA) report, in 2007, nearly 20 million people over the age of 12 were current illicit drug users while 17 million people were current heavy drinkers (2008). The National Center on Addiction and Substance Abuse (CASA, 2009) has recently calculated that in 2005, substance abuse and its aftermath cost the United States government over \$467.7 billion. When this figure is further broken down it reveals that 1.9% of this figure was used to prevent or treat the problems associated with substance abuse and addiction while 95.6% “went to carry the burden to government programs of our failure to prevent and treat the problem” (p. 1). In other words, more money is being spent on efforts to “clean up” after substance abuse and addiction than is being invested in prevention, early intervention and treatment programs that have been proven to alleviate the negative consequences associated with substance abuse. Stated yet another way: “for every dollar the federal and state governments spent on prevention and treatment, they spend \$59.83 shoveling up the consequences” (CASA, 2009, p. 1). Further, merely 0.4% of the \$467.7 billion is devoted to addiction research which could lead to a better understanding of treatment methods and intervention programs.

One drug that has surfaced in recent decades is methamphetamine (meth). The use of meth has spread across the nation at an alarming rate and has had an impact on all segments of society (Johnston, O’Malley & Bachman, 2002). The active ingredient in amphetamine, ephedrine, was first developed by a German chemist named Lazar Edeleano in 1887; six years later in Japan, a pharmacologist named Nagayoshi Nagai created

methamphetamine (Weisheit & White, 2009). In 1931, an American pharmaceutical company introduced Benzedrine (amphetamine) in the form of inhalers and tablets. Amphetamine quickly became a commonly accepted drug used to treat a variety of ailments including alcoholism, depression, fatigue, narcolepsy and epilepsy. Early researchers concluded that the drug was “safe and nonaddicting” with very few negative impacts (Weisheit & White, 2009). The many benefits of amphetamine use, coupled with the belief that it was a safe drug led, in part, to the large scale distribution of the drug to soldiers during World War II. Over 200 million tablets of amphetamine were provided to American soldiers during the war to help alleviate combat fatigue. Upon their return home, many soldiers continued to use the drug and its use became somewhat more mainstream (Weisheit & White, 2009).

The casual and recreational use of amphetamines led to the development and use of methamphetamines in the 1950s. Outlaw “biker clubs” were the first to illegally manufacture methamphetamines to offset their addiction to amphetamines, which were now being regulated. Many members of these biker clubs were veterans of WWII and had become accustomed to using amphetamines regularly (Shrem & Halkitis, 2008). The use of methamphetamine quickly spread to other counter-culture groups leading to the first major surge in methamphetamine use in the United States in the 1950s. Following this surge came two additional methamphetamine surges: one occurring in the late 1960s and the most recent beginning in the mid 1990s and continuing today. Today’s surge in methamphetamine use is unique from the two prior surges in that today’s use has spread throughout the United States; earlier surges began and remained in the Western part of the United States (Shrem & Halkitis, 2009). Also unique to today’s surge is the method of



production. The information needed to manufacture methamphetamine can easily be found on the internet, and supplies can be purchased inexpensively at local stores (Shrem & Halkitis, 2009).

There have been multiple negative consequences associated with the most recent surge in methamphetamine production and use, including the impact the drug has on the user him/herself and the user's family and surrounding community. This negative impact is likely related to several characteristics of the drug itself and the ease in which it can be made. Methamphetamine, a derivative of amphetamine, is considered a dangerous, potent drug that can be highly addictive. It is a powerful central nervous system stimulant that, when taken in large doses over a period of time can cause neurological damage, poor motor skills, poor memory, weight loss, dental issues, anxiety, depression and psychosis (Shram & Halkitis, 2008; Nordahl, Salo, & Leamon, 2003; Rawson, Huber, Brethen, Obert, Gulati, Shoptaw, & Ling, 2000).

The negative effects of methamphetamine are not limited to its users. Children of parents who use or manufacture methamphetamine are at a higher risk for abuse, neglect and addiction (Swetlow, 2003). Such children are often exposed to drug manufacturing and usage by family members placing them at various health risks. Communities are also impacted by methamphetamine and its expenses: resources are diverted from preventative community services (e.g. health care) to criminal justice system costs of identifying, prosecuting and supervising drug offenders.

The link between drug use and criminal behavior has long been established (Tonry & Wilson, 1990). Substance abusers are more likely to find themselves under the supervision of the criminal justice system due to criminal activity related to their use.

Goldstein (1985) has proposed three different but overlapping ways to account for the drugs/crime connection--pharmacological, economic or systemic. The pharmacological framework argues that "some individuals...may become excitable, irrational and may exhibit violent behavior" as a direct pharmacological result of taking a substance (Goldstein, 1985, p. 244). The economically compulsive perspective argues that some substance users commit "economically-oriented violent crime," or, turn to violence to obtain the drug or funds to purchase the drug (p. 245, Goldstein, 1985). Goldstein's (1985) third perspective, systemic, claims that participating in substance use itself is violent because of the way that drug markets operate (e.g. territory, payment disputes).

Regardless of the explanations for the link between drug use and crime, it is a fact that is evident in our offender populations. Studies of inmates reveal that over 80% of state and 70% of federal inmates had used drugs in their lifetime with over half indicating they were intoxicated at the time they committed their most recent offense (Mumola, 2000, p. 2). Similarly, studies of probationers found that two thirds could be categorized as drug and alcohol users (Mumola & Bonczar, 1998).

Intervening with substance users in the criminal justice system is particularly crucial; not only are substance abusers overrepresented in the criminal justice system, they are more likely to re-offend after they complete their sentences (Gendreau, Little & Goggin, 1996). Of the \$467.7 billion that our state and federal governments spend per year on substance abuse and its related costs, the costs incurred by the criminal justice system represents 18% of this total figure, or \$4.2 billion per year. More specifically, pursuing and processing meth-related crimes (including manufacturing, possession, and distribution of meth) accounts for half of the \$4.2 billion while violent and property crimes committed

by those using or attempting to locate meth costs an additional \$1.8 billion. Finally, more than \$70 million is spent maintaining parole and probation supervision over meth offenders (RAND, 2009). According to a recent RAND report (*The Costs of Methamphetamine*, 2009), meth use costs the United States approximately \$23.4 billion per year with 70% of total meth-related costs resulting from negative consequences associated with addiction and dependence on the drug (including \$4 billion in premature death-related costs).

The treatment of drug involved offenders has invoked a great deal of debate in corrections. During the Rehabilitative Ideal (1900s-1960s), a priority of corrections was to treat offenders in order to return them to productive members of the community. This philosophy changed in the 1970s when the country was seeing increased crime rates, increased prison violence, concerns about the use of discretion by criminal justice system officials, and the publication of a report claiming that, with few exceptions it appeared that correctional programs as they were currently being implemented were not working (Martinson, 1974). Little was known about the efficacy of correctional programming in the 1950s and 1960s, leading the government to commission a large scale review of existing studies evaluating correctional programming. Martinson concluded that while a few aspects of some programming may be promising, in general, correctional rehabilitation programming did not appear to be effective in reducing recidivism. He did caution that his conclusions were based on a review of studies that had varying degrees of methodological rigor, thus calling into question some of the results. The Martinson Report (1974) is often cited as a major turning point in punishment philosophy—it helped usher in a new penological era termed the “get tough” or crime control era. Rehabilitative efforts were

largely abandoned and the criminal justice system adopted a new conservative, punitive view.

Despite the large scale impact that the Martinson report had on correctional philosophy, in general, there remained a small group of researchers who continued to believe that rehabilitative efforts can be effective. In the late 1970s and 80s, a promising body of research emerged from the work of Canadian psychologists who specialized in correctional treatment (Gibbons, 1999). The work of Gendreau, Andrews, Bonta, and Ross (also referred to as the Canadian School) refuted Martinson's claims that much of correctional programming, as it was currently being implemented, was ineffective (MacKenzie, 2006). They were critical of the unintended repercussions that the 'get tough' movement had caused and argued that the penal shift away from rehabilitation toward retribution and incapacitation was causing a great deal of harm for both offenders and for society. Prisons were overcrowded with drug-involved offenders, courts were backlogged with drug-related cases and state and federal corrections budgets continued to climb. The Canadian researchers argued that not all correctional treatment programs were ineffective; rather, certain programs and certain components of programs held promise to reduce recidivism. They identified underlying commonalities in the more promising or effective treatment programs and determined that these programs were all psychologically based and utilized cognitive or behavioral strategies (Ross & McKay, 1978; Gendreau & Ross, 1979; Gendreau & Andrews, 1990).

Drawing on this knowledge, Andrews and colleagues (1990) developed and tested a psychologically informed theory regarding correctional treatment. According to the risk, needs and responsivity principle, programs that follow the psychological principles of risk,

needs and responsivity (RNR) are the most effective in reducing substance use and related criminal activity. The risk principle states that persons with higher levels of risk (e.g. more serious offense history, longer history of substance abuse, involvement with 'harder' substances) require higher levels of treatment programming intensity to adequately address their underlying needs. Equally important is the identification of offenders' criminogenic needs, including anti-social attitudes and low self control tendencies. By identifying and targeting these criminogenic needs, programming can be tailored to the offender (Antonowicz & Ross, 1994). The third and final principle is the responsivity principle which attempts to understand how the offender will respond to correctional programming. Responsivity can be predicted by several offender characteristics, such as learning styles, thought processes, and analytical skills. In essence, the responsivity principle involves determining if certain offenders are more amenable to certain types of treatment than others. Identifying the learning styles and skills of offenders allows treatment providers to shape necessary programming to fit the offender's needs.

Research has found that treatment programs that follow the three principles are generally more effective in reducing recidivism and substance use than other programming that does not identify and match offenders to treatment based on risks, needs, and responsivity (Andrews et al., 1990; Andrews, Dowden & Gendreau, 1999; Andrews & Bonta, 2003). Adherence to the RNR principles has been found to increase program effectiveness for both institutionally-based and community-based correctional intervention efforts. A more recent line of research has begun to examine how the RNR principles may apply in other alternative treatment settings such as therapeutic communities and drug courts. Knowledge of RNR principles in such programming may help researchers

understand what is occurring inside the 'black box' of correctional treatment (MacKenzie, 2006). While it has been determined that adherence to the overall principles of risks, needs, and responsivity can be effective in correctional programming, it is important continue to research these principles and how they may relate to specific processes involved in effective programming.

Empirical support for certain types of correctional rehabilitation efforts, coupled with the urgent issue of overcrowding and court backlog due to increased drug-arrests has led the criminal justice system to develop and consider alternatives to incarceration. One innovative program that has emerged in our efforts to shift focus from retribution to rehabilitation and reintegration is the drug treatment court. Drug treatment courts (drug courts) provide an alternative to incarceration by offering substance abusers in the criminal justice system a chance to complete a court directed treatment program in lieu of prison sentences. Drug courts have celebrated a great deal of success since their implementation in the 1980s. Multiple studies have found that participants in drug courts experience a variety of successes, including reduced drug use, reduced drug-related criminal activity, and increased quality of living (Belenko, 1998, 2001; MacKenzie, 2006). Additionally, drug courts are cost effective, saving criminal justice system costs and other substance abuse related costs (e.g. health care) (MacKenzie, 2006).

As the research related to drug courts evolves, the emphasis has turned to unique participant characteristics that may have an impact on program success. For example, the research has not yet determined for whom drug courts are most effective. Research has documented that, in general, drug courts are just as effective for the younger and the older and for persons of all races. The research becomes equivocal when examining other

participant characteristics that may be considered risk factors include primary drug, LSI-R risk scores, and gender. While there are a multitude of other risk factors that individuals may possess (e.g. antisocial associates), examining them all is beyond the scope of this disquisition. For this purposes of this study, particular attention will be paid to the above three characteristics and the impact they have on program success and post program recidivism. These three variables have been chosen because they all, theoretically, represent higher “risk” individuals. Research has demonstrated that various drugs of choice place one at a higher risk for recidivism (stimulant users—however there have been conflicting findings); that being female places one at a higher risk of reoffending (Belknap, 2007), and that LSI-R scores are accurately predictive of an offender’s chances to reoffend (Lowenkamp, Latessa, & Smith, 2009).

A participant’s drug of choice could be considered a risk factor—use of different drugs may place persons at varying levels of risk due to the nature of the drug they are using. Earlier studies of drug courts have found that persons using ‘harder drugs’ such as heroin and cocaine were less likely to successfully complete program requirements (Peters, Haas, & Murrin, 1999; Lang & Belenko, 2000). Others have found that hard drug users actually fared better in terms of program outcome and reduced recidivism after program completion (Bouffard & Richardson, 2007). And yet others find no differences in program success by drug of choice; a recent study by Listwan, Shaffer, and Hartman (2009) found that drug of choice had no influence on program success or post program recidivism within a sample of 251 drug court participants. With the shift of attention toward addressing the surge in meth use and its related negative consequences, it seems especially timely to

continue to examine the relationship between drug of choice and drug court program success.

Another individual level characteristic that indicates risk level is the LSI-R score upon program entry (or entry into prison/parole). The LSI-R is a substance abuse severity assessment tool that is widely used in correctional settings to estimate the severity of the offenders substance abuse issues and place them in appropriate treatment (Andrews & Bonta, 1995).

Finally, gender will be examined in this study. The majority of studies have found no significant differences between program success and gender (Schiff and Terry, 1997; Peters et al. 1999; and Saum, Scarpitti & Robbins, 2001). More recently, Shaffer, Hartman & Listwan (2009) found that women in drug court were significantly less likely to recidivate than women in a comparison sample of probationers.

Gender will also be examined in the role of a moderator to see if there are any interaction effects between gender and primary drug, and gender and LSI-R score. Group membership was also included as a moderator to determine if individual characteristics are functioning in a similar manner for both drug court participants and comparison sample members. Such information could aid in the refinement of correctional programming for female inmates, one of the fastest growing segments of the incarcerated population (Irwin, 2005).

In order to more closely examine the relationship between potential risk indicators and drug court success, the theoretical framework of “risks, needs, and responsivity” (RNR) will be utilized (Andrews et al., 1990). According to the RNR framework, substance abuse treatment can be effective for persons who possess high risks and multiple



needs, such as substance users, those with higher LSI-R scores, and women. Despite these risks and needs, treatment can be highly successful if treatment intensity is matched to the offender's risks and needs. Drug courts serve this higher risk and needs population of substance abusing offenders, typically those with varying drugs of choice (e.g. alcohol and other drug users are combined). Most drug courts provide uniform treatment for the varying types of substance users (including the two courts in the current study). Alcoholics, marijuana users, and other "hard drug" users are grouped together in a treatment setting. Addiction research has demonstrated that addiction patterns (course of use, severity of use, age of onset) vary depending upon drug of choice and, as such, require different levels and types of care. While there are many attempts to individualize treatment, most deviations from general drug court treatment plans are small and include supplemental programming such as anger management or individual counseling. Theoretically then, there are several participants with varying drug pathways, addictions, and treatment needs who all receive similar treatment programming. This provides a unique setting in which to examine how individual characteristics may impact treatment success. According to the RNR principles, those who receive programming that does not match their risks and needs are less likely to benefit from the treatment and can experience an iatrogenic effect; in other words—the offender may increase chances for program and post program failure as a result of receiving too much or too little of the intervention. Because of this consistent application of treatment to a very diverse group of offenders, drug treatment courts may provide researchers with a unique opportunity to examine the RNR principles and their relationship with drug court success.

### **1.1. Purpose of Study & Potential Implications**

Faced with a growing prison population which consists of a disproportionate number of substance users, a growing number of female offenders, and individuals with varying LSI-R scores, it has become even more imperative that substance abuse and its negative consequences be addressed. Methodologically rigorous studies have documented that drug courts are an effective or “promising” correctional treatment program for substance abusers (Wilson et al., 2006; Belenko, 1998, 2001; MacKenzie, 2006). Less research has identified what participant characteristics may be impacting their effectiveness. For example, are certain types of drug offenders more or less likely to succeed? Is this related to higher risk characteristics? As such, several researchers have called for continuous examination into the “black box” of drug court treatment programming (Goldkamp, White & Robinson, 2001; MacKenzie, 2006). This disquisition will examine the RNR model and its potential relationship with drug court outcome. Previous research has established that correctional treatment programs that adhere to the RNR model experience better success in terms of program completion and decreased post program recidivism (MacKenzie, 2006). It is the purpose of this study to determine if adherence to the RNR model may explain some of what is occurring inside the “black box” of drug courts. If closer adherence to the RNR model is related to drug court outcomes, this information could be used to further improve upon the successes of drug courts by continuing to individualize treatment according to offender characteristics.

## 1.2. Hypotheses

The following hypotheses will be examined:

- HYP1. Arresting Offense—Primary Drug (Stimulant/Non Stimulant) will be related to post program recidivism.
- HYP1a. The effect of Primary Drug on post program recidivism may be moderated by group membership.
- HYP1b. The effect of Primary Drug on post program recidivism may be moderated by gender.
- HYP2. LSI-R scores will be related to recidivism
- HYP2a. The effect of LSI-R scores on post program recidivism may be moderated by group membership.
- HYP2b. The effect of LSI-R scores on post program recidivism may be moderated by gender.
- HYP3. Gender will be related to post program recidivism.
- HYP3a. The effect of gender on post program recidivism may be moderated by group membership.

## 1.3. Outline of Study

The following chapter will provide of review of the relevant literature including a discussion of the origin drug treatment courts and their general description. Most drug court programs follow guiding principles entitled the “Ten Key Components”; these components and their significance and relation to the court procedures will be reviewed. Chapter III reviews research evaluating various drug courts and documenting multiple successes (e.g. reduced substance use, reduced criminal activity); these multiple program

successes will be explored, along with a summary of the current direction of the literature. Chapter IV will provide an outline and description of the current study; Chapter V details the methodology that will be utilized for the current study, and finally, Chapters VI and VII will contain the results of the study, a discussion of those results and related study conclusions.

## CHAPTER 2. LITERATURE REVIEW

### 2.1. A Shift in Sentencing Philosophy

The United States has undergone several major penological movements over the course of the last two centuries. The philosophy behind punishment, the purposes of punishment, and the appropriate manner in which to punish have all shifted with these movements. From the 1900s to the 1960s, American corrections subscribed to a rehabilitative philosophy that emphasized the treatment and reintegration of offenders (Blomberg & Lucken, 2000). Under this view, persons commit criminal acts because of an underlying root cause, such as their psychology, biology or sociology; once these causes are targeted and treated, the person will be less likely to engage in criminal behavior.

Following the philosophy behind the rehabilitative ideal came the development of correctional treatment programming that promised to assist offenders in their rehabilitation process and return them to the community. There are four main assumptions that guided the rehabilitative ideal: 1) human behavior is the product of past experiences; 2) the causes of behavior can be identified in one's past; 3) once these causes are identified, treatment can be used to change behavior; and 4) such treatment is in the best interest of both the offender and society (Blomberg & Lucken, 2000). Early correctional programming was based on these four main assumptions and attempted to identify and treat the underlying causes of criminal behavior. Correctional programming was employed in both institutional and community settings.

In the prison setting, correctional treatment included therapeutic sessions (most commonly group counseling), academic training (elementary and high school educations), and vocational programming such as cooking, sewing and plumbing (Irwin, 1980;

Blomberg & Lucken, 2000). Community-based programming included outpatient mental health and/or substance abuse treatment.

During the 1960s and 70s, attention and interest was raised regarding the effectiveness of such correctional rehabilitation programming—crime rates were increasing despite the money being invested in rehabilitation programs. There had been studies conducted regarding the effectiveness of some programming; unfortunately these early studies suffered from methodological flaws making it difficult to determine the effectiveness of such programming (MacKenzie, 2006). In addition, much of the programming had experienced poor program implementation and poor program integrity (MacKenzie, 2006). Most research on correctional programming effectiveness did not utilize control or comparison groups making it impossible to determine what intervention, if any, was having an impact (MacKenzie, 2006).

In an attempt to shed light on the issues of correctional treatment, the Federal government commissioned a comprehensive review of existing correctional programming literature. Lipton, Wilkes, and Martinson compiled a sample of all known research evaluations meeting minimum requirements (e.g. used a control group, evaluated a treatment program) on correctional programming. They identified 231 studies conducted between 1945 and 1967. Evaluations reviewed varied from those that examined vocational programming to those examining counseling tactics. From this research Martinson alone published a summary of the findings concluding that very few of the reviewed programs actually “worked” (1974). Specifically, Martinson (1974) declared that educational and vocational programs were not working, counseling was not promising, and community corrections did not seem to be effective. He noted that the majority of the studies reviewed

were not soundly conducted, utilized poor research methodologies, and consisted of different programs and different populations in different settings.

Martinson's report was not entirely pessimistic; he did acknowledge that some programs were working for some people under certain circumstances. For example, community based programs tend to be successful likely because they allow the offender to work with support systems such as family, coworkers, and spiritual communities that can aid in the re-integration process. Other successful programs included those that were recently implemented (perhaps a function of new, energized staff), those with well trained staff and those that serve the appropriate offenders (those most amenable to treatment). Despite these promising comments, the main message that Martinson conveyed was that in general, none of the current rehabilitation programs were having a significant impact on recidivism.

## **2.2. The Social Context of this Shift**

The world of correctional rehabilitation was greatly affected by the publication of the Martinson report. Several social conditions at the time combined with the publication of the Martinson Report and helped usher in the get tough era. As previously mentioned, crime rates were increasing calling into question the efficacy of the Rehabilitative Ideal, prisons were seeing increases in riots and other violence which ultimately led to the construction of more restrictive and secure institutions (Irwin & Austin, 2001). Both liberals and conservatives were concerned about inappropriate use of judicial and parole board discretion that was utilized during the rehabilitative ideal; conservatives argued parole and other early release mechanism were too soft on violent criminals while liberals believed judicial discretion had turned into discrimination against the poor and minority

classes (Blomberg & Lucken, 2000). With the publication of the Martinson Report in 1974 the message that the rehabilitative era was failing was unwittingly communicated.

Meanwhile, theoretical developments were changing how society viewed criminals—they were no longer victims of their environments, they were rational, calculating people who would only respond to hard punishment (Wilson & Herrnstein, 1985). The image of super-predators and natural born killers created public fear and led policy makers to further embrace the get tough model (Blomberg & Lucken, 2000).

Rising crime rates, increased public fear of crime and desire to gain a strong political platform led Richard Nixon to declare a “war on drugs” in the late 1960s. Efforts to combat drug use in this initial war were limited with more effort being devoted to political causes. George Bush Sr. increased the momentum of the war on drugs during his tenure as president with the passage of the Anti Drug Abuse Acts of 1986 and 1988. Bush Sr.’s efforts were more ambitious and resulted in the establishment of the first federal level agency devoted to controlling and eradicating drug production and distribution—the Drug Enforcement Agency (DEA) (Blomberg & Lucken, 2000).

The war on drugs was an integral component of the get tough era, an era when penological goals shifted from rehabilitation to crime control. Punishment, deterrence, incapacitation and retribution were now the central goals of the criminal justice system. Under the crime control perspective, it was thought that drug use and its related criminal activity could be reduced by identifying and harshly punishing those involved. Punishment would deter would-be criminals, incarcerate and incapacitate those who threatened society, and retaliate against the offender for his/her wrongdoings. There was no longer an emphasis on treating the offenders and returning them to the productive members of



society they may have once been—punishment in this new crime control era was “punishment for its own sake” (Blomberg & Lucken, 2000, p. 174).

There was a general shift from indeterminate sentencing structures that emphasized rehabilitation and individualized treatment to determinate structures that eliminated discretion and removed chances for early release (Blomberg & Lucken, 2000). The use of the new sentencing structures called for making sentencing decisions based only on the conditions of the offense and the offender’s criminal history, not other individual circumstances (e.g. family history, cognitive deficits). New mandatory minimum laws were enacted that requires a minimum length of time for a specific offense (e.g. 5 years for possessing 5 grams of crack cocaine). Habitual offender laws were also enacted that required a life sentence after an offender commits a third (in some states only second) offense. While there is wide variation in what each state considers a “strike,” many will only invoke the law after three serious or violent felonies (Irwin & Austin, 2001).

As a result of some of these sentencing changes, from 1984 to 1990, the average time served in federal prison doubled (von Hirsch, 1995). Correctional programming budgets were cut from many prisons while budgets to build and expand prisons increased (Blomberg & Lucken, 2000). The resources that had been utilized for treatment programming were now allocated to fund the building of additional prisons (Blomberg & Lucken, 2000).

### **2.3. Continued Efforts to Identify What Works**

Not everyone endorsed the penological shift from rehabilitation to crime control and the policies of the get tough era. Researchers from the Canadian School of criminology played a key role in maintaining the advancement of the research on correctional

programming effectiveness. Several researchers analyzed the Martinson Report and drew very different, more optimistic conclusions that supported some rehabilitation efforts. After a review of the same studies as in the Martinson Report, Gendreau & Ross (1979) and Palmer (1975) found much evidence against Martinson's conclusion that correctional programming, as it was currently being implemented, was not effective at reducing post program recidivism. Ted Palmer (1975) argued that instead of focusing on what did not work, attention should be given to programs that did have promising findings and advocated that researchers examine what exactly made these programs effective. Palmer (1975) stated that programming can be improved if researchers can identify what type of treatment works best for a variety of offenders. Once these different, effective treatments are identified, only programming that has such components and has been supported by research should be used (Ross & McKay, 1978; Gendreau & Ross, 1979). Such programs include behavior modification, psychological based programs, and those that address a wide variety of offender needs. Because of the methodological flaws of early correctional rehabilitation research, Ross & McKay (1978) and Gendreau & Ross (1979) also recommended that more rigorous evaluations of correctional programs be conducted in order to make any definitive conclusions about their effectiveness. Palmer (1983, 1992) echoed this sentiment stating that no major conclusions can be drawn from the existing review of correctional programming literature because the studies reviewed had such flawed methodology and poor program implementation.

While much of the country had lost interest in what may help offenders desist from offending, a significant body of research developed that detailed what was working in correctional programming. This research can be summarized in several general areas,

including but not limited to, educational, vocational, cognitive behavioral, and substance abuse treatment, sex offender treatment and domestic violence programming. Drug courts rely most heavily on a combination of substance abuse treatment (which often involves mostly cognitive behavioral therapy; as such, only substance abuse treatment and cognitive behavioral therapy will be covered in this disquisition. It is important to note, however, that drug treatment courts are quite comprehensive, and should the offender need referrals to difference services they typically receive them.

#### **2.4. Substance Abuse Literature**

Research examining how substance users responded to treatment have revealed that in general, social learning or cognitive behavioral approaches seem to be the most effective at reducing recidivism (MacKenzie, 2006). Cognitive behavior therapy (CBT) programs are based on the notion that human cognition can be changed to alter behavior. In other words, if people can be taught to change how they think about offending perhaps they will subsequently change their behavior. MacKenzie's (2006) review also concluded that CBT programs are effective for a variety of offenders and including adult drug offenders. Some scholars still warn that there is no "one size fits all" type of treatment; however, evidence seems to suggest that social learning approaches are working.

#### **2.5. Risk, Needs, and Responsivity (RNR) Literature**

Regardless of the type of programming being evaluated, researchers have come to understand that there are certain components of correctional programming that must be in place in order for that program to be effective. A major contribution of the Canadian School was the development of the RNR model of program efficiency. The RNR model is widely used model for the treatment of offenders (Blanchette & Brown, 2006). Initially

developed in 1990 (Andrews, Bonta & Hoge, 1990), the RNR model draws from psychological and cognitive social learning perspectives of criminal behavior (Bonta & Andrews, 2007). There are three principles of the theory—risks, needs, and responsivity. The risk principle considers two factors: 1) re-offense risk and 2) treatment intensity (Bonta & Andrews, 2007). According to the risk principle, these two factors must be properly matched in order for treatment to be most effective—those at the highest risk of re-offending should receive the highest intensity of correctional programming. Just as important (particularly when it comes to saving scarce criminal justice system resources) is the knowledge that programming with too much intensity can be a disservice to lower risk offenders (Andrews et al., 1990; MacKenzie, 2006). For example, research has found that lower intensity offenders who receive high intensity programming are more likely to recidivate after completing their program than those who are matched appropriately to treatment intensity.

Research has found support for the risk principle in correctional treatment.

Andrews and Dowden (1999) found that programs that did not adhere to the risk principle increased recidivism by 4% whereas programs that did follow the risk principle decreased recidivism by 19%. In a study examining intensive rehabilitation supervision, Bonta, Wallace-Capretta and Rooney (2000a) found that higher risk offenders who received higher intensity treatment experienced a 20% decrease in recidivism whereas lower risk offenders who received the same higher intensity experienced a 17% increase in recidivism. Andrews and Bonta (2003) found that offenders who were high risk and received high intensity treatment were less likely to recidivate compared to low risk offenders who received low intensity treatment. Lowenkamp and Latessa (2005) examined

the risk principle in a halfway house treatment setting; they found that higher risk offenders in this more intensive halfway house treatment were 10-30% less likely to recidivate. Their lower risk counterparts experienced an increase in recidivism rates. Many believe that lower risk counterparts fare worse after receiving higher intensity treatment because lower risk offenders may not need the duration, intensity, and structure of such programming, it could be more disruptive to their lives.

Other researchers have found mixed support for the risk principle. Antonowicz and Ross (1994) conducted a meta-analysis of correctional programming literature and found no support for the risk principle; Lipsey (1995) found weak support.

The second component of the RNR model is the needs principle. According to the needs principle, offenders have varying needs (a.k.a. criminogenic needs) that may place them at a higher risk to re-offend. Needs are individual characteristics or factors of individuals that are related to criminal behavior (predictors) and have the ability to be changed (i.e. are dynamic). Individuals also possess static factors, such as age, race and gender that may or may not be connected to criminality; however, these factors cannot be changed. Thus, correctional programming efforts should target those criminogenic needs or individual characteristics that are connected to criminal activity that can be manipulated, such as antisocial associates, antisocial attitudes, and substance abuse (MacKenzie, 2006).

Offenders may have other needs that require attention, but only those needs that have been empirically associated with criminal behavior should be targeted (Bonta & Andrews, 2007). Bonta & Andrews (2007) identify the “central eight” criminogenic needs as being antisocial personality, pro-criminal attitudes, social supports for crime, substance abuse, family or marital relationships, school or work, and prosocial activities. If

correctional treatment can identify the specific needs an offender has treatment will be more effective (Gendreau, 1996; Andrews et al., 1990). Dowden and Andrews (1999a) found that when correctional treatment programs targeted dynamic risk factors/criminogenic needs, greater reduction in recidivism rates occurred. Gendreau, Little and Goggin (2002) found that “the density of criminogenic needs targeted was strongly related to program effectiveness in reducing offender recidivism. Specifically, programs that targeted four to six more criminogenic than non-criminogenic needs reduced recidivism, on average, by about 30 percent” (Lowenkamp et al 2006, p. 4).

The responsivity principle is the third and least studied principle (MacKenzie, 2006). The responsivity principle hypothesizes that treatment style should be matched to the offender’s unique set of needs, including learning styles and cognitive functioning in order for treatment to be effective (Bonta & Andrews, 2007). Within the responsivity principle are both general and specific responsivity; general responsivity refers to using empirically supported cognitive behavioral programs to change behavior. For example, research has found that cognitive behaviorally based programs are effective for multiple types of offenders (e.g. sex offenders, substance users) in multiple settings (e.g. institutional, community-based). Specific responsivity refers to the “fine tuning” of such programming to account for additional individual factors like learning styles, motivation levels, gender and race (Bonta & Andrews, 2007). Learning styles vary by individuals and can impact how people receive, process, and respond to new information. For example, studies have found that men and women have different learning styles—particularly, men are more traditional learners compared to women (Philbin, Meier & Boverie, 1995). Strong

programs should utilize programming that takes these varying learning styles into consideration.

To summarize, the RNR literature has found that adhering to the three principles is crucial to effective correctional treatment. Several studies found evidence to support that high intensity programs worked best for higher risk offenders (Andrews et al., 1990; Andrews & Dowden, 1999; Lowenkamp & Latessa, 2005; Lowenkamp et al 2006). Additionally, the research demonstrates that when correctional programs target more criminogenic needs there is a larger reduction in recidivism (Dowden & Andrews, 1999b; Gendreau et al., 2002).

## **2.6. A Description of the Problem**

Despite the promising research from the Canadian School, the fact remains that there had been a significant shift in penological philosophy from rehabilitation to crime control. The consequences of this shift were extensive. One of the most significant and resounding impacts has been the massive increase in incarceration rate or the “imprisonment binge” (Irwin, 2005). The number of persons incarcerated in the United States increased five times from 1980 to 2000 (Irwin, 2005). According to a recent report from PEW Center on the States (2009), 7.3 million American adults (or 1 of every 31 adults) are currently under correctional supervision with over 2.3 million adults (or 1 of every 100) in prison in 2008 (PEW, 2009). Fortunately, within the last few years there have been increased signs toward continued individualization of treatment for offenders. However, the impact of the imprisonment binge remains: with this increase in the number of prisoners came a natural need for more prisons; from 1980 to 2000, the United States built more prisons than had ever been built before in the nation’s history (Irwin, 2005).

Today's state corrections budgets have reached an unprecedented \$50 billion per year (PEW, 2009).

This increase in incarceration has not been equally distributed among the general population. In fact, drug offenders, women, and those with mental illnesses were disproportionately impacted by the war on drugs. The largest portion of the increases in arrest rates and prison population can be accounted for by drug offenders. During the 1980s, there was an 88% increase in drug-related arrests (von Hirsch, 1985). This increase in drug offenders is problematic for many reasons; first, research has documented that this population of offenders are more likely to re-offend if their substance abuse is not addressed. Treatment can be effective for drug involved offenders, which would better serve both the offender and society. One promising treatment option for drug involved offenders is the drug treatment court (MacKenzie, 2006).

Until very recently, the rate of female incarceration was growing at a rate that exceeded men. Researchers have criticized the war on drugs for targeting women with some even dubbing the war on drugs as a "war against women" (Owen, 2005). Research has found that women's pathways to crime tend to be much more complex than men. For example, women are more likely to have histories of sexual, physical, and emotional abuse, substance abuse, and mental illness (Owen, 2005). Because women are more likely to have histories of abuse and mental illness, their pathways lead them often to substance abuse (Daly, 1994).

## **2.7. Origins of Drug Treatment Courts**

Drug courts originated in Miami, Florida (Dade County) in 1989 in response to the overwhelming backlog of drug related cases in local courts (National Institute of Justice,



1995). The nation was beginning to see the impact of the war on drugs era, which began in an effort to eliminate what was perceived to be a national drug epidemic. The Miami area had a particularly severe drug problem due to its close proximity to Latin America and South America (drug source countries), and the fact that the city is located on an easily accessible peninsula. In Miami and nationwide, the courts became over-crowded with an influx of drug related cases. There were lengthy delays between arrest to sentencing (between 211 and 223 days in 1998) (Harrison & Scarpitti, 2002). In attempt to address court backlog and delay, a Chief Judge in Florida convened a committee to identify alternative solutions for drug offenders. This committee, along with treatment professionals within the community and other criminal justice officials suggested that an entirely different approach be utilized for drug offenders.

The committee assigned to address this problem of substance abuse and criminal activity drafted the idea of a drug court. A drug court is an alternative court that combines the supervision of the criminal justice system with drug treatment programming. Diverting the drug offender into treatment and away from the jail and prison system can benefit both the offender and the criminal justice system: the offender will receive the treatment he or she needs and the criminal justice system will be able to reduce backlog and expedite the processing of drug cases. Supervising offenders in the community is also more cost effective than incarceration. According to a recent PEW (2009) report, it is 20 times more costly to supervise a prisoner as compared to a probationer (\$3.42 per day for probationers, \$78.95 per day for prisoners).

The drug courts that developed from the 1989 Florida committee were not the first attempt at alternative courts. The committee was able to draw from the experience of

earlier alternative courts using similar approaches. In the 1950s, Chicago and New York had courts devoted to drug related cases referred to as “drug case courtrooms” (Harrison & Scarpitti, 2002). The Treatment Alternative to Street Crime (TASC) program was created in the 1970s to help drug offenders overcome their addictions. TASC programs used the influence of the criminal justice system to get participants into (and remain in) treatment. (Harrison & Scarpitti, 2002). Unfortunately, funding for TASC was significantly cut after only a few years leading to the demise of most TASC programs. Following in the footsteps of drug case courtrooms and TASC, a new management approach called Expedited Drug Case Management and Differentiated Case Management was created in the 1980s with the goal to reduce court backlog (Harrison & Scarpitti, 2002). This new type of management delegated specific courts to hear only drug-related cases. These were expedited courts that allowed drug offenders to plea bargain in exchange for more lenient punishment. These courts did not originally include a treatment component; however, as the impact of rehabilitation became more documented some treatment components were incorporated in the expedited cases. Early research on drug courts found that the program had promising effects—more offenders were opting to treat their substance abuse issues and turn away from a life of crime.

## **2.8. General Description of Drug Courts**

The primary goal of drug courts is to reduce the backlog caused by increasing drug offenses and to divert non-violent drug offenders away from incarceration into treatment (Leukenfeld, McDonald, Staton, & Mateyoke-Scriver, 2004). Drug courts were unique in that they returned to a rehabilitative focus while maintaining court supervision (Harrison & Scarpitti, 2002). These courts were based on the assumption that drug use is not only

problematic for the criminal justice system, it is a public health problem (Smith, Davis, & Lurigio, 1994). Turner, Longshore, Wenzel, Deschenes, Greenwood, and Fain (2002) note that in order for the drug court to be successful we must understand the complexities and realities of drug use—particularly that appropriate drug treatment needs to address physical, physiological, and psychological aspects of substance use. Drug courts were created around the idea that drug addiction is a disease that will likely include relapses along the path to recovery. Recognizing this, drug courts utilize a unique combination of support, encouragement and graduated sanctions (Turner et al., 2002).

Criminal justice officials and offenders responded positively to this new program and the drug court model quickly took hold (Harrison & Scarpitti, 2002). By focusing on rehabilitating drug offenders, drug courts are fulfilling a dual purpose: reducing substance use and related crime. Rehabilitative efforts are supplemented by providing a structured environment in which the offenders' progress can be monitored through frequent interaction with criminal justice officials. With the inception of drug courts, the country began to see (some) movement away from the get tough era back to a focus on “treatment, investment in human potential, second (and third) chances, and restoration” (Goldkamp, White, & Robinson, 2001, p. 28).

In order to support this unique combination of rehabilitation and supervision, drug courts transformed the traditional roles of judges and attorneys. The prosecutor, judge, probation officers, and other treatment providers collaborate to form a workgroup. Instead of the traditional adversarial relationship between court room workgroup members, all workgroup members collaborated together with one goal: to help drug offenders successfully complete drug court programs. Drug courts use this coordinated team

approach to ensure that offenders uphold the responsibilities involved in program participation and remain accountable during the program (MacKenzie, 1997).

Responsibilities include frequent drug testing, attending treatment, appearing before the drug court judge, and meeting and attending weekly hearings with the drug court judge.

In addition to the collaborative efforts of the courtroom workgroup and treatment providers, there is also a focus on the relationship that develops between participants and the drug court judge. Similar to the informality found in the courtroom workgroup relationship, drug courts rely on a more informal relationship between the judge and participants (Goldkamp et al. 2001). The judge interacts frequently with the offender during the drug court process, typically 1-4 times per month. The judge is kept apprised of the participants' progress through regular meetings with treatment providers and criminal justice personnel involved in the court process. The judge has the ability to utilize his/her power to support and guide offenders through the rehabilitation process while maintaining the power of criminal justice sanctioning. Some researchers believe that the behavior of the judge can directly impact participant success--the more supportive comments the judge makes to a participant, the more likely that participant will be successful during the program (Goldkamp et al. 2001). Additionally, the presence of the judge may also be responsible for the high retention rates and the maintenance of the drug court program (Belenko, 1998).

## **2.9. Ten Key Components of Drug Courts**

There are ten key components that were developed to guide and standardize drug court programming across the country. In 1997, these key components or principles were developed by a group of drug court professionals to assist in the standardizing process and

thus ensure that drug courts run as smoothly and effectively as possible (Hora, 2002). Judge Hora (2002) describes these components in detail and states that the underlying purpose of the key components is to help all drug courts provide the most comprehensive and appropriate assistance to drug offenders. All ten of the following components should be in place to ensure that drug courts meet their stated goals of reducing drug use and crime (Olson, Lurigio, & Albertson, 2001).

### 2.9.1. Key Component 1: Relationship Between Supervision and Treatment

The first key component describes the unique relationship between supervision and treatment. Substance abuse treatment personnel are members of the drug court workgroup and play vital roles in the drug court process (Hora, 2002). This workgroup has multiple roles throughout the drug court process. Initially, the group will meet to determine who the best candidates are for the program (candidates who meet the program requirements and are committed to putting the necessary work into the program). The offender has the workgroup at his or her disposal to advise them on the decision to enter the drug court program or to remain in the traditional criminal justice system. Many programs require that participants meet the criterion for substance abuse or dependence, and that they openly agree to commit to a sober lifestyle. Ultimately, however, the offender decides if he or she will enter into the program. According to the key components, by allowing the offender to make the decision to enter the program, he or she may be more likely to succeed (Hora, 2002). Drug courts do not operate without some level of coercion, however; for example, it would generally be more beneficial for an offender to go through drug court and remain in the community (thus maintaining employment, family ties, etc.) instead of being incarcerated. Past research has shown that coerced drug treatment can be effective (Banks

& Gottfredson, 2004). Taxman (1999) adds that when the criminal justice system uses their influence to “push” offenders into treatment, the chances for finding success with that treatment is greater. Therefore, it may be beneficial for the criminal justice system to use its authority to encourage and guide some participants into program participation.

### 2.9.2. Key Component 2: Collaboration Among Drug Court Agents

Key component number two describes the importance of a non-adversarial approach between the criminal justice system and the offender or potential participant. This non-adversarial approach has two major goals: to maintain public safety and to enhance offender rehabilitation (Hora, 2002). Drug court personnel work directly with offenders to discuss appropriate treatment options and placement, and to ensure that the participant is aware of the rules and regulations of the program. This collaborative, more therapeutic approach allows the participant to have a voice in his or her drug court programming process. By creating an alliance with other members of the workgroup, the participant is able to take an active role in the drug court program and subsequently, his or her recovery process. The participant is involved in the program for an extended period of time and is able to cultivate meaningful relationships with the drug court and treatment personnel. This is starkly different from traditional courts where no treatment personnel would be involved, and any relationship with judges, prosecutors, and probation officers (although less so) are brief. It is perhaps this relationship between the staff and participant that establish accountability for the program participants.

### 2.9.3. Key Component 3: Identifying Participants Early in the Process

The third key component outlines the importance of identifying potential participants early on, before they are too far along in the traditional criminal justice

process; as soon as possible after arrest is optimal (Hora, 2002). Once identified by criminal justice system officials, the offender is made aware of the drug court program and can discuss the option of drug court with the workgroup. Offenders can be informed of the program through various sources, but most commonly are referred to the program by defense attorneys and prosecutors. Because the option of drug court is discussed soon after the arrest is made, many more offenders can be diverted as soon as possible from traditional court processing that may result in prison or jail. Not only does this early referral process spare the offender from traditional processing and associated stigma, it saves the criminal justice system resources by not invoking the court process.

#### 2.9.4. Key Component 4: Access to Treatment Services

Key component number four states that drug court programs must provide adequate access to arranged rehabilitation and treatment services (Hora, 2002). This component effectively connects the drug treatment process to the courtroom monitoring process. Once the participant has been referred to appropriate treatment services, the workgroup (which includes treatment providers) will monitor the offender to ensure that he or she is attending the rehabilitation services as intended. Common treatment requirements include, but are not limited to, substance-abuse treatment, mental health evaluation/treatment, physical health evaluation/treatment, education referrals, employment readiness, and counseling for any family or personal problems (Hora, 2002).

#### 2.9.5. Key Component 5: Frequency of Drug/Alcohol Testing

The fifth key component stresses the importance of frequent drug and alcohol testing to ensure that the participant remains free of drugs during the program. Testing is also conducted to promote openness between the offender and the drug court personnel

(Hora, 2002). Honesty between the participant and the drug court personnel is highly stressed; often a participant who attempts to “beat” a drug or alcohol test will be more harshly sanctioned than one testing positive who has admitted to use (Hora, 2002).

#### 2.9.6. Key Component 6 : Rewards & Punishments

The sixth key component involves the manner in which drug court personnel respond to a participant’s compliance or non-compliance. Drug courts place importance on striking a balance between the use of rewards and sanctions. When sanctions are required, many drug courts will employ graduated sanctions that allow the drug court personnel to increase the severity of sanctions as continued violations occur. For example, a person’s first rule violation may result in a minor consequence such as a verbal warning. If another violation were to occur, the participant would receive a more severe consequence such as community service hours or time in jail. In most drug courts, a person who continuously violates rules will be ultimately subject to program termination. On the other hand, drug courts use various rewards to recognize program compliance and encourage further program participation and successes. Some courts distribute small rewards throughout the programming process such as candy, t-shirts, verbal praise and applause; many hold ceremonies to celebrate phase advancement and graduation. It is this balance between rewards and punishments that drug court programs use to shape participant behavior.

#### 2.9.7. Key Component 7: Contact between Judges and Participants

Key component number seven stresses the importance of “frequent and meaningful contacts with the judge” (Hora, 2002, p. 1477). As mentioned earlier, this contact with the judge is different from what one would see in a traditional United States adult court. In drug courts, the judge and participant develop a more informal relationship, where the



judge serves as a therapeutic agent, both encouraging and sanctioning the participant. The participant and judge develop a unique relationship throughout the duration of the program with the participant appearing in front of the judge and reporting his/her behavior on a regular basis.

#### 2.9.8. Key Component 8: Evaluation of Drug Courts

Key components eight through ten emphasize the importance of continuing drug court development and research. The eighth key component promotes “scientifically sound research that evaluates drug treatment courts” (Hora, 2002, p. 1478). Methodologically rigorous evaluations can provide the opportunity for continued improvement of the drug court model by determining what is working, what is not working, and what issues need to be addressed. Multiple studies have documented the overall effectiveness of drug court programming (Belenko, 1998, 1999, 2001; Wilson et al., 2006; MacKenzie, 2006); in other words, drug courts can and do reduce substance use and subsequent criminal activity of those who participate (particularly those who graduate). Continued research is needed to identify what specific program components or participant characteristics may contribute to their effectiveness.

#### 2.9.9. Key Component 9: Drug Courts Interdisciplinary Nature

The ninth key component encourages continued interdisciplinary education so that all agencies involved in the drug court program have knowledge of each other’s roles. For example, it is important for treatment personnel to learn and understand the process of the criminal justice system, just as it is important for criminal justice personnel to understand the intricacies involved in the treatment process.

### 2.9.10. Key Component 10: Partnerships between Drug Courts and Communities

The tenth and final key component involves the continued strengthening of partnerships between agencies involved in drug courts and the surrounding community (Hora, 2002). It is believed that community support can only enhance the success of drug court programs. The community within which drug courts operate must be accepting of drug court participants and their re-integration back into society.

The ten key components have provided drug courts nationally with a set of rules and guidelines with which to follow to ensure that not only are drug courts operating as their creators intended, but that they are as effective as they can be. With the ten key components in place, drug courts around the United States are better prepared for reaching their goal of both helping the offender and holding them accountable.

### **2.10. The Ten Key Components & the RNR Model**

After examining the Ten Key Components, one can find some overlap with the RNR model. For example, Key Component #4 deals directly with program treatment, stating that drug courts must provide access to a continuum of alcohol, drug, and other related treatment and rehabilitation services. In addition to simply providing the services, drug courts must also make certain individuals are appropriately screened and matched with treatment, and that they are not simply screened upon entry, but assessed throughout programming in order to adjust for any needed programming changes. Finally, according to Key Component #4, treatment services are comprehensive (large variety of services ranging from individual counseling, to day treatment, relapse prevention), accessible (take into consideration the other needs of clients—childcare/transportation), and of high quality (licensed, certified).

## 2.11. Drug Court Processes

Having discussed the basic components of which drug courts are comprised, it seems that an overview of typical drug court processes is warranted. The optimal time for offenders to begin drug court is as soon as after their arrest as possible (Hora, 2002). At this time, the prosecutor will screen the case to determine if the person involved is eligible for drug court programming. Defense attorneys may also advise their eligible clients of drug court programming as an alternative to traditional processing (prison/jail). Factors taken into consideration when determining eligibility include the person's current charge (drug-related) and any past criminal history (Cooper, 2003). Recall that the founders of drug court stress rehabilitating the offender while maintaining public safety (Cooper, 2003). In the interest of public safety, drug court officials have the right to exclude certain cases from participating in the program (Turner et al., 2002). For example, many courts only accept repeat drug offenders with no violent or manufacturing charges in their past, however, this has been changing in recent years with the increased success of drug courts (Marlowe, Patapis, & DeMatteo, 2003).

Since the inception of drug courts there has been a movement to include more violent offenders instead of just first-time or lower-risk drug offenders (Saum et al., 2001). More people are promoting the inclusion of violent offenders into drug court programs, or at least cautioning their exclusion (Saum et al., 2001). A study by the national Center on Addiction and Substance Abuse (CASA) stated that "while substance abusers who are convicted of violent offense, often alcohol related, should be incarcerated, treatment of the underlying alcohol or drug problem can reduce the chance of future violent crimes" (CASA, 1998, p. 210). CASA (1998) recommended that the substance problems of violent

offenders should not be ignored as nearly all will be released from prison or jail at some point in the future (a fact that Travis refers to as “the iron law of imprisonment—they all come back”, 2005, p. xvii ). The question remains as to whether such violent criminals can be treated safely while in the community or if there is a need for more treatment programs to reach such offenders while they are still incarcerated. It seems that, currently, the emphasis on safety prevails; most drug court programs restrict the acceptance of violent offenders, and most will terminate participants who commit a violent act during the drug court program (Saum et al., 2001).

In addition to legal requirements, many drug courts require that participants meet the criterion for drug abuse or dependence and openly agree to pursue a sober lifestyle. If both legal and substance abuse and dependency requirements are met, potential applicants for the program are provided with an explanation of drug court and offered the option to join the drug court program or continue on with traditional court proceedings. Once an offender is identified as eligible for the program, and he or she agrees to participate, the criminal justice system then becomes the agency that encourages the offender to complete treatment to avoid jail (Harrison & Scarpitti, 2002).

## **2.12. Drug Court Program Requirements**

The drug court program typically lasts for one year or longer and consist of various “phases” through which the participant must progress. During the initial phase, the participant will be subjected to the most frequent contact with the criminal justice system personnel and treatment providers. Typically, the participant will be required to attend drug treatment 4-5 times per week, have urinalysis testing 2-3 times per week, attend Alcoholic’s Anonymous or Narcotics Anonymous 3-4 times per week, and attend weekly

court hearings (Cooper, 2003). For those who choose not to participate in the faith-based AA/NA meetings, the team works to help the offender find an appropriate alternative. At each weekly court hearing the participant's progress in the program will be reviewed by the presiding drug court judge. Progress is most commonly measured by the participant's adherence to program and phase requirements, which is demonstrated with negative urinalysis testing. When program requirements are not met, honesty is the best policy: a participant who lies about drug use will likely be sanctioned more harshly than a participant who tests positive and readily admits to drug use (Cooper, 2003). Drug courts recognize the rehabilitative philosophy that relapses are likely to occur during the recovery process. As such, when a participant relapses or uses drugs during the program, it is viewed less as a failure and more as a temporary and expected setback (Olson, Lurgio & Albertson, 2001).

As participants progress from the initial phase into subsequent phases, the frequency of drug treatment, urinalysis testing, and AA/NA attendance will slowly decline. Participants may also start to have more responsibilities outside of drug court to fulfill, like finding and maintaining a job, furthering their education, and completing family therapy. Other common activities during the drug court program include drug education, medical services, and housing services (Cooper, 2003). Once the participant has successfully completed the phases and maintained sobriety for a certain period of time (often about 6 months), he or she will officially "graduate" from the drug court program. This graduation is often earmarked by a gathering/celebration of criminal justice and treatment personnel, and other drug court participants.

On the other hand, those participants who are terminated from the drug court program will be officially sentenced to what they would have received had they not chosen to participate in drug court (often this is approximately 1-2 years in prison followed by a term of probation).

### CHAPTER 3. IMPACT OF DRUG COURTS

The benefits of the original Miami drug court were soon apparent; Miami began to see the expected reduction in court case backlogs and other, unexpected benefits in the form of increased education, better parenting skills, increased employment, and better family skills in general (Cooper, 2003). News about the Miami court's success quickly spread across the nation and provided optimism to long-time support of rehabilitation efforts. Criminal justice and treatment personnel from across the country sought to duplicate the structure and success of the drug court (Harrison & Scarpitti, 2002). The Miami drug court model became a widely replicated model, despite the fact that it had yet to be evaluated (Harrison & Scarpitti, 2002). Harrison and Scarpitti (2002) note that the Miami drug court "didn't claim to have achieved great success....what they did, however, was to lend an air of optimism, suggesting large numbers of offenders were 'getting better'" (p. 1446).

In 1998, Belenko conducted one of the first comprehensive reviews of the existing drug court literature. He compiled and reviewed 30 drug court evaluations and concluded that drug courts provide more intense supervision and higher frequencies of drug testing than "treatment as usual" or traditional sentencing. Further, participating in these more intensive programs was working—Belenko reported that drug use and related criminal behavior were "substantially reduced while offenders are participating in drug court" (1998, p. 2). Belenko (1998) also noted that drug courts were reaching their intended goal of placing clients in treatment and retaining them. Follow-up reviews in 1999 and 2001 replicated earlier findings that offenders who participate in drug courts have reduced drug use and less criminal behavior (Belenko, 1999, 2001). Belenko also reported that drug

courts have generated cost savings from less jail and prison use, and less criminal activity (Belenko, 1998, 1999, 2001).

Belenko noted in his 1998 review that research on drug courts, in general, lacked scientific rigor. Many studies looked only at the differences found in the treatment group by comparing pre-program and post-program indicators. While using pre and post program indicators may give the researchers an idea about short term program success, it does not allow any conclusions to be made about longer term effects. Others rely on the comparison of drug court graduates versus non drug court graduates; this is problematic in that the two groups may often have very different characteristics initially which may have an impact on results. Many studies comparing non-graduates to graduates have found that “successes succeed and the failures fail” (Goldkamp et al., 2001, p. 32). Additionally, the problem of selection bias can enter into these situations; perhaps a certain type of offender is more likely to agree to participate in drug court programming and therefore is more likely to succeed. Goffredson, Najaka & Kearley (2002) assert that in order to have a good test of drug court effectiveness, researchers must look at both completers and non-completers of the drug court program and comparison group made up of similar types of offenders who did not participate in drug court. Aside from sample problems, Belenko (1998) points out that many drug courts are new and in their start up phases and are therefore still changing while they are being researched. Such changes occurring in new drug courts could impact a program’s outcomes.

From his review of the literature Belenko generated several recommendations to strengthen future drug court research. First, he stated that studies should abandon the pre/post study design and instead look only at post program outcomes using appropriate



follow-up lengths. Next, Belenko advocated that researchers use outcome indicators other than simply re-arrest or re-conviction; for example, information on how the participant is doing socially, behaviorally, and psychologically would be helpful. Third, more thorough cost benefit analyses should be conducted; fourth, closer attention needs to be paid to the “specific factors that affect treatment outcomes” (Belenko, 1998, p. 34); and fifth, studies should compare participants to a comparison group of offenders to establish program effectiveness and cost-effectiveness. Finally, Belenko (1998) encourages researchers to return to their earlier studies on drug courts and conduct follow-up evaluations to determine if and how the court has changed since the early, formative years.

In addition to Belenko’s contributions, there have been a handful of well-designed, randomized studies that have provided support for drug court effectiveness. Gottfredson and Exum (2002) conducted a randomized study with the cooperation of judges at the Baltimore City Drug Treatment Court (BDTC). Two-hundred and thirty-five drug offenders were randomly placed into either drug court or a control group where they received “treatment as usual” (Gottfredson & Exum, 2002). At the one year follow-up point, the authors determined that during the program the participants were more likely participate in drug treatment and testing than the control group and were less likely to have been arrested during that year. At the two year follow-up point, Gottfredson et al. (2003) found that participants assigned to the drug court were significantly less likely to have re-offended after two years than the participants assigned to the control group.

Banks and Gottfredson (2003), using the same BDTC sample, attempted to identify which component of the drug court programming was responsible for its success—treatment or supervision. Drug court participants were randomly assigned to either drug

treatment or “treatment as usual” (e.g. probation, parole). They determined that those who participated in the treatment program were significantly more likely to succeed and were more likely to spend a greater amount of time free in the community prior to any failures (Banks & Gottfredson, 2003). Banks and Gottfredson (2003) concluded that treatment was “the most effective drug court component” when compared to supervision (p. 406). It is important to note that the combination of both treatment and supervision was found to be the most effective, but this combination was not significantly more effective than just treatment alone, suggesting that while the supervision component is beneficial, it may not be as beneficial as the treatment component.

In addition to Belenko’s reviews and the randomized studies from the BDTC, there have been a few meta-analyses conducted to gain an understanding of overall drug court programming effectiveness. Doris MacKenzie reviewed the existing drug court literature in 1997 in attempt to discern which correctional programs worked on various offender populations. She concluded that drug courts were among the small number of correctional programs that were considered to be working. In 2006, MacKenzie (2006) again reported on what works in corrections; from her review of 32 drug court evaluations she determined that “there is strong evidence that drug courts reduce the future criminal activities of offenders” (p. 234). MacKenzie, like others, pointed out that many drug court evaluations (particularly earlier ones) suffer from methodological issues. Those studies reviewed that had stronger methodologies were more likely to find support for drug courts than those using weaker methodologies. However, MacKenzie notes that additional research is necessary to determine “which components of the drug courts are important in reducing recidivism” (2006, p. 234).

Wilson, Mitchell, and MacKenzie (2006) also conducted a meta-analysis using a somewhat larger sample of 55 evaluations of drug court effectiveness. They tentatively concluded that drug court participants are less likely to recidivate post program compared to those who participate in treatment as usual. They stated tentatively because many of the studies had weak methodologies making it difficult to make many generalizations. The authors do note, however, that among the studies reviewed, those that used stronger methodologies found stronger, more positive results (Wilson et al., 2006).

### **3.1. Recent Directions of Drug Court Research**

To summarize, the literature on drug courts has developed and expanded immensely since the first court was established in Miami in 1989. Several methodologically strong studies have documented that drug courts are effective at reducing criminal recidivism and substance use among court participants both during the program (Belenko, 1998, 1999, 2001) and post program completion (MacKenzie, 2006; Wilson et al., 2006). Despite these promising results, there remain many unanswered questions regarding drug courts. Banks and Gottfredson (2003) suggest that many studies of drug courts have looked more generally at overall drug court effectiveness and have neglected to look specifically at individual characteristics. For example, perhaps certain individual characteristics may act as a risk factor for certain individuals.

There has been some research done regarding drug court program participant characteristics and program success; however, due to weak methodologies, researchers have not been able to consistently demonstrate whether persons possessing certain characteristics (or risk factors) are more or less likely to succeed in drug court programs. Similar to research examining the overall effectiveness of drug courts, the research

examining participant characteristics also suffers from limitations such as the study of relatively “young” drug court programs still in the process of change, the problem of selection bias, and the use of samples that may not be generalizable.

The following section will provide a review of the existing research on drug court participant characteristics and drug court program success. “Success” has been measured in a variety of ways in drug court evaluations and can include a lack of program violations, program graduation, a lack of post program arrests and/or a lack of post program convictions. Most commonly, evaluations of drug courts have utilized either program graduation or post program re-arrest and reconviction. For the purposes of this disquisition, “success” will be measured as any post program re-arrest; however, because the literature is limited, a review of drug court literature using a variety of indicators of success will be used.

There are several individual participant characteristics that have been examined in drug court research. Of particular interest for this study include the participant’s arresting drug, LSI-R scores, and gender; in addition to these three primary characteristics of interest, others will be included in the analyses as control variables (i.e. age, race) and as such, will be reviewed briefly in the following section.

### **3.2. Arresting Offense—Primary Drug**

The literature on drug of choice and drug court success is largely inconclusive. Earlier studies examining the impact that a person’s drug of choice has on their progression through a drug court program and/or program success have determined that those with a history of more “hard” drugs (e.g., crack/cocaine) are less likely to succeed (Saum et al., 2001; Peters et al., 1999; Schiff & Terry, 1997; Wolf et al., 2003; Miller & Shutt, 2001).

Yet other studies have determined that those who use “harder” drugs actually fare better (Bouffard & Richardson, 2007). Reasons for the inconclusive results no doubt stem from different samples and different drug court populations. For example, Butzin et al. (2002) caution that the clients involved in the drug court they reviewed “differ in their patterns of drug use” from the “average” drug court participant (p. 1628). Also, the usual limitations of drug court research are also seen in studies examining drug type, such as examining programs in their early phases and looking only at the pre and post outcomes of one treatment group.

As mentioned above, earlier studies of drug courts found that those who use more hard drugs are less likely to succeed. Many of these early studies simply compared graduates to non-graduates making it difficult to draw solid conclusions. For example, in 1997, Schiff and Terry examined outcomes of 418 participants in the beginning phase of Broward County’s dedicated drug treatment court, Florida. In a comparison of graduates to non-graduates, the authors found that participants who had lower levels of crack cocaine use were more likely to graduate from the program (see also Wolf et al., 2003). Peters et al. (1999) studied outcome differences between program graduates and non-graduates after a 30 month follow up period in the Escambia County Adult Drug Court Program in Florida. The authors determined that participants who reported alcohol or marijuana as their substance of choice were significantly more likely to graduate than those who reported cocaine as their substance of choice. Saum et al. (2001) examined 452 participants of the Delaware Superior Court Drug Court over a period of 4 years. Comparing graduates to non-graduates, the authors determined that graduates of the drug court program were less likely to have used crack cocaine. Sechrest and Shicor (2001) studied 102 participants of

the Riverside Drug Court Program in California during its first months of operation; again comparing graduate to non-graduates they found that graduates had less serious histories of marijuana use. Finally, Lang and Belenko (2000) looked at treatment program completion rates between 151 graduates and non-graduates of a residential treatment program similar to traditional drug court programs. They determined that participants whose drug of choice was alcohol were more likely to complete.

A small number of studies examined personal characteristics of drug court participants and post program recidivism—the indicator of “success” for the current study. Many of these have found no differences in success by drug of choice. For example, Brewster (2001) conducted an evaluation of the Chester County (PA) Drug Court Program. Using a sample of 184 participants, Brewster conducted a survival analysis that determined that there were no differences in survival rates by participant drug of choice. Butzin et al. (2002) studied 116 participants in the Delaware Superior Court Drug Court and found that for this particular sample of participants, personal drug of choice had no impact on program completion.

More recently, Bouffard and Richardson (2007) examined the differences in program success for participants whose drug of choice was alcohol, methamphetamine, or “other” drug (e.g. marijuana, cocaine, and so on). The study utilized a group of drug court graduates and a comparison group of offenders who received (and successfully completed) “treatment as usual” or their prison or probation term. They found that the overall court was effective in reducing criminal recidivism for graduates with varying drugs of choice; however, when a sub-sample of DUI/DWI offenders was isolated, the treatment effect was no longer significant. In other words, DUI offenders did not experience a reduction in

recidivism post program graduation like their methamphetamine using or “other” drug using counterparts.

In a subsequent study, Bouffard, Richardson, and Franklin (2010) examined the effectiveness of drug court programming for 66 drug court participants and 86 comparison offenders. The purpose of this study was to confirm the results from the previous study using an expanded sample (data from one additional drug court). They found, once again, that DUI/DWI offenders were not enjoying the same decreases in recidivism as their non-DUI counterparts; in fact, drug courts were simply not working for the DUI/DWI sub-population.

Listwan, Shaffer & Hartman (2009) examined a sample of 250 drug court participants and found that drug of choice (dichotomized into methamphetamine/non-methamphetamine) were equally likely to be re arrested post program while controlling for other individual level factors.

To summarize, the more recent, methodologically strong studies have cast doubt on previous researchers’ findings that hard drug users are less successful in drug court programs. Instead, research is finding that those who use “hard” drugs like methamphetamine are actually thriving and succeeding in these drug court programs. It is a purpose of this study to further examine the relationship between participants’ drug of choice and program success paying particular attention to methamphetamine and other stimulants. While a few studies have examined methamphetamine and drug court success, none have examined how stimulant users, in general, fare in drug court in comparison to other participants with differing drugs of choice (depressants). According to Brecht et al. (2005), there is a lack of research that has examined methamphetamine users who have

been coerced into treatment programs, such as drug courts. There is, however, some research on how methamphetamine users fare in general drug treatment programs. Anglin, Kalechstein, Maglione, Annon, and Fiorentine (1997) found that methamphetamine users, compared to other drug users, were significantly more likely to drop out of the treatment program before completion. Conversely, Huber, Ling, Shoptaw, Gulati, Brethen, and Rawson (1997) found there were no differences between methamphetamine users and other drug users in terms of program success.

It is important to continue to obtain information on this topic as the use of methamphetamine has risen in recent years. According to the Treatment Episode Data Set (TEDS) (2003) produced by the United States Department of Health and Human Services, “the proportion of admissions for abuse of methamphetamine/amphetamine and other stimulants increased from 2% to 7% between 1993 and 2003” (p. 2). With the increase in the use of methamphetamines and the co-occurring social problems that accompany it, criminal justice officials have looked toward increasing the use of coerced treatment for such offenders (Brecht et al., 2005). A study by Brecht et al. (2005) using interview data from 350 methamphetamine users in California determined that when methamphetamine users are coerced into treatment, “moderate levels of positive outcomes” are seen (p. 350). Unfortunately, this study can offer no comparisons between methamphetamine users and other drug users because it involved only methamphetamine users. However this study did demonstrate to researchers that coerced treatment can work for this newer population of drug offenders. Further research on methamphetamine users will shed light on the impact that their drug of choice may have on their program progression.



### 3.3. LSI-R Score

The second individual characteristic that will be examined is a person's LSI-R score; the LSI-R is a 54 item severity of substance use risk assessment tool developed in 1995 by Andrews and Bonta. It consists of ten sub categories: criminal history, education and employment, financial, family/marital, accommodations, associates, substance abuse, leisure/recreation, personality/behavior and attitudes and orientations. Information for the LSI-R is obtained through a structured interview with trained personnel (Lowenkamp et al., 2009). The LSI-R is one of the most widely used and validated offender risk assessment instrument and had been found to be a valid predictor for both men and women (Lowenkamp et al., 2001; Lowenkamp, Lovins & Latessa, 2009). Despite Lowenkamp and colleagues findings (2001, 2009), there are several scholars who caution against using the LSI-R for women (Morash, 2009). Some argue that this tool, developed after social learning theory and psychological theories—traditionally male centered theories—and therefore may not be as useful for women (Smith, Cullen & Latessa, 2009).

Shaffer, Hartman and Listwan (2009) conducted a study comparing drug court participants with probationers. They found that drug court participants, and women were less likely to recidivate post program than probationers, or women on probation. Shaffer et al. (2009) did include the LSI-R score as a control variable in their study and found that it had no relationship with post program recidivism. It is a purpose of this study to examine how the LSI-R score relates to post program recidivism and if the risk calculator is indeed a successful predictor of post program recidivism for both men and women.

### **3.4. Gender**

The research on gender and drug court success, unlike the research on drug of choice and drug court success, is consistent. Among studies examining graduates and non-graduates only, most have found no significant differences with gender. Schiff and Terry (1997), Peters et al. (1999), Butzin, Saum & Scarpitti, (2002), and Saum et al. (2001) found no significant differences by gender. Sechrest and Shicor (2001) studied 102 participants of the Riverside Drug Court Program in California during its first months of operation; specifically, they looked at the characteristic differences between graduates and non-graduates of the drug court program. They found that a higher percentage of females graduated from the drug court than males; however, these findings were not statistically significant (Sechrest & Shicor, 2001). Finally, Shaffer, Hartman, and Listwan (2009) examined post program recidivism differences between women in drug court and women on probation. They found that the women who participated in drug court were significantly less likely to recidivate post program than their probationer counterparts.

### **3.5. Other Participant Characteristics**

While arresting offense—primary drug, LSI-R score, and gender are the three primary variables of interest, race and age will also be included as control variables. Previous research on race and drug court success is unclear. Most previous studies have found that White participants are more likely to succeed in drug court programming than non-Whites (Sechrest & Shicor, 2001; Butzin et al., 2002; Schiff & Terry, 1997). Still, others have found no significant differences by race (Saum et al., 2001).

Previous research on age and drug court success is also mixed. Saum et al. (2001) found graduates are more likely to be older, while Sechrest & Shicor (2001), Peters et al. (1999) found no significant differences by age.

### **3.6. Summary**

To summarize, the research on drug courts has established they are effective at reducing substance use and criminal recidivism; more recently, research has set out to determine which type of individual is most likely to succeed in the program, or which individual factors might be related to post program recidivism. The literature on drug of choice is mixed with some finding differences in post program recidivism by drug of choice (Bouffard & Richardson, 2007) while others are not (Listwan, Shaffer & Hartman, 2009). Similarly, the research regarding gender and drug court effectiveness is mixed with some finding that, when compared to other males, females are equally likely to succeed (Butzin et al., 2002; Saum et al., 2001), and others have found that when compared to other female probationers, female drug court participants are less likely to recidivate (Listwan et al. 2009). Finally, the LSI-R score is a widely accepted indicator of risk for substance users. It is the intent of this study to examine if those who possess higher LSI-R scores are less likely to recidivate.

## CHAPTER 4. CURRENT STUDY

### 4.1. Hypotheses

#### 4.1.1. Arresting Offense—Primary Drug

While early studies suggested that “hard” drug users may be less likely to succeed in drug court programs (Saum et al., 2001; Peters et al., 1999; Schiff & Terry, 1997; Wolf et al., 2003; Miller & Shutt, 2001), recent research has provided evidence to the contrary. Bouffard & Richardson (2007) found that DWI offenders were more likely to recidivate post program than other drug using counterparts. More recently, Listwan, Shaffer & Hartman (2009) examined a sample of 250 drug court participants and found that drug of choice (meth/no meth) was not significantly related to post program recidivism; meth users were just as likely as non-meth users to recidivate. Little research has been done specifically on drug of choice (particularly methamphetamine and other stimulants) in drug treatment courts; instead the research involving methamphetamine and stimulant users looks at how they fare in more general treatment programs. Even the literature on the general treatment programs is contradictory, with some authors reporting that methamphetamine users are more likely to drop out of treatment early (Anglin et al., 1997), while still others report that methamphetamine users are just as likely to succeed in treatment compared to other drug users (Huber et al., 1997). Less research has examined the larger group of drug users that methamphetamine users belong to—stimulant users. Based on a review of the literature, the following hypothesis regarding primary arresting drug and drug court success were generated. Two hypotheses containing interaction terms were generated to explore the potential that the effect of primary drug on post program relationship may not be the same for drug court participants and for comparison sample

members. For example, if the drug court really is a high intensity program, and if treatment as usual is not, then results should find that stimulant users in the drug court group are less likely to recidivate than those in the comparison sample. Similarly, the effect of primary drug on post program recidivism may operate differently for men and women. Daly's (1994) research on different pathways to criminality for females suggests that females are more likely to have criminal histories related to substance use, which could be connected to previous (or ongoing) physical, sexual or emotional abuse.

- HYP1. Arresting Offense—Primary Drug (Stimulant/Non Stimulant) will be related to post program recidivism.
- HYP1a. The effect of Primary Drug on post program recidivism may be moderated by group membership.
- HYP1b. The effect of Primary Drug on post program recidivism may be moderated by gender.

#### 4.1.2. LSI-R Score

Following the RNR logic, those with a higher LSI-R score are at a higher risk and will therefore be most successful in a higher intensity program (such as drug court). Additionally, the relationship between LSI-R score and post program recidivism may operate differently for members of each group, thus an interaction term was added to explore any potential moderating relationships. Finally, research has suggested using caution when relying on the LSI-R tool for women (Morash, 2009; and Hannah-Moffat, 2009); therefore another interaction term was added to determine if the LSI-R tool's relationship with post program recidivism was moderated by gender. The following hypotheses are proposed:

- HYP2. LSI-R scores will be related to recidivism
- HYP2a. The effect of LSI-R scores on post program recidivism may be moderated by group membership.
- HYP2b. The effect of LSI-R scores on post program recidivism may be moderated by gender.

#### 4.1.3. Gender

Gender differences and drug court success have been largely ignored by the literature, likely because (for the most part) women and men are graduating from the programs and experiencing similar successes in terms of post program recidivism reduction. However, few have made comparisons between female drug court participants and females who complete treatment as usual. Additionally, several scholars suggest that simply being female places women at a higher risk for failure in the criminal justice system (Belknap, 2007; Owen, 2005). For example, females are more likely their male counterparts to report mental health problems, substance abuse issues, medical problems, and family commitments (Belknap, 2007). Recent research by Shaffer and colleagues (2009) found that women drug court participants are significantly less likely to recidivate post program than their female counterparts on probation.

Again, following the RNR logic, women, because they possess more risk factors and criminogenic needs should be more likely to succeed in higher intensity programs. However, program effects may be confounded by the other individual characteristics; for example a woman's arresting offense—primary drug, age and race. I am interested in understanding if females place in drug court programs are less likely to recidivate post

program than their female counterparts who received treatment as usual. Based on the above, the following hypothesis is proposed:

- HYP3. Gender will be related to post program recidivism.
- HYP3a. The effect of gender on post program recidivism may be moderated by group membership.

## CHAPTER 5. METHODS

### 5.1. Background of the Bismarck and Fargo Drug Courts

This dissertation addresses some of the remaining unanswered questions regarding drug courts using information gathered from two drug courts in small urban settings. The characteristics of these two particular drug courts are similar to other drug courts in general, with some minor differences. According to Harrison and Scarpitti (2002), many general features of drug courts across the United States and internationally are alike; however, there are often minor differences among more specific drug court characteristics, such as eligibility, drug testing, reporting, and treatment approaches. These differences are often a reflection of the communities within which the drug courts are established (Cooper, 2003).

Characteristics unique to this sample include a small minority sample (approximately 10%) largely composed of Native Americans. The drug courts examined in this study are the South Central Judicial District Adult Drug Court (referred to hereafter as the Bismarck Drug Court, or BDC) located in Bismarck, North Dakota and the East Central Judicial District Adult Drug Court (referred to hereafter as the Fargo Drug Court, or FDC) located in Fargo, North Dakota. Process evaluations conducted on both courts (BDC—Bouffard, 2003; Bouffard & Richardson, 2006; FDC—Richardson, Bouffard, & Thompson, 2007) concluded that the general application/acceptance procedures and progression through the drug court program are similar in nature to most drug courts across the United States, thus suggesting these results should be at least somewhat informative relative to other United States drug courts.



Potential applicants to the both the BDC and FDC are informed about the program from a variety of sources including the defense counsel, probation office, the State's Attorney's office, and local law enforcement personnel at the time of arrest. Once informed of their case's potential eligibility, defendants must submit a formal drug court application to the State's Attorney's office, which screens the case to ensure that the offender meets the program's legal criteria. Specific criteria include a non-violent current offense, no charges of manufacturing, dealing or distribution of substances, no substantial past history of violent offending, no pending charges in another jurisdiction, and no past participation in a drug court program. Only adult offenders are eligible for this program, although a separate juvenile drug court is operated in the same jurisdiction under the auspices of the North Dakota Supreme Court.

Once a case has passed the legal screening, it is sent to the probation officer who serves as the "Drug Court Coordinator." This coordinator then conducts a further screening of the case (for other pending charges or outstanding warrants); determines the individual's interest in the program (including a discussion of program duration and requirements); and refers the potential participant to the local treatment provider where a clinical assessment of the individual's substance abuse and other mental health/interpersonal needs is conducted, including the Addiction Severity Index (ASI). The ASI is a tool used to assess the extent and type of a person's substance use/abuse behavior in order to provide the best type of care in a treatment setting. The ASI takes into consideration a person's general demographic characteristics (i.e., employment status, family status, and psychological functioning) as well as all information on a person's substance abuse history and current habits (Recovery Center Webpage). The results from

the ASI and clinical assessment are used to determine whether the individual has a substance abuse/dependence diagnosis (a program criterion) and, if so, what the primary drug of abuse is. In addition, a treatment plan, which includes the type of substance abuse services the individual will be assigned to and what other social/rehabilitative services may be needed, is developed.

After the clinical assessment and treatment planning is conducted by the local treatment provider, the Drug Court Case Manager (a position dedicated to assisting with the operation of the Drug Court) from this agency reports that information to the drug court team. Combined with the information from the legal screening, the team will then reach a consensus on whether or not to accept the individual into the drug court. If the applicant is accepted, s/he is notified that day and is asked to attend the next drug court hearing, where s/he will be officially sentenced to participate in the drug court and sign the program's Participation Agreement. If they are not admitted to the program, applicants are also immediately notified and continue with their traditional criminal justice system processing. In sum, potential participants are identified pre-adjudication and are admitted to the program post-plea. The goal is to identify, screen, assess and admit individuals to the drug court program within 30 days of their arrest, or 15 days of their original court appearance.

Drug court team meetings take place once a week, generally the day before the drug court hearing to ensure the team has the most current information. In the team meeting, judges who work with the drug court (BDC had two judges, FDC had one judge collaborating with the program), the Drug Court Coordinator (probation officer), the treatment agency's Drug Court Case Manager, the State's Attorney, and defense counsel are invited to attend. The team reviews both new drug court cases and those cases that are

slated to appear in the drug court hearing the next day. Relevant information is presented by the team members on the participant's financial, employment, personal, social and rehabilitative progress, and members point out any issues of note to the judge(s).

Drug court hearings take place in a traditional court room and are led by the drug court judge. The judge calls one participant at a time to appear in front of him/her; the Drug Court Coordinator and the treatment agency's case manager then give the judge a brief overview of that participant's progress. The judge will address the participant and offer praise, encouragement, or apply sanctions as needed. Commonly employed sanctions in both the BDC and FDC include community service work, placement in a half-way house, imposition of a curfew, increased drug testing, and changes to the assigned level of treatment services. Commonly employed rewards include cake and/or donuts and coffee for graduation and promotions, verbal praise and applause, pins and certificates, and items such as gift certificates or passes to local entertainment activities (e.g., the local zoo, etc.). The FDC utilized an additional reward process personnel referred to as the "fish bowl." Participants who maintained all program requirements since the last time they appeared before the judge (one-three weeks depending upon program phase) are eligible for a drawing that takes place immediately after the participant appeared before the judge. Prizes include monetary credit that can be used toward court or supervision fees, candy, t-shirts, gift certificates, and rounds of applause.

Both the BDC and FDC program includes three phases. Phase one has a minimum duration of four months, during which time participants are expected to fulfill several minimum requirements, including, but not limited to, attendance in one drug court session per week; submission to two urinalysis tests per week; report to the assigned probation

officer as instructed; attend and provide documentation of two Alcoholics/Narcotics Anonymous meetings per week; attend and participate in all assigned group, family, and individual counseling sessions; maintain Drug Court Team approved employment, training, or education (40 hours/week); and have 60 continuous days of sobriety.

Phase two also has a minimum duration of four months, and includes similar requirements to phase one but to a lesser degree. For example, in phase two, participants are required to submit to only one drug test per week instead of two, and they are required to attend drug court sessions once every two weeks instead of every week. In phase three, requirements continue to become less stringent. In this phase, participants are required to attend drug court sessions once every three weeks and provide only two urinalysis tests per month. One difference in phase three is that residents are required to maintain 120 days of sobriety and prove they have an established plan for life after drug court, including adequate housing and stable employment.

In general, as participants succeed in meeting the requirements of each phase, some of their requirements decrease in intensity. These requirements include continuous days of sobriety as measured by frequent drug tests, satisfactory attendance and participation in assigned treatment and support group activities, attendance at hearings, and so on. The most notable requirements which can be loosened as a result of participant compliance include the frequency of drug testing and court appearances. Other aspects of program requirements remain relatively stable across program phases (maintaining appropriate housing, employment/education, AA/NA attendance).

All drug court participants are assigned to the Drug Court Coordinator as their primary probation supervision officer. The frequency of the contacts the participant has

with the coordinator varies across individuals. In addition to these scheduled contacts, participants are visited at their residences or places of work, at varying times, either by the Drug Court Coordinator or by other “supervision officers” from the North Dakota Department of Corrections. Drug court participants may also be monitored by local law enforcement officers. All individuals supervised by the ND DOCR are required to pay a “supervision fee” of \$36 per month, including drug court participants. Drug court participants may also be required to pay fees such as victim restitution, child support, or outstanding court costs as a condition of drug court participation.

Substance abuse treatment was provided by the state health and human services department for one drug court, and a private treatment facility for the other drug court. Process evaluations of both facilities found them to be very similar in terms of programs offered, the frequency of meetings, and the duration of treatment. Most participants begin in a highly structured treatment phase (for example, many begin in intensive outpatient treatment, which meets four hours a day, five days per week), but will end in less intensive programming such as aftercare, which meets once per week. Results from both process evaluations found that each court relied heavily on cognitive behavioral treatment approaches, and both mandated the attendance of self support groups, such as AA/NA.

Urine testing for drugs and breathalyzer testing for alcohol are conducted at random intervals on all drug court participants (with frequency varying depending on program phase). Additional tests may also be conducted if there is reason to suspect recent use. Testing may be conducted by any of the ND DOCR officials listed above. A positive test of a drug court participant will result in his/her immediate arrest and placement in jail until the case can be reviewed at the next Drug Court Team meeting. For example, if a

participant tests positive for a UA/BA, that person will be taken directly from the probation office (or the offender's home, or wherever the sample was screened) to jail. This person will sit in jail until the next drug court hearing (regardless of the day of the week, if the offense occurred on a Sunday, the participant would sit in court until the normal drug court hearing Friday morning). Participants will appear in front of the drug court judge in jailhouse clothing (orange jumpsuits) and occasionally handcuffs and leg chains. For other types of infractions of program rules, the incident would be discussed at the next team meetings (or via phone if urgent) where an appropriate sanction would be determined and applied at the next drug court hearing.

The BDC and FDC provide an example of what a drug court "typically" consists of. Examination of these two drug courts will provide knowledge that is generalizable in terms of general drug court processes. Information on a participant's characteristics and how they may impact progression through the drug court program may help all drug court administrator's tailor their programming to better suit individual needs which may, in turn, improve general program outcomes.

## **5.2. Participants**

Databases maintained by the Drug Court Coordinator from each court containing information on participants and a comparison sample of similar offenders was analyzed. Such information on participants includes but is not limited to: general demographic information (age, race, sex, etc); offense type and level; dates of arrest, release from jail, guilty plea/drug court entry and exit; total number of days in jail prior to program entry, days incarcerated as a sanction, days incarcerated as a sentence, days in the program, days to enter the program from arrest; graduation/termination date and reason; GED

needed/obtained during program; employment status at program entry/exit; drug/alcohol tests completed/positive; community service hours completed in program; number/type of treatment sessions attended; supervision fees, fines, restitution, and court costs collected; arrested or convicted while in the program or post graduation; level of supervision inventory scores at entry (and exit, if available), psychiatric diagnoses (provided to the drug court staff by the treatment agency), and sanctions imposed during program.

In addition to the sample of accepted and rejected applicants, a comparison sample was used in this evaluation. This comparison group was comprised of offenders who were sentenced to prison then released on parole, and were similar to those participating in the drug court program. Given that the offenders who participate in this court would normally be bound for prison had they not enrolled in the drug court, it is appropriate to compare the participants to a sample of similar offenders who were sentenced to prison. With the assistance of the state Department of Corrections, a list of drug offenders who had received similar charges was generated and provided to the researchers. The offenders in this comparison group were selected to individually match as closely as possible to central characteristics that have been theoretically linked to correctional programming success, including age, gender, race, the length of the prison sentence, current offense (e.g., non-violent, drug possession charges or repeat DUI offenders), and criminal histories (e.g., no violent criminal history). Each individual drug court participant was matched to an individual from the comparison sample list. For example, a White, female, 24 year old who was arrested for possession of controlled substances (meth), with 2 prior non-violent offenses, who would have been sentenced to 2 years in prison for the offense would be matched with an individual from the comparison sample who had identical (if possible)

characteristics. If someone with similar characteristics was found, that person was then added to the comparison list; if not, another individual was chosen to match as closely as possible (i.e. a 26 year old instead of a 24 year old). After the matching procedures were completed, an additional random sample of approximately 30 people was taken from the provided list to account for any attrition or missing records.

### **5.3. Procedures**

All individuals accepted into the two drug court programs ( $n = 110$ ) and the two comparison samples of similar offenders ( $n = 136$ ) were included in this study. This sample was further broken down into a “completers” category which contained only those who successfully completed either the drug court program (e.g. graduated) and those who successfully completed parole (or “treatment as usual”). Both in- program and post-program recidivism indicators taken from arrest records and probation records are included in the main database. For the purpose of this study, only post program indicators (re-arrest or not) were examined.

All participants in the two drug court programs (BDC from 2003 to 2006; and FDC from year 2005 to 2007) were included in this study. Participants are notified upon entry to the program that their information may be shared with other agency’s personnel, including the treatment providers, probation officers, and evaluators. Participants are asked to sign a consent form providing them with the study information. All state and federal confidentiality guidelines were followed. The University’s Institutional Review Board (IRB) approved this research, protocol #HS05050. All IRB protocol were followed and all data remain confidential.



#### **5.4. Measures**

Specific variables examined are the participant's arresting offense—primary drug, LSI-R score, gender, age, and race. The primary drug that participants were arrested for [drugchoice] will be broken down into two categorical variables: "0" = non-stimulant; "1" = stimulant. The LSI-R variable [lsirscore] is a continuous numerical variable ranging from 0 to 54 with higher scores meaning that the participant is at a higher risk of recidivism. Some correctional agencies will break the LSI-R score into a categorical variable representing various levels of risk (e.g. low, medium, high); however, for the purposes of this study the LSI-R score will be examined as a continuous variable. The variable for gender [gender] was coded "0" = Female; "1" = Male; age [age] is a continuous, numerical variable. Due to the low numbers of minorities in the sample (although representative of the larger state population), and therefore the lack of variation in the sample, the variable for race collapsed into a dichotomous variable: [nonwhite] will be coded "0" = "White; "1" = Non-White.

The above participant characteristics were used to determine if there were any differences in post program recidivism as measured by re-arrest. The values for 'any post program recidivism' variable [postrecid] were coded "0" = No; "1" = Yes.

#### **5.5. Plan of Analysis**

Basic frequencies and descriptive tests were run on the data taken from the database maintained by the Drug Court Coordinator to gain an understanding of the sample. Bivariate tests were conducted to determine if there are any significant differences between the comparison sample and the drug court participant sample, and to test other hypotheses. Logistic regression analysis was used to determine if any of the independent variables

(gender, age, race, arresting drug, group membership, and LSI-R score) have an impact on the dependent variable: post program recidivism (rearrest).

## CHAPTER 6. RESULTS

### 6.1. General Descriptive Statistics

Basic frequencies and descriptive statistics were run on the sample to determine sample characteristics. Multicollinearity diagnostics revealed that there were no violations of the assumption of multicollinearity.

#### 6.1.1. Drug Court Participant and Comparison Sample Characteristics—Entire Sample

Descriptive statistics show that drug court participant and comparison sample characteristics are largely similar, with few significant differences (perhaps an indicator that the matching techniques were somewhat successful). Independent samples *t* tests determined there were no significant differences in age based on group membership ( $t(241) = .584, p > .10$ ); the average age of drug court participants (30.77) and comparison sample members (31.47) were relatively similar. A chi-square test revealed no significant differences between groups in terms of gender ( $\chi^2(1, N = 243) = .379, p > .10$ ); similar percentages of females made up the participant sample (29.1%) and comparison sample (25.6%). A chi-square test revealed that there were significant differences between the two groups in terms of race ( $\chi^2(1, N = 243) = 7.259, p < .01$ ); larger percentages of minorities comprised the comparison sample (16.5%) than the drug court sample (5.5%). For arresting offense—primary drug, a chi-square analysis revealed significant differences between group membership and whether or not the primary drug was a stimulant ( $\chi^2(1, N = 242) = 5.701, p < .05$ ); there were significantly more stimulant offenders in the comparison sample (27.3%) than in the drug court sample (12%). A *t*-test revealed significant differences in LSI-R scores between drug court participants and members of the comparison group. Specifically, those in the comparison sample had higher LSI-R scores (29.2) compared to

the drug court sample (23.8) ( $t(219) = 6.513, p < .01$ ). Finally, a chi-square test revealed no significant differences by group membership in terms of post program recidivism ( $\chi^2(1, N = 237) = 3.097, p > .05$ ); drug court participants are slightly less likely to recidivate post program (40.4%) than comparison sample members (51.9%), but this relationship is not significant. Table 1 displays these results.

Table 1. Drug Court Participant and Comparison Sample Characteristics—Entire Sample

Variable	Drug Court Participants (n = 104)	Comparison Sample (n = 133)
Average Age	30.77	31.47
Race**		
%Non-White	5.5	16.5
Gender		
%Female	29.1	25.6
Any Stimulant?*		
%Yes	12.0	27.3
LSI-R Score**	23.8	29.2
Recidivated Post Program		
%Yes	40.4	51.9

\*\*  $p < .01$ . \*  $p < .05$ .

### 6.1.2. Drug Court and Comparison Sample Characteristics—Completers Only

Descriptive statistics show that drug court completers comparison sample characteristics are somewhat similar; however there are some significant differences. Independent samples *t* tests determined there were no significant differences in age based on group membership ( $t(169) = .233, p > .10$ ); the average age of successful drug court participants (31.56) and comparison sample members (31.92) were very similar. A chi-square test revealed no significant differences between groups in terms of gender ( $\chi^2(1, N = 171) = .451, p > .10$ ); similar percentages of females made up the drug court sample (21.2%) and the comparison sample (25.7%). A chi-square test revealed that there were no statistically significant differences between the two groups in terms of race ( $\chi^2(1, N = 171) = 3.305, p < .10$ ); larger percentages of minorities comprised the comparison sample (15.2%) than the drug court sample (6.1%); however, these differences were not significant. For arresting offense—primary drug, a chi-square analysis revealed significant differences between group membership and whether or not the primary drug was a stimulant ( $\chi^2(1, N = 171) = 6.741, p < .01$ ); there were significantly more stimulant offenders in the comparison sample (50.3%) than in the drug court sample (30.3%). A *t*-test revealed significant differences in LSI-R scores between drug court participants and members of the comparison group. Specifically, members of the comparison (28.8) group were significantly more likely to have higher LSI-R scores than those in drug court (22.1) ( $t(152) = 6.942, p < .01$ ), meaning they present a higher risk. Finally, a chi-square test revealed significant differences between group membership in terms of post program recidivism ( $\chi^2(1, N = 169) = 8.320, p < .01$ ); drug court participants are significantly less

likely to recidivate post program (29.7%) than comparison sample members (52.4%). Table 2 displays these results.

Table 2. Drug Court and Comparison Sample Characteristics—Completers Only

Variable	Drug Court Participants (n = 66)	Comparison Sample (n = 105)
Average Age	31.56	31.92
Race†		
%Non-White	6.1	15.2
Gender		
%Female	21.1	25.7
Any Stimulant?***		
%Yes	30.3	50.5
LSI-R Score**	23.8	29.2
Recidivated Post Program**		
% Yes	29.7	52.4

\*\* p < .01. \* p < .05. † p < .10.

### 6.1.3. Drug Court and Comparison Sample Characteristics—Non-Completers Only

Among non-completers only, chi-square tests found that there were significantly more minorities and significantly more stimulant users in the comparison group than in the drug court sample. Table 3 displays these results.

Table 3. Drug Court Participant and Comparison Sample Characteristics—Non-Completers Only

Variable	Drug Court Participants (n = 44)	Comparison Sample (n = 28)
Average Age	29.6	29.8
Race*		
%Non-White	4.5	21.4
Gender		
%Female	40.9	25.0
Any Stimulant?*		
%Yes	20.9	46.4
LSI-R Score	26.2	30.5
Recidivated Post Program		
% Yes	57.5	50.0

\*\* p < .01. \* p < .05. † p < .10.

## 6.2. Bivariate Tests of Hypotheses

Bivariate tests were conducted on the hypotheses in order to gain an understanding of the basic relationships between the variables. The bivariate analyses were conducted in two ways: A) using the entire drug court and comparison sample; and B) using only those who successfully completed either drug court or parole (comparison group).

6.2.1. Hypothesis 1: Arresting Offense—Primary Drug and Post Program Recidivism

**HYP1. Arresting Offense—Primary Drug (Stimulant/Non Stimulant) will be related to post program recidivism.**

*Entire Sample.* Chi-square tests revealed that arresting offense—primary drug had no relationship with post program recidivism ( $\chi^2(1, N = 236) = .380, p > .05$ ); similar percentages of stimulant offenders recidivated post program (49.5%) as did non-stimulant offenders (45.4%). Table 4 displays these results.

Table 4. The Impact of Arresting Offense—Primary Drug on Post Program Recidivism—Entire Sample

Primary Drug	% (N = 236)	$\chi^2$ (1)
Recidivated Post Program		.380
Stimulant	49.5	
Non-Stimulant	45.4	

\*\*  $p < .01$ . \*  $p < .05$ .

*Completers.* Chi-square tests revealed that arresting offense—primary drug had no relationship with post program recidivism ( $\chi^2(1, N = 169) = .105, p > .05$ ); similar percentages of stimulant offenders recidivated post program (44.6%) as did non-stimulant offenders (42.1%). Table 5 displays these results.



Table 5. The Impact of Arresting Offense—Primary Drug on Post Program Recidivism—Completers Only

Primary Drug	% (N = 169)	$\chi^2$ (1)
Recidivated Post Program		.105
Stimulant	44.6	
Non-Stimulant	42.1	

\*\* p < .01. \* p < .05.

6.3.1. Hypothesis 1a: Arresting Offense—Primary Drug, Post Program Recidivism & Group Membership

**HYP1a. The effect of Primary Drug on post program recidivism may be moderated by group membership.**

*Entire Sample.* Results from a three-way chi-square analysis revealed no significant differences in recidivism by primary drug in the comparison group ( $\chi^2 (1, n = 133) = .007, p > .05$ ); there were also no significant differences in recidivism by drug in the drug court group ( $\chi^2 (1, n = 103) = .274, p > .05$ ). Thus, there is no indication of an interaction by group membership. Table 6 presents these results.

*Completers.* Results from a three-way chi-square analysis reveal no significant differences in recidivism by primary drug in the comparison group ( $\chi^2 (1, n = 105) = .009, p > .05$ ); there were also no significant differences in recidivism by drug in the drug court group ( $\chi^2 (1, n = 64) = .306, p > .05$ ). Thus, there is no indication of an interaction by group membership. Table 7 presents these results.

Table 6. Arresting Offense—Primary Drug, Post Program Recidivism & Group Membership—Entire Sample

		Recidivated	
		No (n = 61)	Yes (n = 42)
Drug Court			
	Primary Drug		
	Non-Stimulant	73.8	69.0
	Stimulant	26.2	31.0
Comparison Group		(n = 64)	(n = 69)
	Primary Drug		
	Non-Stimulant	50.0	50.7
	Stimulant	50.0	49.3

\*\* p < .01. \* p < .05.

### 6.2.2. Hypothesis 1b: Primary Drug, Post-Program Recidivism and Gender

**HYP1b. The effect of Primary Drug on post program recidivism may be moderated by gender.**

*Entire Sample.* Results from a three-way chi-square analysis reveal no significant differences in recidivism by primary drug among females ( $\chi^2(1, n = 63) = .148, p > .05$ ); there were also no significant differences in recidivism by drug among males ( $\chi^2(1, n = 173) = .226, p > .05$ ). Thus, there is no indication of an interaction by gender. Table 8 presents these results.

Table 7. Arresting Offense—Primary Drug, Post Program Recidivism & Group Membership—Completers Only

		Recidivated	
		No (n = 45)	Yes (n = 19)
Drug Court			
	Primary Drug		
	Non-Stimulant	66.7	73.7
	Stimulant	33.3	26.3
Comparison Group		(n = 50)	(n = 55)
	Primary Drug		
	Non-Stimulant	50.0	49.1
	Stimulant	50.0	50.9

\*\* p < .01. \* p < .05.

*Completers.* Results from a three-way chi-square analysis reveal no significant differences in recidivism by primary drug among females ( $\chi^2(1, n = 41) = .042, p > .05$ ); there were also no significant differences in recidivism by drug among males ( $\chi^2(1, n = 128) = .004, p > .05$ ). Thus, there is no indication of an interaction by gender. Table 9 presents these results.

Table 8. Arresting Offense—Primary Drug, Post Program Recidivism &amp; Gender—Entire Sample

		Recidivated	
		No (n = 33)	Yes (n = 30)
Females			
	Primary Drug		
	Non-Stimulant	51.5	46.7
	Stimulant	48.5	53.3
Males		(n = 92)	(n = 81)
	Primary Drug		
	Non-Stimulant	65.2	61.7
	Stimulant	34.8	38.3

\*\*  $p < .01$ . \*  $p < .05$ .

### 6.2.3. Hypothesis 2: LSI-R Score and Post Program Recidivism

#### **HYP2. LSI-R scores will be related to recidivism.**

*Entire Sample.* Binary logistic regression (with no control variables) was utilized to determine if there was any significant relationship between LSI-R scores and post program recidivism. Results found no significant relationship between LSI-R scores and post program recidivism ( $b = .030$ ,  $SE = .021$ ,  $OR = 1.030$ ). Table 10 displays these results.

*Completers.* Binary logistic regression (with no control variables) was utilized to determine if there was any significant relationship between LSI-R score and post program recidivism. Results found no significant relationship between LSI-R scores and post program recidivism ( $b = .045$ ,  $SE = .025$ ,  $OR = 1.046$ ). Table 11 displays these results.

Table 9. Arresting Offense—Primary Drug, Post Program Recidivism & Gender—Completers

		Recidivated	
		No (n = 21)	Yes (n = 20)
Females			
Primary Drug			
	Non-Stimulant	38.1	35.0
	Stimulant	61.9	65.0
Males			
Primary Drug			
	Non-Stimulant	63.5	63.0
	Stimulant	36.5	37.0

\*\*  $p < .01$ . \*  $p < .05$ .

### 6.2.3. Hypothesis 2a: LSI-R Scores, Post Program Recidivism & Group Membership

**HYP2a. The effect of LSI-R scores on post program recidivism may be moderated by group membership.**

*Entire Sample.* Binary logistic regression (with no control variables) was utilized to determine if there was any significant relationship between the interaction term LSI-R X Group Membership and post program recidivism. Results found no significant relationship between LSI-R scores and post program recidivism ( $b = -.011$ ,  $SE = .011$ ,  $OR = .989$ ). Table 12 displays these results.

*Completers.* Binary logistic regression (with no control variables) was utilized to determine if there was any significant relationship between the interaction term LSI-R X Group Membership and post program recidivism. Results found a significant relationship between the interaction term and post program recidivism ( $b = -.035$ ,  $SE = .015$ ,  $OR = .966$ ). While this relationship was significant, separate analyses find that LSI-R score is not significantly related to post program recidivism while group membership is. This significant finding with the interaction term is likely the result of the strength of the relationship between group membership and post program recidivism. Table 13 displays these results.

#### 6.2.4. Hypothesis 2b: LSI-R Scores, Post Program Recidivism, & Gender

**HYP2b. The effect of LSI-R scores on post program recidivism may be moderated by gender.**

*Entire Sample.* Binary logistic regression (with no control variables) was utilized to determine if there was any significant relationship between the interaction term LSI-R X gender and post program recidivism. Results found no significant relationship between the interaction term and post program recidivism ( $b = .005$ ,  $SE = .011$ ,  $OR = 1.005$ ). Table 14 displays these results.

*Completers.* Binary logistic regression (with no control variables) was utilized to determine if there was any significant relationship between the interaction term LSI-R X gender and post program recidivism. Results found no significant relationship between the interaction terms and post program recidivism ( $b = -.002$ ,  $SE = .013$ ,  $OR = .998$ ). Table 15 displays these results.

Table 10. Logistic Regression Table for Post Program Recidivism & LSI-R Score—Entire Sample

Predictor	Post Program Recidivism		
	B	SE B	Exp. B.
LSI-R Score	.030	.021	1.030
Constant	-.947	.569	.388

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

### 6.2.5. Hypothesis 3: Gender and Post Program Recidivism

#### **HYP3. Gender will be related to post program recidivism.**

*Entire Sample.* Chi-square tests were computed to examine the relationship between gender and post program recidivism. Gender was found to have no relationship with post program recidivism ( $\chi^2 (1, N = 273) = .994$ ,  $p > .05$ ); similar percentages of females recidivated post program (46.9%) as males (46.8%). See Table 16 for these results.

Table 11. Logistic Regression Table for Post Program Recidivism & LSI-R Score—  
Completers Only

Predictor	Post Program Recidivism		
	B	SE B	Exp. B.
LSI-R Score	.045	.025	1.046
Constant	-1.539	.690	.215

. \*p<.05. \*\*p<.01. \*\*\*p<.001.

Table 12. Logistic Regression Table for Post Program Recidivism & Group Membership  
X LSI-R Score—Entire Sample

Predictor	Post Program Recidivism		
	B	SE B	Exp. B.
Group Membership X LSI-R Score	-.011	.011	.989
Constant	-.039	.182	.961

\*p<.05. \*\*p<.01. \*\*\*p<.001.



Table 13. Logistic Regression Table for Post Program Recidivism & Group Membership X LSI-R Score—Completers Only

Predictor	Post Program Recidivism		
	B	SE B	Exp. B.
Group Membership X LSI-R Score	-.035*	.015	.966
Constant	-.048	.207	.953

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

*Completers.* Chi-square tests were computed to examine the relationship between gender and post program recidivism. Gender was found to have no relationship with post program recidivism ( $\chi^2 (1, N = 169) = .548, p > .05$ ); similar percentages of females recidivated post program (48.8%) as males (42.2%). See Table 17 for these results.

Table 14. Logistic Regression Table for Post Program Recidivism & Gender X LSI-R Score—Entire Sample

Predictor	Post Program Recidivism		
	B	SE B	Exp. B.
Gender X LSI-R Score	.005	.011	1.005
Constant	-.261	.242	.770

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 15. Logistic Regression Table for Post Program Recidivism & Gender X LSI-R Score—Completers Only

Predictor	Post Program Recidivism		
	B	SE B	Exp. B.
Gender X LSI-R Score	-.002	.011	.998
Constant	-.305	.304	.737

\*p<.05. \*\*p<.01. \*\*\*p<.001.

#### 6.2.6. Hypothesis 3a: Gender, Post Program Recidivism, and Group Membership

##### **HYP3a. The effect of gender on post program recidivism may be moderated by group membership.**

*Entire Sample.* Results from a three-way chi-square analysis reveal no significant differences in recidivism by gender among drug court participants ( $\chi^2(1, n = 104) = .152, p > .05$ ); there were also no significant differences in recidivism by gender among comparison sample members ( $\chi^2(1, n = 133) = .065, p > .05$ ). Thus, there is no indication of an interaction by group membership. Table 18 presents these results.

*Completers.* Results from a three-way chi-square analysis reveal no significant differences in recidivism by gender among drug court participants ( $\chi^2(17, n = 37) = 21.230, p > .05$ ); there were also no significant differences in recidivism by gender among comparison sample members ( $\chi^2(17, n = 37) = 21.230, p > .05$ ). Thus, there is no indication of an interaction by group membership. Table 19 presents these results.

Table 16. The Impact of Gender on Post Program Recidivism—Entire Sample

Gender	% (N = 237)	$\chi^2$ (1)
Recidivated Post Program		
Male	46.9	0.000
Female	46.8	

\*\* p < .01. \* p < .05. † p < .10.

Table 17. The Impact of Gender on Post Program Recidivism—Completers Only

Gender	% (N = 169)	$\chi^2$ (1)
Recidivated Post Program		0.548
Male	42.2	
Female	48.8	

\*\* p < .01. \* p < .05. † p < .10.

Table 18. Gender, Post Program Recidivism &amp; Group Membership—Entire Sample

	Recidivated	
	No (n = 62)	Yes (n = 42)
Drug Court		
Males	72.6	69.0
Females	27.4	31.0
Comparison	(n = 64)	(n = 69)
Males	73.4	75.4
Females	26.6	24.6

\*\* p < .01. \* p < .05.

Table 19. Gender, Post Program Recidivism &amp; Group Membership—Completers Only

	Recidivated	
	No (n = 45)	Yes (n = 19)
Drug Court		
Males	82.2	68.4
Females	17.8	31.6
Comparison	(n = 50)	(n = 55)
Males	74.0	74.5
Females	26.0	25.5

\*\* p < .01. \* p < .05.

### 6.2.7. Summary

To summarize, when examining the entire sample, there were three important significant differences found between the drug court group and the comparison sample: race, arresting offense—primary drug, and LSI-R scores. Drug court participants were significantly less likely to be minority, less likely to use stimulants, and they had significantly lower LSI-R scores. The fact that the comparison sample had more minorities, stimulant users, and high risk LSI-R scores may indicate that these individuals possess characteristics that would disqualify them for drug court participation. For example, stimulant users may be more likely to be involved in violent criminal activity, which would exclude them from drug court; similarly those with higher LSI-R scores may be more likely to engage in violent behavior or more risky drug behavior (manufacturing) and would therefore be more likely to be excluded. Accounting for the racial differences is much more problematic; perhaps minority offenders (who in this data set are mostly comprised of Native Americans) are more likely to be involved in the types of offenses that would render them inappropriate for drug court—violent criminal history and/or drug manufacturing. No evidence was found to support any of the hypotheses with interaction terms.

When examining only those who successfully completed either drug court or treatment as usual, slight differences emerged. Drug court participants were significantly less likely to be stimulant users than comparison sample members. Drug court participants had significantly lower LSI-R scores than comparison sample members, and drug court participants were significantly less likely to recidivate post program than comparison sample members. Again, no evidence was found to support any of the interaction hypotheses.

## 6.2. Multivariate Tests of Hypotheses

Multivariate statistics were conducted on the hypotheses to gain an understanding of the relationships between variables while controlling for confounding factors. Logistic regression was employed to predict the logodds that a person would recidivate following the successful completion of either the drug court program or treatment as usual. These multivariate models were used to examine the impact of each of the independent variables (arresting offense—primary drug, LSI-R scores, and gender) while controlling for the influence of other factors (race, age).

### 6.2.1. Logistic Regression Analyses

Logistic Regression was conducted on several models using both the entire sample (all drug court participants and all comparison group members) and using only the completers from both groups (drug court participants who graduated and comparison sample members who successfully completed prison/parole). Three different models were run using each sample (entire, completers). Regression #1 includes age, gender, race, LSI-R score, arresting drug, and group membership in the model; Regression #2 includes age, race, gender, LSI-R score, arresting drug, group membership, and an interaction term (Gender X Arresting Drug); Regression #3 includes age, race, gender, LSI-R score, arresting drug, group membership, and an interaction term (Gender X LSI-R score). Each of the three regressions will first be run using the entire sample (A), and then run using only those who successfully completed drug court or treatment as usual (B).

### 6.2.2. Logistic Regression #1

#### *Entire Sample*

Logistic regression equations using age, race, gender, LSI-R scores, arresting drug and group membership were run to test the hypotheses. Table 20 displays the coefficients and the log odds with post program recidivism functioning as the dichotomous, dependent variable. In Step 1, age, gender and race were entered as control variables. In Step 2, LSI-R scores and primary drug were entered to assess whether these variables suppressed the association between age, gender, race, and recidivism. Group membership was entered in Step 3 as an experimental variable to see if its addition improved model fit.

The model predicting that age, gender and race would impact post program recidivism was not significant ( $\chi^2$  Step 1 = 5.317, 3 *df*,  $p > .05$ ); despite lack of overall model fit, of the three variables in the model, age was significantly related to post program recidivism ( $b = -.033$ ,  $SE = .015$ ,  $OR = .968$ ). Older participants were significantly less likely to recidivate post program than those who were younger. Adding LSI-R score and primary drug in Step 2 did not significantly improve upon the model fit ( $7.191 - 5.317$  [ $\text{Step 2 } \chi^2 - \text{Step 1 } \chi^2$ ] = 1.874, 2 *df*,  $p > .05$ ); of the four variables in the model at this point, only age remained significantly related to post program recidivism ( $b = -.031$ ,  $SE = .016$ ,  $OR = .969$ ). Adding group membership in Step 3 did not significantly improve upon model fit ( $8.798 - 7.191$  [ $\text{Step 3 } \chi^2 - \text{Step 2 } \chi^2$ ] = 1.607, 1 *df*,  $p > .05$ ). Despite lack of overall model significance, the variable age remained significantly related to post program recidivism while controlling for group, gender, LSI-R scores, primary drug and race; those who are older ( $b = -.034$ ,  $SE = .016$ ,  $OR = .967$ ) are less likely to recidivate than those who are younger.

### *Completers Only*

Logistic regression equations using age, race, gender, LSI-R scores, arresting drug and group membership were run to test the hypotheses. Table 21 displays the coefficients and the log odds with post program recidivism functioning as the dichotomous, dependent variable. In Step 1, age, gender and race were entered as control variables. In Step 2, LSI-R scores and primary drug were entered to assess whether these variables suppressed the association between age, gender, race, and recidivism. Group membership was entered in Step 3 as an experimental variable to see if its addition improved model fit. The model predicting that age, gender and race would impact post program recidivism was not significant ( $\chi^2$  Step 1 = 2.285, 3 *df*,  $p > .05$ ); no variables in the model were significantly related to post program recidivism. Adding LSI-R score and primary drug in Step 2 did not significantly improve upon the model fit ( $4.880 - 2.285$  [Step 2  $\chi^2 -$  Step 1  $\chi^2$ ] = 2.595, 2 *df*,  $p > .05$ ); of the four variables in the model at this point, none were significantly related to post program recidivism. Adding group membership in Step 3 did significantly improve upon model fit ( $9.344 - 4.880$  [Step 3  $\chi^2 -$  Step 2  $\chi^2$ ] = 4.464, 1 *df*,  $p < .05$ ). At this point in the model, the variable group membership was significantly related to post program recidivism while controlling for age, gender, LSI-R scores, primary drug and race; those who are drug court participants ( $b = -.840$ ,  $SE = .403$ ,  $OR = .432$ ) are less likely to recidivate than comparison group members.



Table 20. Regression Analysis Predicting Post Program Recidivism: Regression #1—  
Entire Sample

	Step 1		Step 2		Step 3	
	B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio
Age	-.033* (.015)	.968	-.031* (.015)	.969	-.034* (.016)	.967
Race (White = reference category)	-.266 (.441)	.767	-.305 (.444)	.737	-.396 (.451)	.673
Gender (Male = reference Category)	-.092 (.315)	.912	-.031 (.323)	.969	-.086 (.327)	.918
Any Stimulant?			-.073 (.300)	.930	-.143 (.306)	.867
LSI-R Scores			-.030 (.022)	1.030	.019 (.024)	1.019
Group (drug court = reference Category)					-.402 (.318)	.669
Model Chi-Square	5.317		7.191		8.798	
Degrees of Freedom	3		5		6	

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 21. Regression Analysis Predicting Post Program Recidivism: Regression #1—Completers Only

	Step 1		Step 2		Step 3	
	B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio
Age	-.023 (.017)	.978	-.021 (.015)	.979	-.025 (.016)	.975
Race (White = reference category)	.220 (.526)	1.246	.130 (.535)	1.139	.023 (.542)	1.024
Gender (Male = reference Category)	-.270 (.389)	.764	-.179 (.410)	.836	-.086 (.327)	.918
Any Stimulant?			-.095 (.370)	.909	-.194 (.380)	.824
LSI-R Scores			.043 (.027)	1.044	.016 (.030)	1.016
Group (drug court = reference Category)					-.840* (.403)	.432
Model Chi-Square	2.285		4.880		9.344	
Degrees of Freedom	3		5		6	

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

### 6.2.3. Logistic Regression #2

#### *Entire Sample*

Logistic regression equations using age, race, gender, LSI-R scores, arresting drug and group membership were run to test the hypotheses. Table 22 displays the coefficients

and the log odds with post program recidivism functioning as the dichotomous, dependent variable. In Step 1, age, gender and race were entered as control variables. In Step 2, LSI-R scores and primary drug were entered to assess whether these variables suppressed the association between age, gender, race, and recidivism. Group membership was entered in Step 3 as an experimental variable to see if its addition improved model fit. In Step 4, an interaction term was introduced to the model (Gender X Primary Drug).

The model predicting that age, gender and race would impact post program recidivism was not significant ( $\chi^2$  Step 1 = 5.317, 3 *df*,  $p > .05$ ); despite lack of overall model fit, of the three variables in the model, age was significantly related to post program recidivism ( $b = -.033$ ,  $SE = .015$ ,  $OR = .968$ ). Older participants were significantly less likely to recidivate post program than those who were younger. Adding LSI-R score and primary drug in Step 2 did not significantly improve upon the model fit (7.191 – 5.317 [ $\text{Step 2 } \chi^2 - \text{Step 1 } \chi^2$ ] = 1.874, 2 *df*,  $p > .05$ ); of the four variables in the model at this point, only age remained significantly related to post program recidivism ( $b = -.031$ ,  $SE = .016$ ,  $OR = .969$ ). Adding group membership in Step 3 did not significantly improve upon model fit (8.798 – 7.191 [ $\text{Step 3 } \chi^2 - \text{Step 2 } \chi^2$ ] = 1.607, 1 *df*,  $p > .05$ ). Despite lack of overall model significance, the variable age remained significantly related to post program recidivism while controlling for group, gender, LSI-R scores, primary drug and race; those who are older ( $b = -.034$ ,  $SE = .016$ ,  $OR = .967$ ) are less likely to recidivate than those who are younger. In Step 4, the interaction term Gender X Primary Drug was introduced. The change in the model chi-square from Step 3 to Step 4 was not significant (8.960 - 8.798 [ $\text{Step 4 } \chi^2 - \text{Step 3 } \chi^2$ ] = .162, 1 *df*,  $p > .05$ ); however the variable age remained significant ( $b = -.034$ ,  $SE = .016$ ,  $OR = .966$ ).

Table 22. Regression Analysis Predicting Post Program Recidivism: Regression #2—  
Entire Sample

	Step 1		Step 2		Step 3		Step 4	
	B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio
Age	-.033* (.015)	.968	-.031* (.016)	.969	-.034* (.016)	.967	-.034* (.016)	.966
Race (White = reference category)	-.266 (.441)	.767	-.305 (.444)	.737	-.396 (.451)	.673	-.388 (.452)	.679
Gender (Male = reference Category)	-.092 (.315)	.912	-.031 (.323)	.969	-.086 (.327)	.918	.043 (.457)	1.044
Any Stimulant?			-.073 (.300)	.930 (.306)	-.143 (.561)	.867	.047 (.457)	.048
LSI-R Scores			.030 (.022)	1.030	.019 (.024)	1.019	.020 (.024)	1.020
Group (drug court = reference Category)					-.402 (.318)	.669	-.378 (.323)	.686
Interaction Term (Gender X <i>Any Stimulant?</i> )							-.263 (.655)	.768
Model Chi-Square	5.317		7.191		8.798		8.960	
Degrees of Freedom	3		5		6		7	

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

### *Completers Only*

Logistic regression equations using age, race, gender, LSI-R scores, arresting drug and group membership were run to test the hypotheses. Table 23 displays the coefficients and the log odds with post program recidivism functioning as the dichotomous, dependent variable. In Step 1, age, gender and race were entered as control variables. In Step 2, LSI-R scores and primary drug were entered to assess whether these variables suppressed the association between age, gender, race, and recidivism. Group membership was entered in Step 3 as an experimental variable to see if its addition improved model fit. In Step 4, an interaction term was introduced to the model (Gender X Primary Drug).

The model predicting that age, gender and race would impact post program recidivism was not significant ( $\chi^2$  Step 1 = 2.285, 3 *df*,  $p > .05$ ); no variables in the model were significantly related to post program recidivism. Adding LSI-R score and primary drug in Step 2 did not significantly improve upon the model fit (4.880 – 2.285 [Step 2  $\chi^2$  – Step 1  $\chi^2$ ] = 2.595, 2 *df*,  $p > .05$ ); of the four variables in the model at this point, none were significantly related to post program recidivism. Adding group membership in Step 3 did significantly improve upon model fit (9.344 – 4.880 [Step 3  $\chi^2$  – Step 2  $\chi^2$ ] = 4.464, 1 *df*,  $p < .05$ ). At this point in the model, the variable group membership was significantly related to post program recidivism while controlling for age, gender, LSI-R scores, primary drug and race; those who are drug court participants ( $b = -.840$ ,  $SE = .403$ ,  $OR = .432$ ) are less likely to recidivate than comparison group members. In Step 4, the interaction term Gender X Primary Drug was introduced. The change in the model chi-square from Step 3 to Step 4 was not significant (9.816 – 9.433 [Step 4  $\chi^2$  – Step 3  $\chi^2$ ] = .383, 1 *df*,  $p > .05$ ); however the variable group membership remained significant ( $b = -.815$ ,  $SE = .404$ ,  $OR = .443$ ).

Table 23. Regression Analysis Predicting Post Program Recidivism: Regression #2—  
Completers Only

	Step 1		Step 2		Step 3		Step 4	
	B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio
Age	-.023 (.017)	.978	-.021 (.018)	.979	-.025 (.016)	.975	-.026 (.018)	.974
Race (White = reference category)	.220 (.526)	1.246	.130 (.535)	1.139	.023 (.542)	1.02	.058 (.546)	.059
Gender (Male = reference Category)	-.270 (.389)	.764	-.179 (.410)	.836	-.086 (.327)	.918	.099 (.663)	1.105
Any Stimulant?			-.095 (.370)	.909	-.194 (.380)	.824	.240 (.741)	1.271
LSI-R Scores			.043 (.027)	1.044	.016 (.030)	1.016	.019 (.031)	1.019
Group (drug court = reference Category)					-.840* (.403)	.432	-.815* (.404)	.443
Interaction Term (Gender X Any Stim?)							-.581 (.851)	.559
Model Chi-Square	2.285		4.880		9.344		9.816	
Degrees of Freedom	3		5		6		7	

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

#### 6.2.4. Logistic Regression #3

##### *Entire Sample*

Logistic regression equations using age, race, gender, LSI-R scores, arresting drug and group membership were run to test the hypotheses. Table 24 displays the coefficients and the log odds with post program recidivism functioning as the dichotomous, dependent variable. In Step 1, age, gender and race were entered as control variables. In Step 2, LSI-R scores and primary drug were entered to assess whether these variables suppressed the association between age, gender, race, and recidivism. Group membership was entered in Step 3 as an experimental variable to see if its addition improved model fit. In Step 4, an interaction term was introduced to the model (Gender X LSI-R Scores).

The model predicting that age, gender and race would impact post program recidivism was not significant ( $\chi^2$  Step 1 = 5.317, 3 *df*,  $p > .05$ ); despite lack of overall model fit, of the three variables in the model, age was significantly related to post program recidivism ( $b = -.033$ ,  $SE = .015$ ,  $OR = .968$ ). Older participants were significantly less likely to recidivate post program than those who were younger. Adding LSI-R score and primary drug in Step 2 did not significantly improve upon the model fit (7.191 – 5.317 [ $\text{Step 2 } \chi^2 - \text{Step 1 } \chi^2$ ] = 1.874, 2 *df*,  $p > .05$ ); of the four variables in the model at this point, only age remained significantly related to post program recidivism ( $b = -.031$ ,  $SE = .016$ ,  $OR = .969$ ). Adding group membership in Step 3 did not significantly improve upon model fit (8.798 – 7.191 [ $\text{Step 3 } \chi^2 - \text{Step 2 } \chi^2$ ] = 1.607, 1 *df*,  $p > .05$ ). Despite lack of overall model significance, the variable age remained significantly related to post program recidivism while controlling for group, gender, LSI-R scores, primary drug and race; those who are older ( $b = -.034$ ,  $SE = .016$ ,  $OR = .967$ ) are less likely to recidivate than those who

are younger. In Step 4, the interaction term Gender X LSI-R Score was introduced. The change in the model chi-square from Step 3 to Step 4 was not significant ( $9.045 - 8.798$  [Step 4  $\chi^2 -$  Step 3  $\chi^2$ ] = .247, 1 *df*,  $p > .05$ ); however the variable age remained significant ( $b = -.033$ ,  $SE = .016$ ,  $OR = .967$ ).

### *Completers Only*

Logistic regression equations using age, race, gender, LSI-R scores, arresting drug and group membership were run to test the hypotheses. Table 25 displays the coefficients and the log odds with post program recidivism functioning as the dichotomous, dependent variable. In Step 1, age, gender and race were entered as control variables. In Step 2, LSI-R scores and primary drug were entered to assess whether these variables suppressed the association between age, gender, race, and recidivism. Group membership was entered in Step 3 as an experimental variable to see if its addition improved model fit. In Step 4, an interaction term was introduced to the model (Gender X LSI-R Scores). The model predicting that age, gender and race would impact post program recidivism was not significant ( $\chi^2$  Step 1 = 2.285, 3 *df*,  $p > .05$ ); no variables in the model were significantly related to post program recidivism. Adding LSI-R score and primary drug in Step 2 did not significantly improve upon the model fit ( $4.880 - 2.285$  [Step 2  $\chi^2 -$  Step 1  $\chi^2$ ] = 2.595, 2 *df*,  $p > .05$ ); of the four variables in the model at this point, none were significantly related to post program recidivism. Adding group membership in Step 3 did significantly improve upon model fit ( $9.344 - 4.880$  [Step 3  $\chi^2 -$  Step 2  $\chi^2$ ] = 4.464, 1 *df*,  $p < .05$ ). At this point in the model, the variable group membership was significantly related to post program recidivism while controlling for age, gender, LSI-R scores, primary drug and race; those



Table 24. Regression Analysis Predicting Post Program Recidivism: Regression #3—  
Entire Sample

	Step 1		Step 2		Step 3		Step 4	
	B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio
Age	-.033* (.015)	.968	-.031* (.016)	.969	-.034* (.016)	.967	-.033* (.016)	.967
Race (White = reference category)	-.266 (.441)	.767	-.305 (.444)	.737	-.396 (.451)	.673	-.408 (.453)	.665
Gender (Male = reference Category)	-.092 (.315)	.912	-.031 (.323)	.969	-.086 (.327)	.918	.636 (1.501)	1.890
Any Stimulant?			-.073 (.300)	.930	-.143 (.306)	.867	-.137 (.561)	.872
LSI-R Scores			.030 (.022)	1.030	.019 (.024)	1.019	.039 (.048)	1.040
Group (drug court = reference Category)					-.402 (.318)	.669	-.390 (.052)	.677
Interaction Term (Gender X LSI-R)							-.026 (.052)	.975
Model Chi-Square	5.317		7.191		8.798		9.045	
Degrees of Freedom	3		5		6		7	

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

who are drug court participants ( $b = -.840$ ,  $SE = .403$ ,  $OR = .432$ ) are less likely to recidivate than comparison group members. In Step 4, the interaction term Gender X LSI-R Score was introduced. The change in the model chi-square from Step 3 to Step 4 was not significant ( $10.832 - 9.344$  [Step 4  $\chi^2 -$  Step 3  $\chi^2$ ] = 1.488, 1 *df*,  $p > .05$ ); however the variable group membership remained significant ( $b = -.790$ ,  $SE = .407$ ,  $OR = .454$ )

#### 6.2.5. Multivariates—Summary

##### *Entire Sample*

To summarize, in Regression #1, the model was not significant at any of the three steps; however, the variable age was significantly related to post program recidivism in all three steps with older participants being less likely to recidivate. In Regression #2, again the model was not significant at any step. As in Regression #1, the variable age was significantly related to post program recidivism at every step. The introduction of the interaction term (Gender X Primary Drug) did not improve model fit. In Regression #3, similar results were found; none of the models were significant at any of the three steps, but at every step, age was significantly related to post program recidivism.

##### *Completers*

To summarize, in Regression #1, the model was significant only in Step 2, when group membership was added into the model. However, after other experimental variables were added, this significant relationship between group membership and post program recidivism disappeared. At every step in the model, the co-variate group membership was significantly related to post program recidivism with drug court participants being less likely to recidivate than comparison group members. In Regression #2, again the model was significant only in Step 2, when group membership was added into the model. As in

Table 25. Regression Analysis Predicting Post Program Recidivism: Regression #3—  
Completers Only

	Step 1		Step 2		Step 3		Step 4	
	B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio
Age	-.023 (.017)	.978	-.021 (.018)	.979	-.025 (.016)	.975	-.024 (.018)	.977
Race (White = reference category)	.220 (.526)	1.246	.130 (.535)	1.139	.023 (.542)	1.024	.059 (.549)	1.061
Gender (Male = reference Category)	-.270 (.389)	.764	-.179 (.410)	.836	-.248 (.418)	.780	2.157 (2.141)	8.643
Any Stimulant?			-.095 (.370)	.909	-.194 (.380)	.824	-.140 (.384)	.869
LSI-R Scores			.043 (.027)	1.044	.016 (.030)	1.016	.085 (.068)	1.088
Group (drug court = reference Category)					-.840* (.403)	.432	-.790* (.407)	.454
Interaction Term (Gender X LSI-R)							-.084 (.073)	.919
Model Chi-Square	2.285		4.880		9.344		10.832	
Degrees of Freedom	3		5		6		7	

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Regression #1, the variable group membership was significantly related to post program recidivism at every step. The introduction of the interaction term (Gender X Primary Drug) did not improve model fit. In Regression #3, similar results were found; Step 2 was the only step where the model was significant (when group membership was added). At every step, group membership was significantly related to post program recidivism.

## CHAPTER 7. DISCUSSION

Since the development of drug treatment courts in 1989, there have been an abundance of studies that have documented the effectiveness of this alternative diversion program (MacKenzie, 2006; Wilson et al., 2006). As a result, the number of courts has increased substantially across the country. The popular drug court model has also been adapted to develop mental health courts, family courts, and juvenile drug courts. Recent research on drug courts has focused on understanding how and why drug courts are effective. Several studies have attempted to determine if there are any individual characteristics that may predict likelihood of program success and post program recidivism. This disquisition has attempted to add to the literature on individual characteristics as risk factors by applying the RNR model, and by examining how these risk factors may relate to post program recidivism. Specifically, it was hypothesized that those with higher risks will be less likely to recidivate post program because drug courts are higher intensity programs.

The RNR model was applied in attempt to shed light on this question of how drug courts are working. According to the risk principle, those persons with higher risks who are appropriately matched to high intensity treatment are the least likely to recidivate post program. Process evaluations of the two courts have documented that each drug court is arguably a high intensity program; the program typically lasts 1 ½ years and involves completing recommended substance abuse treatment, maintaining sobriety, maintaining appropriate housing and employment, and other court requirements (Bouffard & Richardson, 2006; Richardson, Bouffard & Thompson, 2007). However, what is unknown is the intensity of treatment as usual. Many prisons offer (or require) offenders to

participate in recommended programming ranging from substance abuse treatment to anger management. The intensity, duration and quality of such programming is unknown.

Results from this study did not support the overall hypotheses that persons who are higher risk (e.g. stimulant users, higher LSI-R scores, females) are more likely to succeed in these two drug court programs compared to similar comparison sample members who participated in treatment as usual. Rather, among the entire sample, the only individual level variable that was related to post program recidivism was age; older offenders were less likely to recidivate post program holding gender, race, LSI-R score, primary drug, and group membership constant. This finding could be indicative of several things. First, it could be that older offenders are more motivated for treatment, having lived longer and had more experience with the criminal justice system, they may be at a better place in their lives to commit to treatment. This feature could be connected to the responsivity portion of the RNR—perhaps older offenders are more open to the learning that must occur in substance abuse treatment. Second, it could lend support to the maturation hypothesis—perhaps these offenders are simply aging out of crime and are therefore in a better position to respond to treatment.

When the sample of completers was examined, the only individual level variable that was significantly related to post program recidivism was group membership; being a drug court participant was significantly related to decreased post program recidivism while controlling for age, gender, race, LSI-R score, and primary drug. Isolating those who successfully completed either drug court or treatment as usual changed the results of the regression leaving age now insignificant and making group membership the only significant predictor. Recall, however, that drug court participants who were terminated

were sent to prison and therefore not free in the community to recidivate, so interpreting results from the entire sample should be made with caution. More importantly, these results using completers only have confirmed several other studies who have found that successfully completing drug court reduces chances of recidivism for offenders, when compared to a sample of similar offenders who completed treatment as usual (MacKenzie, 2006; Wilson et al., 2006). This relationship is strong and exists despite the influence of age, gender, race, LSI-R score, and primary drug. In other words, regardless of other personal characteristics, and regardless of possession of potential risk factors, simply participating in and graduating from drug treatment courts is related to a decrease in post program recidivism.

The lack of relationship between an individual's primary drug and post program recidivism is surprising, especially considering that analysis of the same data (although operationalized differently) found that methamphetamine users were less likely to recidivate post program than their other drug using counterparts (Bouffard & Richardson, 2007). For this study, the variable representing primary drug was operationalized to include either stimulant users or non-stimulant users, effectively expanding the number of persons in the stimulant using group to include meth users and cocaine, speed, etc., users. This could mean that the positive results methamphetamine users were enjoying are distorted by the experiences of other stimulant users.

The lack of relationship between gender and post program recidivism confirms some studies and is inconsistent with others (Shaffer et al., 2009). The finding that men and women are recidivating at similar rates regardless of which group they were in does demonstrate that whatever is occurring inside drug court treatment is meeting the needs of

both men and women. While this study did not support recent findings from Shaffer et al. (2009) that women are less likely to recidivate post program than men, it does indicate that women are doing just as well as men.

Finally, the LSI-R score was not a significant predictor of post program recidivism while controlling for other factors. Regardless of how high or low an offender's LSI-R score was upon entry, they were equally likely to recidivate post program. There were also no differences found in the predictability of male and female post program recidivism.

None of the hypotheses involving interactions were significant, meaning that the impact that the individual level characteristics had on post program recidivism was not moderated by either gender or group membership. This seems to demonstrate that the drug court (or the drug court model) has found a way to operate in a general manner but still address specific needs of offenders.

### **7.1. Implications**

The results of this study did not support the hypotheses that those possessing certain risk factors would be less likely to recidivate or that group membership and gender may moderate these effects. There are several implications resulting from this study. First, this study has shed light on the importance of the other components of the risk, needs and responsivity model—specifically the needs and responsivity components. While much research has focused on individual participants and the risk factors they possess, less attention has been paid to other program components that may be playing a larger role in participant success. An exception is the work done by Mears and Kelly (2001; 2002); their process evaluations of a youth chemical dependency treatment program revealed that individual youth characteristics were not as important predictors of program success as



were organization factors of the program itself. They argue that low staff turnover and adequate funding are better predictors of program success (lower recidivism rates for the youth post program) (Mears & Kelly, 2001; 2002). This argument may apply to the two adult drug courts in the current study. For example, drug courts are known for their collaborative courtroom workgroup; perhaps this cohesiveness and positive working environment play a larger role in participant success than individual characteristics. This lends support to the overall effectiveness and success of the drug court model itself and provides yet more evidence to continue to develop and implement such courts. It does take time and resources to establish drug courts, but the research has consistently shown that these programs are effective at not only reducing drug use and criminal activity, but they are also cost effective saving correctional dollars and increasing quality of life.

An important policy implication stemming from the above findings is the need to carefully and deliberately plan drug court programs. While this may sound obvious, it is essential to slowly build a team that will work well amongst themselves and amongst the participants, and who will remain a part of that team for a substantial period of time (ideally several years). Frequent changes in the team members have the potential to reduce the value of the therapeutic integrity of the program. A successful participant will remain in drug court for approximately 16 months, and it is important that they are able to build a rapport with the drug court team that is consistent during their time in the program.

The significant relationship between age (entire sample) and post program recidivism and the significant relationship between group membership (completers only) and post program recidivism could also shed light on the type of offender who is in drug court. It could be that persons who participate in drug court and who succeed are actually

quite different from other offenders in terms of motivation and treatment readiness (and perhaps other demographics). Recall that the comparison group had significantly higher LSI-R scores and were more likely to be stimulant users than drug court participants. The notion that drug courts are for high risk offenders may therefore be faulty.

Finally, this could evidence that the world of correctional rehabilitation took a serious issue (substance abuse and related criminal activity) and developed an effective solution for said issue. Drug courts were developed with a specific type of offender in mind, and they seem to be working for most individuals that fall into that category of substance user.

## **7.2. Limitations**

As with much research, this study does possess limitations. First, the sample size is small; however, it is a sample that, according to process evaluation efforts, is representative of the state population. Additionally, these two courts were developed and implemented after the NADCP's Ten Key Components and therefore representative of a typical, small urban drug court. Second, there were significant differences between comparison and drug court groups despite the initial matching procedures. Multivariate statistics were run to control for this effect; however, there could have been other differences in the two groups (i.e. motivation) that could not be controlled for. A third limitation is a lack of data regarding the type of programming those sentenced to "treatment as usual" received. Such persons typically spent a brief time in prison (about one year), followed by a period of parole and/or probation. The types of programs available in the prison, and the programs that the comparison group members participated in (and/or completed) is unknown. This is similar for their time spent on parole and probation—it is unknown if the comparison group

members participated in programming, and if so, what kind. Future evaluations utilizing a comparison sample comprised offenders who participate in “treatment as usual” should gather more data about what specifically “treatment as usual” is. For example, some states are known from strong prison education programs, while others are known for strong substance abuse programs. If such programs are in place and the offender is participating in them, this could be altering any conclusions.

### **7.3. Future Research**

Future analysis of these data would benefit from a weighting procedure to determine if the lack of significant findings we perhaps due, in part, to the small sample size. In addition, it would be interesting to determine if re-operationalizing the LSI-R variable from continuous to categorical would change any findings.

Future research should continue to explore the importance of the responsivity portion of the RNR model and explore which of the three components may be having the most influence on programming effectiveness. For example, maybe theoretically sound programs that are well staffed and well run by people who are devoted to their jobs outweighs the risks that individuals may bring with them into the program. Also, evaluations should be conducted utilizing comparison samples where detailed information can be gathered about the types of programming that these individuals participated in. This will allow for researchers to consider and control for how drug courts compare to treatment as usual by better describing what exactly treatment as usual is. Finally, continued efforts must be made to understand what is occurring inside the black box of treatment. This could mean looking less at the individuals in the program and more at the program itself.

## REFERENCES

- Andrews, D.A. & Bonta, J. (1995). *The Level of Supervision Inventory--Revised*. Toronto, Ontario, Canada: Multi-Health Systems.
- Andrews, D.A., & Bonta, J. (2003). *The psychology of criminal conduct* (3<sup>rd</sup> ed). Cincinnati, OH: Anderson Publishing Company.
- Andrews, D. A., Bonta, J. & Hoge, R. D. (1990). Classification for effective rehabilitation: Rediscovering psychology. *Criminal Justice and Behavior*, 17, 19-52.
- Andrews, D. A. & Dowden, C. (1999). Meta-Analytic investigation into effective correctional intervention for female offenders. *Forum on Corrections Research*, 11(3), p. 18-20.
- Andrews, D. A., Dowden & Gendreau, P. (1999). Risk Principle of Case Classification in Correctional Treatment. *International Journal of Offender Therapy and Comparative Criminology*, 50(1), p. 88-100.
- Andrews, D. A., Zinger, I., Hoge, R. D., Bonta, J., Gendreau, P., & Cullen, F. T. (1990). Does correctional treatment work? A clinically relevant and psychologically informed meta-analysis. *Criminology*, 28, 369-404.
- Anglin, M. D., Kalechstein, A., Maglione, M., Annon, J., & Fiorentine, R. (1997). *MA abuse and treatment in California: A regional report*. Los Angeles: Drug Abuse Research Center, University of California at Los Angeles.
- Antonowicz, D. H. & Ross, R. R. (1994). Essential Components of Successful Rehabilitation Programs for Offenders. *International Journal of Offender Therapy and Comparative Criminology*, 38(2), pp. 97-104.

- Banks, D., & Gottfredson, D. C. (2003). The effects of drug treatment and supervision on time to rearrest among drug treatment court participants. *Journal of Drug Issues*, 33, 385-412.
- Banks, D., & Gottfredson, D. C. (2004). Participation in drug treatment court and time to rearrest. *Justice Quarterly*, 21(3), 637-658.
- Belenko, S. (1998). Research on drug courts: A critical review. *National Drug Court Institute Review*, 1(1), 1-42.
- Belenko, S. (1999). Research on drug courts: A critical review: 1999 update. *National Drug Court Institute Review*, 11(2), 1-58.
- Belenko, S. (2001). *Research on drug courts: A critical review*. 2001 update. New York: The National Center on Addiction and Substance Abuse at Columbia University.
- Belknap, J. (2007). *The invisible woman: Gender, crime, and justice* (3<sup>rd</sup> ed.). Belmont, CA: Thompson Wadsworth.
- Blanchette, K., & Brown, S.L. (2006). *The assessment and treatment of women offenders: An integrative perspective*. Chichester: Wiley.
- Blomberg, T.G., & Lucken, K. (2000). American penology: A history of control. New York: Aldine de Gruyter.
- Bonta, J. & Andrews, D. A. (2007). Risk-Need-Responsivity Model for Offender Assessment and Rehabilitation: 2007-06. Canada: Her Majesty the Queen.
- Bonta, J., Wallace-Capretta, S. & Rooney, R. (2000a). A quasi-experimental evaluation of an intensive rehabilitation supervision program. *Criminal Justice and Behavior*, 27, 312-329.

- Bouffard, J.A., & Richardson, K. (2006). "Process and Outcome Evaluation of the South Central Judicial District (Bismarck, ND) Adult Drug Court." North Dakota State University, Fargo, ND.
- Bouffard, J.A., & Richardson, K.A. (2007). The effectiveness of drug court programming for specific kinds of offenders: Methamphetamine- and DWI-offenders versus other drug-involved offenders. *Criminal Justice Policy Review*, 18(3), 274-293.
- Bouffard, J.A., Richardson, K.A., and Franklin, T. (2010). Drug Courts for DWI Offenders? The Effectiveness of Two Hybrid drug courts on DWI offenders. *Journal of Criminal Justice*, 38, p. 25-33.
- Brecht, M., Anglin, M., & Dylan, M. (2005). Coerced treatment for methamphetamine abuse: Differential patient characteristics and outcomes. *American Journal of Drug and Alcohol Abuse*, 31(2), 337-356.
- Brewster, M. P. (2001). An evaluation of the Chester County (PA) drug court program. *Journal of Drug Issues*, 31, 177-206.
- Butzin, C. A., Saum, C. A., & Scarpitti, F. R. (2002). Factors associated with completion of a drug treatment court diversion program. *Substance Use and Misuse*, 37, 1615-1633.
- Center on Addiction and Substance Abuse. (2009). *Behind bars: Substance abuse and America's prison population*. New York: Columbia University.
- Cooper, C. S. (2003). Drug Courts: Current issues and future perspectives. *Substance Use & Misuse. Special Issue: The Middle Eastern Mediterranean summer institute on drug use proceedings*, 38(11-13), 1671-1711.
- Daly, K. (1994). *Gender, crime and punishment*. New Haven, CT: Yale University Press.

- Dowden, C., & Andrews, D. A. (1999a). What works for female offenders: A meta-analytic review. *Crime and Delinquency*, 45, 438-452.
- Dowden, C., & Andrews, D. A. (1999b). What works in young offender treatment: A meta-analysis. *Forum on Corrections Research*, 11, 21-24.
- Gendreau, P. (1996). Offender rehabilitation: What we know and what needs to be done. *Criminal Justice and Behavior*, 23, 144-161.
- Gendreau, P. & Ross, R. (1979). Effective correctional treatment: Bibliotherapy for cynics. *Crime and Delinquency*, 25(4), pp. 463-489.
- Gendreau & Andrews, D. A. (1990). Tertiary Prevention: What the Meta-Analyses of the Offender Treatment Literature Tell Us about What Works. *Canadian Journal of Criminology*, 32, p. 173.
- Gendreau, P., Little, T. & Goggin, C. (1996). A Meta-Analysis of the Predictors of Adult Offender Recidivism: What Works! *Criminology*, 34(4), pp. 575-607.
- Gendreau, P., Goggin, C. & Smith, P. (2002). Is the PCL-R really the “unparalleled” measure of offender risk? A lesson in knowledge cumulation. *Criminal Justice and Behavior*, 29(4), 397-426.
- Gibbons, D.C. (1999). Review Essay: Crime, Criminologists, and Public Policy. *Crime and Delinquency*, 45(3), pp. 400-413.
- Goldkamp, J. S., White, M. D., & Robinson, J. B. (2001). Do drug courts work? Getting inside the drug court black box. *Journal of Drug Issues*, 31, 27-72.
- Goldstein, P.J. (1985). The Drugs/Violence Nexus: A Tripartite Conceptual Framework *Journal of Drug Issues*, 15(4), pp. 493-506.

- Gottfredson, D. C., & Exum, M. L. (2002). The Baltimore city drug court: One-year results from a randomized study. *Journal of Research on Crime and Delinquency*, 39, 337-356.
- Gottfredson, D. C., Najaka, S. S., & Kearley, B. (2003). Effectiveness of drug treatment courts: Evidence from a randomized trial. *Criminology and Public Policy*, 2, 401-426. College Park: The University of Maryland.
- Harrison, L. D., & Scarpitti, S. R. (2002). Introduction: Progress and issues in drug treatment courts. *Substance Use & Misuse*, 37, 12-13, 1441-1467.
- Hora, P. F. (2002). A dozen years of drug treatment courts: Uncovering our theoretical foundation and the construction of a mainstream paradigm. *Substance Use & Misuse*, 37, 12-13, 1469-1488.
- Huber, A., Ling, W., Shoptaw, S., Gulati, V., Brethen, P. & Rawson, R. (1997). Integrating treatments for methamphetamine abuse: A psychosocial perspective. *Journal of Addictive Diseases* 16(4): 41-50.
- Irwin. (1980). *Prisons in turmoil*. Boston, MA: Little, Brown, and co. Publishing.
- Irwin, J., & Austin, J. (2001). *It's about time: America's imprisonment binge*. Belmont, CA: Wadsworth.
- Johnston, L. D., O'Malley, P. M. & Bachman, J. G. (2002). Monitoring the Future National Survey Results on Drug Use, 1975-2001. Volume II: College Students & Adults Ages 19-40, 2001. *NIH-02-5107*, 250pp. Aug 2002.
- Lang, M. A., & Belenko, S. (2000). Predicting retention in a residential drug treatment alternative to prison program. *Journal of Substance Abuse Treatment*, 19, 145-160.



Leukefeld, C., McDonald, H. S., Staton, M., Mateyoke-Scrivner, A. (2004).

Employment, employment-related problems, and drug use at drug court entry.

*Substance Use & Misuse. Special Issue: Contemporary Vocational*

*Rehabilitation for Substance Users, 39(13-14), 2559-2579.*

Lipsey, M. W. (1995). What do we learn from 400 research studies on the effectiveness of treatment with juvenile delinquents? In J. McGuire (Ed.), *What works? Reducing offending* (pp. 63-78). New York: Wiley.

Listwan, S., Shaffer, D. & Hartman, J. (2009). Combating methamphetamine use in the community. *Crime and Delinquency, 55(4), 627-644.*

Lowenkamp, C. T. & Latessa, E. J. (2005). Increasing the effectiveness of correctional programming through the risk principle: Identifying offenders for residential placement. *Criminology & Public Policy, 4(2), pp. 263-290.*

Lowenkamp, C. T., Latessa, E. J., & Smith, P. (2006). Does correctional program quality really matter? The impact of adhering to the principles of effective intervention. *Criminology & Public Policy, 5, 575-594.*

Lowenkamp, C. T., Lovins, B. & Latessa, E. J. (2009). Validating the Level of Service Inventory-Revised and the Level of Service Inventory: Screening Version With a Sample of Probationers. *The Prison Journal, 89(2), pp. 192-204.*

MacKenzie, D. L. (1997). Criminal justice and crime prevention. In L. W. Sherman, D. Gottfredson, D. MacKenzie, J. Eck, P. Reuter, and S. Bushway (Eds.), *Preventing crime: What works, what doesn't, what's promising* (pp. 9-1 through 9-76).

Washington, DC: U.S. Department of Justice, Office of Justice Programs, National Institute of Justice.

- MacKenzie (2006). *What works in corrections: Reducing the criminal activities of offenders and delinquents*. New York, NY: Cambridge University Press.
- Marlowe, D. B., Patapis, N. S. & DeMatteo, D. S. (2003). Amenability to treatment of drug offenders. *Federal Probation. Special Issue: Substance Abuse Treatment*, 67(2), 40-46.
- Martinson, R. (1974). What Works? - Questions and answers about prison reform. *The Public Interest*, 35, pp. 22-54.
- Mears, D.P., Kelly, W.R., & Durden, E. (2001). Findings from a Process Evaluation of a Statewide Residential Substance Abuse Treatment Program for Youthful Offenders. *The Prison Journal*, 81(2), 246 – 270.
- Mears, D. P. & Kelly, W. R. (2002). Linking Process and Outcomes in Evaluating a Statewide Drug Treatment Program for Youthful Offenders. *Crime and Delinquency*, 48, 99 – 115.
- Miller, J. M., & Schutt, J. E. (2001). Considering the need for empirically grounded drug court screening mechanisms. *Journal of Drug Issues*, 31, 91-106.
- Morash, M. (2009). A great debate over using the Level of Service Inventory-Revised (LSI-R) with women offenders. *Criminology and Public Policy*, 8(1), 173-181.
- Mumola, C.J. (2000). *Incarcerated parents and their children*. Washington, DC: Bureau of Justice Statistics.
- Mumola & Bonczar. (1998). *Substance abuse and treatment of adults on probation*. Washington, DC: Bureau of Justice Statistics.
- National Institute of Justice. (1995). *The drug court movement*. Washington, DC: U.S. Department of Justice, Office of Justice Programs.

- Nordahl, T. E., Salo, R., & Leamon, M. (2003). Neuropsychological effects of chronic methamphetamine use on neurotransmitters and cognition: A review. *Journal of Neuropsychiatry and Clinical Neuroscience*, 13(3), 1337-1366.
- Olson, D. E., Lurigio, A. J., & Albertson, S. (2001). Implementing the key components of specialized drug treatment courts: Practice and policy considerations. *Law and Policy*, 23(2), 171-196.
- Owen, B. (2005). Afterward. In Irwin, J. *The warehouse prison: Disposal of the new dangerous Class* (pp. 261-289). Los Angeles, CA: Roxbury Publishing.
- Palmer, T. (1975). Martinson revisited. *Journal of Research in Crime and Delinquency*, 12(2), p. 133-152.
- Palmer, T. (1983). The "Effectiveness" Issue Today: An Overview. *Federal Probation*, 47(3).
- Palmer. (1992). *The reemergence of correctional intervention?* Thousand Oaks, CA: Sage Publishing.
- Pew Center on the States (2009). *One in 31: The Long Reach of American Corrections*. Retrieved March 9, 2010 from:  
[http://www.pewcenteronthestates.org/report\\_detail.aspx?id=49382](http://www.pewcenteronthestates.org/report_detail.aspx?id=49382)
- Peters, R. H., Haas, A. L., & Murrin, M. R. (1999). Predictors of retention and arrest in drug courts. *National Drug Court Institute Review II*(1), 33-60.
- Philbin, Meier & Boverie. (1995). A Survey of gender and learning styles. *Sex Roles* 32(7-8).
- RAND. (2009). *The Economic Cost of Methamphetamine Use in the United States, 2005*. Santa Monica: RAND Publishing.

- Rawson, R., Huber, A., Brethen, P., Obert, J., Gulati, V., Shoptaw, S., & Ling, W. (2000). Methamphetamine and cocaine users: Differences in characteristics and treatment retention. *Journal of Psychoactive Drugs*, 32(2), 233-238.
- Recovery Center Webpage (n.d.) *Addiction Severity Index*. Retrieved December 17, 2005, from [http://www.recoverycenter.info/addiction\\_severity\\_index.html](http://www.recoverycenter.info/addiction_severity_index.html)
- Richardson, K., Bouffard, J.A., & Thompson, K. (2007). "Process Evaluation of the East Central Judicial District (Fargo, ND) Adult Drug Court." Unpublished Technical Report, North Dakota State University, Fargo, ND.
- Richardson, K., Bouffard, J.A., & Thompson, K. (2007). "Outcome Evaluation of the East Central Judicial District (Fargo, ND) Adult Drug Court." Unpublished Technical Report, North Dakota State University, Fargo, ND.
- Ross & McKay. (1978). Behavioural Approaches to Treatment in Corrections: Requiem for a Panacea. *Canadian Journal of Criminology*, 20, p. 279.
- SAMSHA. (2008). *Results from the 2008 National Survey on Drug Use and Health: National Findings*. U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment.
- Saum, C. A., Scarpitti, F. R., & Robbins, C. (2001). Violent offenders in drug court. *Journal of Drug Issues*, 31, 107-128.
- Schiff, M., & Terry, W. C. (1997). Predicting graduation from Broward County's Dedicated Drug Treatment Court. *The Justice System Journal*, 19(3), 291-310.

- Sechrest, D. K., & Shicor, D. (2001). Determinants of graduation from a day treatment drug court in California: A preliminary study. *Journal of Drug Issues, 31*(1), 129-148.
- Shaffer, D., Hartman, J. & Listwan, S. (2009). Drug abusing women in the community: The impact of drug court involvement on recidivism. *Journal of Drug Issues, 39*(4), 803-828.
- Shrem M. T., & Halkitis, P. N. (2008). Methamphetamine abuse in the United States: Contextual, psychological and sociological considerations. *Journal of Health Psychology, 13*(5), 669-679.
- Smith, B. E., Davis, R. C., & Lurigio, A. J. (1994). Introduction. Swift and effective justice: New approaches to drug cases in the United States. *Justice System Journal, 17*, v-x.
- Swetlow, K. (2003). Children at clandestine methamphetamine labs: Helping meth's youngest victims.  
<http://www.ojp.usdoj.gov/ovc/publications/bulletins/children/welcome.html>  
(accessed 4 June, 2009).
- Taxman, F. S. (1999). Unraveling 'what works' for offenders in substance abuse treatment services. *National Drug Court Institute Review, 2*(2), 93-134.
- Tonry, M., & Wilson, J.Q. (Eds.). (1990). Drugs and crime. Chicago: University of Chicago Press.
- Travis, J. (2005). *But they all come back: Facing the challenges of prisoner reentry*. Washington, DC: The Urban Institute.

- Turner, S., Longshore, D., Wenzel, S., Deschenes, E., Greenwood, P., Fain, T., et al. (2002). A decade of drug treatment court research. *Substance Use and Misuse*, 37(12 & 13), 1489-1527.
- U. S. Department of Justice. Drug Courts Program Office. (1997). *Defining drug courts: The key components*. Washington, DC: Office of Justice Programs.
- U. S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies. (2003). *Treatment episode data set (TEDS)*. [Computer file]. Prepared by Synectics for Management Decisions, Incorporated. ICPSR04257-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [producer and distributor], 2005-08-04.
- Von Hirsch, A. (1985). *Doing justice: The Choice of punishments*. New England: Northern University Press.
- Weisheit, R., & White, W. (2009). *Methamphetamine: Its history, pharmacology, and treatment*. Center City: Hazelden.
- Wilson, J. Q. & Herrnstein, R. J. (1985). *Crime and human nature: The definitive study of the causes of crime*. New York, NY: Simon & Schuster.
- Wilson, D.B., MacKenzie, D.L., and Mitchell, O. (2006). A systematic review of drug court effects on recidivism. *Journal of Experimental Criminology*, 2(4), 459-487.
- Wolf, E., Sowards, K., & Wolf, D. (2003). Predicting retention of drug court participants using event history analysis. *Journal of Offender Rehabilitation*, 37(3-4), 139-162.