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Factors Affecting Success and Failure Among Drug Court Participants in the United States: An Examination of Program Completion and Post-Program Outcomes

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Drug courts represent a growing trend in the United States toward treatment-oriented alternatives to incarceration for non-violent drug offenders. Using data from the Multi-Site Adult Drug Court Evaluation (MADCE), this study evaluates whether drug courts serve their intended purposes. That is, whether drug court participants have lower rates of relapse, recidivism, and re-arrest than non-participants. This study also evaluates factors which may affect success and failure among participants and post-program outcomes, including age, race/ethnicity, gender, social support, treatment motivation, and substance use history. Results indicate that drug court participants have lower rates of relapse, but not recidivism or re-arrest, than non-participants. Furthermore, age is a strong predictor of both drug court graduation and post-program outcomes. However, results regarding other factors related to program completion and outcomes are mixed. The implications of these findings and directions for future research are discussed.

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Chapter One

Introduction

The first drug court was established in Florida in 1989. Since then, 2,361 drug courts have been introduced across the country, 1,281 of which are adult drug courts. Drug courts were developed as a response to the rising incarceration rates among nonviolent drug offenders in the 1980s. Since 1995, more than $530 million in federal grants have been appropriated for drug courts, indicating Congress' dedication to their continuation (CRS, 2010). Drug courts represent an expanding movement to keep nonviolent drug offenders out of the already overwhelmed criminal justice system and to prevent these offenders from recidivating.

Drug courts are specialized court dockets or portions of judges' calendars designed to reduce recidivism and substance abuse among nonviolent offenders. Drug courts involve intensive judicial supervision, mandatory drug testing, substance-abuse treatment, and regular status hearings. Some drug courts additionally provide mental health treatment, trauma and family therapy, and job skills training (CRS, 2010; Belenko, 1998). Drug courts operate under a deterrence theory framework, which holds that punishments that are swift, certain, and severe (proportionate to the offense) deter future offending (Akers, 1990). To achieve this deterrent effect, drug courts use graduated sanctions, in which punishments for non-compliance become increasingly severe (NIJ, 2014). Based on the services provided, drug courts have the potential to reduce recidivism and ensure positive outcomes for nonviolent drug offenders.

Participation in drug court programs is voluntary. Eligible nonviolent drug offenders are identified and offered to enter a drug court program as soon as possible

after arrest. As such, drug courts provide an alternative to conviction or incarceration. Participants must successfully complete the program in order to avoid incarceration, to have their criminal charges dropped or reduced, or to have their sentences reduced (CRS, 2010). There are two models of drug courts. In the diversion or pre-sentence model, an offender's original charges are dismissed after drug court completion. In the post-sentence model, an offender's original probation sentence is reduced after drug court completion (Belenko, 1998).

Drug court participants remain accountable for their compliance though graduated sanctions and rewards. Sanctions are imposed when participants do not meet program requirements. For example, sanctions would be imposed if a participant failed a mandatory drug test. Such sanctions may include incarceration, increased treatment and counseling, and termination from the program. Rewards are given when participants remain compliant. Rewards may include fewer status hearings and fewer random drug tests as the participant progresses towards graduation. Judges assign both sanctions and rewards and, therefore, must be heavily involved in monitoring participants' progress through regular status hearings (CRS, 2010).

There are variations among drug courts in determining eligibility, the types of treatments offered, the intensity of supervision provided, and how compliance is enforced. These variations illustrate the adaptability of the drug court model to a variety of settings and defendants. However, these variations also make evaluations, comparisons, and analyses difficult because there is no standard model (CRS, 2010). Due to the large number of drug courts in operation in the United States and the massive amounts of federal funds dedicated to them, analyses concerning their effectiveness are

clearly warranted. In addition, the United States is likely to see an increased use of drug courts in the future due to recent initiatives by United States Attorney General Eric Holder to lessen penalties for minor drug offenses and to reduce the billions of dollars spent on incarceration (DOJ, 2014). Therefore, it is necessary to assess whether drug courts are working and for whom they are working.

Using data from the Multi-Site Adult Drug Court Evaluation (MADCE), this study seeks to determine whether drug courts actually achieve their stated goals. Specifically, this study will evaluate whether drug court participants' have lower recidivism rates and better post-program outcomes than non-participants. Additionally, this study will evaluate whether factors such as age, race/ethnicity, gender, drug use history, social support, and treatment motivation affect drug court completion and relapse, recidivism, and arrest outcomes for both drug court participants and non-participants.

The next chapter will provide an overview of the existing literature on drug courts, how this study will contribute to the literature, and a list of the hypotheses to be tested. The third chapter discusses the data, methods, and variables to be used. The fourth chapter provides the results of the analyses. Finally, the last chapter discusses the significance and implications of the results and includes recommendations for future research.

Chapter Two

Literature Review

The existing studies of drug courts emphasize effectiveness, that is, whether drug courts achieve the intended goals of reduced relapse and recidivism. Studies additionally focus on factors affecting success and failure among drug court participants, including age, race/ethnicity, gender, prior drug use and criminal history, type of drug used, mental health history, motivation, and social support. This review will discuss several meta-analyses of drug court studies, studies of individual drug courts regarding recidivism and relapse, and the factors associated with these outcomes. Finally, the current study's contribution to the existing literature will be considered.

Meta-Analyses

Perhaps the most informative research on the effectiveness of drug courts is meta-analyses. Overall, the majority of meta-analyses have determined that drug courts are effective in reducing recidivism.

The Government Accountability Office (GAO) (2005, 2011), in its reports to Congress, summarized results on recidivism, relapse and program completion for drug courts nationwide. In the first report, results indicated that drug court programs led to reduced recidivism both during program participation and after program completion. Regarding relapse, drug tests during program participation showed reductions in drug use. However, self-reports during program participation showed no reductions in drug use. Program completion rates varied with between 27% and 66% of participants completing the drug court programs. Additionally, compliance with program requirements positively affected program completion (GAO, 2005). In the second report,

drug court participation was again associated not only with reduced recidivism, but also reduced re-arrest. More specifically, drug court participants were between 6% and 26% less likely than comparison group members to be re-arrested (GAO, 2011). Notably, this meta-analysis included an overview of NIJ's Multi-Site Adult Drug Court Evaluation (MADCE), the data that will be used in the current study. GAO (2011) concluded that the MADCE is the most comprehensive study of drug courts to date. The MADCE found significant reductions in recidivism and drug use, regardless of participant background, including criminal and drug use history, age, sex, race and mental health history (GAO, 2011).

Other meta-analyses have focused on operations evaluations (analyses of the overall operation of the drug courts to determine if they meet the grant requirements set forth by the Department of Justice), cost savings analyses, and impact evaluations. In this vein, Belenko (1998) concluded that drug courts offer closer and more comprehensive supervision than other forms of supervision, such as prison. This level of supervision could help explain the drug courts' success because participants are highly monitored in order to promote positive outcomes. He also concluded that participant drug use and criminal behavior were significantly reduced while in the program and after program completion.

Meta-analyses of experimental and quasi-experimental evaluations of drug courts reveal that drug court participants have lower rates of recidivism than comparison groups (Wilson et al., 2006). The positive effects of drug court participation also maintain over time, to after actual participation in the drug court (Wilson et al., 2006). Furthermore, this effect varies by type of drug court. Specifically, adult drug courts have a stronger effect

on reducing recidivism than juvenile drug courts. This may be due to the fact that older individuals are less likely to commit crime than younger individuals. In general, this effect lasts up to three years (Mitchell et al., 2012).

Sevigny, Fuleihan and Ferdik (2013) conducted a meta-analysis to investigate whether drug courts reduce the use of incarceration. Using 19 studies that reported incarceration outcomes following drug court participation, Sevigny et al. (2013) performed meta-analyses on various incarceration outcomes including both jail and prison. The small number of studies identified for this study is a result of the fact that many studies of drug courts do not include incarceration outcomes following participation in drug courts, but simply include measures of re-arrest and reconviction instead. Sevigny et al. (2013) found that the average drug court reduces the use of incarceration. It is imperative to note that drug courts may reduce the use of incarceration, but they do not reduce the amount of time spent in either prison or jail because offenders typically spent time in jail or prison during pretrial or as a result of sanctions imposed during participation in the drug courts. Overall, this study provides mixed evidence regarding the effectiveness of drug courts as an alternative to incarceration (Sevigny et al., 2013).

In sum, meta-analyses have found that drug courts produce positive outcomes such as lower recidivism and relapse rates. A major issue with many of the evaluations included in these meta-analyses is methodological weakness due to selection bias introduced by the comparison group used and the short tracking periods used to assess recidivism (Mitchell et al., 2012). Also, meta-analyses do not provide much detail on the specific factors that affect the relationship between drug court participation and outcomes

such as recidivism and relapse. Instead, these are typically addressed in individual studies of drug courts' effectiveness.

Factors Associated with Recidivism and Program Completion

Many studies of drug courts evaluate factors associated with post-program recidivism and program completion. In addition to determining if drug court participation produces positive outcomes regarding drug relapse, recidivism, and re-arrest, studies have determined that factors such as age, race/ethnicity, gender, prior drug/criminal history, mental health history, type of drug used, motivation, and social support contribute to success or failure in drug court programs and post-program recidivism. Each of these factors is discussed below.

Age

Research reveals mixed results for the role of age in drug court programs. Several studies have found that age is positively associated with program completion and negatively associated with recidivism (Marlowe et al., 2012; Goldkamp, 1994; Goldkamp et al., 2001; Peters and Murrin, 2000; Kalich and Evans, 2006). On the other hand, some studies have found that age may not be associated with program completion and recidivism and results are due to the effects of drug courts alone (Gottfredson et al., 2003; Banks and Gottfredson, 2004; Miethe et al., 2000).

In their experimental studies of drug courts, Marlowe et al. (2012) and Marlowe et al. (2014) periodically adjusted the schedule of hearings and therapy sessions in response to participants' performance in a drug court program. Results indicated that younger age is associated with lower drug court graduation rates in the control condition (without program adjustments). However, in the adaptive condition, younger age was

actually associated with higher graduation rates due to the more intensive and individualized services provided (Marlowe et al., 2012). In the later study, re-arrest rates and drug test results were examined instead of program graduation rates. Results showed that age was not significantly correlated with either re-arrest rates or drug test results, but in general, those in the adaptive condition did perform better on these measures than those in the control condition (Marlowe et al., 2014).

Several additional studies have found significant negative relationships between age and post-program outcomes such as re-arrest and reconviction (Goldkamp, 1994; Goldkamp et al., 2001; Peters and Murrin, 2000; Kalich and Evans, 2006; Belenko et al. 1994). These studies agree that drug court participants have lower rates of reoffending and re-arrest than non-participants. Importantly, these studies also agree that drug court participation alone could not account entirely for recidivism outcomes of participants and that age is an important factor to consider such that younger individuals are more likely to recidivate than older individuals (Goldkamp, 1994; Goldkamp et al., 2001; Peters and Murrin, 2000; Kalich and Evans, 2006; Belenko et al. 1994). Kalich and Evans (2006) specified that younger age was associated with greater re-arrest rates at both 6 months and 12 months post-program. Finding similar results, Belenko, Fagan and Dumanovsky (1994) sought to determine if fast-track drug courts produce lower recidivism rates than those processed in regular courts. Fast-track drug courts seek to relieve heavy court caseloads by rapidly processing drug-related cases and by offering more lenient sentences to offenders who are willing to accept certain pleas. In general, the fast-track drug court did not produce better recidivism results than regular courts. Still, they found strong

predictors of re-arrest. Specifically, younger age was significantly associated with greater recidivism rates (Belenko et al. 1994).

In contrast with these studies, a few studies have found that age is not a significant predictor of drug court outcomes (Gottfredson et al., 2003; Banks and Gottfredson, 2004; Miethe et al. 2000). Two of these find that drug court participants are significantly less likely than those in the control condition to reoffend and that drug court participants have a longer time to recidivism than non-participants. However, these results held regardless of background factors, including age, indicating that age was not a predictor of these outcomes (Gottfredson et al., 2003; Banks and Gottfredson, 2004). Finally, in an evaluation of a Las Vegas drug court, Miethe, Lu and Reese (2000) examined its effectiveness in reducing recidivism. Unexpectedly, drug court participants had higher recidivism risks than non-participants, and this result existed across different types of offenders and charges (Miethe et al. 2000). They found no relationship between age and recidivism. Upon closer examination, the researchers determined that the drug court was more stigmatizing than reintegrative, and this accounted for the surprising results (Miethe et al. 2000).

Overall, the results regarding the relationship between age and success or failure within drug courts and outcomes after program participation are varied. Some studies find that age is a significant predictor of program completion and recidivism while others find that age is not a significant predictor. Generally, however, studies agree that when age is a significant predictor of drug court outcomes, older people tend to perform better than younger people.

Race/Ethnicity

Another factor that is often considered with regard to program completion and post-program recidivism is race/ethnicity. Some studies conclude that race/ethnicity is an important factor associated with program completion and recidivism, such that non-white drug court participants are less likely than white participants to complete the programs and are more likely to be rearrested and reconvicted after program participation (Goldkamp et al., 2001; Kalich and Evans, 2006). Specifically, Goldkamp et al. (2001) considered race/ethnicity to be a "risk attribute," which is significantly associated with the likelihood of reoffending among drug court participants. Additionally, Kalich and Evans (2006) found that race was a significant predictor of re-arrest rates in a sample of drug court participants. Non-white participants were more likely to be rearrested than white participants at 9 months and 12 months post-program. These results may be due to drug courts' failure to consider the cultural backgrounds of participants. In doing so, these programs may be unwittingly biased against non-whites.

Studies finding that race/ethnicity may not be an important factor associated with program completion and recidivism argue that results of comparisons between drug court participants and non-participants are solely due to the effects of the drug court and not the effects of race/ethnicity (Gottfredson et al., 2003; Marlowe et al., 2014; Banks and Gottfredson, 2004; Miethe et al., 2000). Three studies found that drug court participants had lower recidivism rates and had a longer time to re-arrest when they did recidivate than non-participants. For these studies, race/ethnicity was not a significant factor in predicting recidivism (Gottfredson et al., 2003; Marlowe et al., 2014; Banks and Gottfredson, 2004). The last study determined that because the drug court studied was

more criminogenic than reintegrative, the drug court produced higher recidivism rates for participants. However, this relationship held despite variations in race/ethnicity and therefore, was attributed to the drug court alone (Miethe et al., 2000).

Gender

Gender has also been studied in relation to drug court completion and post-program recidivism. Only one study has focused solely on gender as it relates to drug courts (Messina, Calhoun and Warda, 2012). This study involved a unique pilot experimental study, which focused on gender-responsive drug court treatment. Messina et al. (2012) used a women-only sample and found that there were no differences between those randomly assigned to the gender-responsive drug court and those randomly assigned to the mixed gender drug court in post-baseline arrest rates and both groups reported less post-treatment drug use (Messina et al., 2012). Marlowe et al. (2012) and Peters and Murrin (2000) additionally found that gender does have an impact on the relationship between participation in drug courts and completion and recidivism outcomes. Marlowe et al. (2012) found that males were less likely to graduate from the drug court program in the control condition but that they were more likely to graduate when placed in the adaptive condition. Peters and Murrin (2000) found that females were more likely than males to be rearrested following participation in a drug court.

Researchers who argue that gender may not be an important predictor for drug court performance and recidivism tend to agree that drug courts do produce positive outcomes, such as lower recidivism rates, and that gender does not affect this relationship (Gottfredson et al., 2003; Banks and Gottfredson, 2004; Marlowe et al., 2014).

Overall, the research on gender as it relates to drug courts is mixed. Some studies find that gender is not significantly related to drug court participation and recidivism while others do find it to be significant. Even those that do find gender to be significant do not agree on whether males or females are more likely to be rearrested after program completion.

Prior Drug/Criminal History

Several studies have found that prior drug use history and prior criminal history are both negatively associated with program completion and positively associated with re-arrest after drug court participation. More specifically, prior arrests for robbery, misdemeanors, drug possession convictions, and being on pretrial release for another charge at the same time as the current drug charge are all associated with less favorable outcomes for drug court participants (Goldkamp, 1994; Goldkamp et al., 2001). Furthermore, individuals who are rearrested after drug court program completion tend to have more extensive prior arrest records for drug and non-drug offenses (Peters and Murrin, 2000; Belenko et al., 1994).

Several studies have also found that prior drug and criminal history are not significant predictors of drug court outcomes (Gottfredson et al., 2003; Marlowe et al., 2014; Banks and Gottfredson, 2004). These studies concluded that although drug courts do generally produce positive outcomes regarding recidivism, these results could not be accounted for by considering prior drug and criminal history.

Type of Drug Used

Drug court participants' drugs of choice may influence their performance within the program and post-program. In an examination of whether methamphetamine and

alcohol users perform as well as users of other drugs within drug courts, Bouffard and Richardson (2007) found that meth users were less likely to recidivate when they participated in the drug court. This was also true for non-meth users. Additionally, alcohol users who were charged with a DUI and participated in a hybrid DUI/drug court had no reductions in recidivism compared to participants who used other drugs (Bouffard and Richardson, 2007). Bouffard and Richardson (2007) conclude that meth users do as well as users of other drugs when participating in drug courts, but DUI offenders may not do as well when participating in a drug court. These findings might be explained by the nature of alcohol addiction versus drug addiction. Specifically, alcohol (a legal drug) users may be more likely to deny their addiction than illicit drug users and therefore, do not perform as well as illicit drug users in drug court programs (Bouffard and Richardson, 2007).

Echoing these results, two other studies have concluded that type of drug does affect drug court outcomes (Miethe et al., 2000; Kalich and Evans, 2006). They agree that those participants who were users of marijuana or who had been charged with a crime involving marijuana tended to have lower recidivism after drug court participation. Miethe et al. (2000) found that those charged with a crime involving marijuana had lower recidivism after drug court participation than those charged with a crime involving cocaine. Kalich and Evans (2006) determined that marijuana users were less likely than users of any other drug to be rearrested at 6 months and 9 months after drug court program completion.

Only one study has concluded that type of drug used has no impact on drug court performance or recidivism (Gottfredson et al., 2003). Of the subjects who participated in

the drug court in this study, 53% were daily users of crack, cocaine, or heroin. There were no significant differences in re-arrest or reconviction for these users when compared with users of other drugs and those who used these drugs less frequently (Gottfredson et al., 2003). Although there is some dissent, research has shown that type of drug does have some effect on whether drug court participants recidivate.

Mental Health History

Mental health history has generally been linked with drug court outcomes such as recidivism and graduation from the program. Marlowe et al. (2012) found that drug court participants who had a diagnosis of antisocial personality disorder were less likely to graduate from the program. However, those who had a diagnosis of antisocial personality disorder were more likely to graduate from the program when they had been assigned to the adaptive condition and had their schedule of hearings and treatments adjusted based on risk (Marlowe et al., 2012).

In their study of gender-responsive drug courts, Messina et al. (2012) determined that women in the gender-responsive group had more childhood trauma and more incidents of post-traumatic stress disorder (PTSD) than in the non-responsive group. While this group was at a substantial disadvantage (in terms of mental health) compared to the regular drug court treatment group, they actually had better in-treatment performance, reduced PTSD symptoms, and greater reductions in drug use and re-arrest. However, this result is slightly misleading because the better performance of those with more severe mental health problems could very well have been due to the gender-responsive treatment and may not have been related at all to the participants' mental health histories.

In general, mental health history as it relates to drug court outcomes has not been as well researched and measured when compared to the other predictors discussed above. Few studies even consider mental health history and those that do usually do not emphasize it beyond including one or two mental health measures in the analyses.

Motivation

Only one study has focused on motivation as it relates to drug court completion and post-program recidivism. Cosden, Basch, Campos, Greenwell, Barazani and Walker (2006) assert that participant views of their own problems and treatment needs are associated with treatment outcomes. The researchers sampled 800 offenders who were either participating in a drug court or in a treatment court only for those charged with simple drug possession or drug use. Both programs were in California. Overall, they found that participant-reported motivation accounted for some of the variance in program completion for the drug court, but it was not associated with completion for the treatment court. However, program completion did significantly predict recidivism. This study raises an important antecedent factor that contributes to program completion, and therefore, recidivism. Motivation is not often considered in drug court research, but it is important nevertheless, as evidenced by this study (Cosden et al., 2006).

Social Support

Social support among drug court participants has been under-researched. Studies that do address social support only measure it in terms of family support among youths participating in juvenile drug courts (Alarid et al., 2012; Fradella et al., 2009; Gilmore et al., 2005; MacMaster et al., 2005). Studies agree that family support is a significant predictor of both drug court graduation and post-program outcomes. Juveniles with

higher levels of family support are more likely to graduate from the drug courts and are less likely to recidivate than juveniles with lower levels of family support (Alarid et al., 2012; Fradella et al., 2009; Gilmore et al., 2005; MacMaster et al., 2005). Importantly, some type of family support/monitoring is typically required in juvenile drug courts and not in adult drug courts, so this could partially account for the findings. Whether the relationship between family/social support stands among adult drug court participants has not been evaluated. Social support may have an impact on drug court graduation and post-program outcomes among adult defendants due to the fact that it is not required and therefore, the quality of social support outcomes may be better when it is present.

Summary

Overall, the studies presented above have found that factors such as age, race/ethnicity, gender, prior drug/criminal history, type of drug used, mental health history, motivation, and social support may be important factors to consider in the relationship between drug court participation, program completion, and recidivism. Although some studies agree that these factors are significant predictors of drug court outcomes, many others argue that these factors are not significant predictors. Those who argue that these factors are not significant predictors generally agree that the drug courts alone produced the outcomes recorded.

Based on these studies, more research is required in order to determine if these factors truly have an impact on the relationship between drug court participation, graduation, and recidivism outcomes. The current study thus seeks to contribute to the literature on drug courts' effectiveness by considering how drug court participants, compared to non-participants, fare in terms of drug use outcomes, crime outcomes, and

arrest outcomes. The current study additionally seeks to determine whether age, race/ethnicity, gender, social support, treatment motivation, and substance use history affect drug court completion rates along with the post-program outcomes listed above. There have been various inconsistencies and, in some cases, lack of quality data, among the research on these individual-level factors affecting outcomes; therefore, this study intends to clarify this line of research.

Hypotheses

Based on the literature regarding drug courts' effectiveness, the following hypotheses are proposed:

Hypothesis 1: Individuals who participate in drug courts will be less likely than non-participants to relapse, to recidivate (self-reported), and to be re-arrested.

Hypothesis 2: Older individuals will be more likely than younger individuals to complete a drug court program.

Hypothesis 3: Older individuals will be less likely than younger individuals to relapse, to recidivate (self-reported), and to be re-arrested.

Hypothesis 4: Whites will be more likely than non-whites to complete a drug court program.

Hypothesis 5: Whites will be less likely than non-whites to relapse, to recidivate (self-reported), and to be re-arrested.

Hypothesis 6: Males will be more likely than females to complete a drug court program.

Hypothesis 7: Males will be less likely than females to relapse, to recidivate (self-reported), and to be re-arrested.

Hypothesis 8: Individuals with higher levels of social support will be more likely than individuals with lower levels of social support to complete a drug court program.

Hypothesis 9: Individuals with higher levels of social support will be less likely than individuals with lower levels of social support to relapse, to recidivate (self-reported), and to be re-arrested.

Hypothesis 10: Individuals with higher levels of treatment motivation will be more likely than individuals with lower levels of treatment motivation to complete a drug court program.

Hypothesis 11: Individuals with higher levels of treatment motivation will be less likely than individuals with lower levels of treatment motivation to relapse, to recidivate (self-reported), and to be re-arrested.

Hypothesis 12: Individuals with less extensive drug use histories will be more likely than individuals with more extensive drug use histories to complete a drug court program.

Hypothesis 13: Individuals with less extensive drug use histories will be less likely than individuals with more extensive drug use histories to relapse, to recidivate (self-reported), and to be re-arrested.

This study will test whether drug court participants fare better than non-participants in terms of the outcome variables: relapse, recidivism, and re-arrest. In addition, an evaluation of how age, race/ethnicity, gender, social support, treatment motivation, and drug use history impact drug court program completion and relapse, recidivism, and re-arrest will be conducted. The following chapter will provide an overview of the data, the variables, and the analyses to be used in order to test these hypotheses.

Chapter Three

Methods

An overview of the data set used in this thesis, the specific variables drawn from the data set, and the analyses performed are addressed in this chapter.

Data

The data in this study come from the Multi-Site Adult Drug Court Evaluation (MADCE), collected by Shelli B. Rossman, John K. Roman, Janine M. Zweig, Michael Rempel, and Christine H. Lindquist. The MADCE data were collected from 2005 to 2009 and include data from 23 drug courts and 5 comparison sites. Data collection began in 2005 when defendants first entered the drug court programs or the standard court system. The total sample size is 1,781. The drug courts and comparison sites were chosen from 8 states across the United States. The drug courts selected for the study were similar in that they all served adult offenders, provided substance abuse treatment, and enforced standardized sanctions when participants became non-compliant with program requirements. The comparison sites either did not offer drug courts or had a larger number of offenders than could be accommodated in drug courts. Additionally, individuals in the comparison sites had similar drug use and criminal histories to individuals in the drug courts. Individuals in the comparison group were processed according to the traditional court system and typically received a probation or jail sentence.

The MADCE includes four broad categories of data. First, the data include information about drug use and crime among both drug court participants and non-participants. Second, data were collected about individual and program factors that could

affect outcomes. Third, there are data regarding offender attitudes among participants and non-participants that could also affect outcomes. Finally, data were collected about the costs of both drug courts and traditional punishments. There are three waves of data: baseline, 6 months, and 18 months. This study will use data from the baseline and 18 month waves only and will focus only on the first three categories of data. Individuals still participating in the drug courts or comparison courts at the 18-month interview are not included in the analyses. These data were made available by restricted access through ICPSR.

Variables

The dependent variables in this study are drug court completion, drug use outcomes, crime outcomes, drug-specific crime outcomes and arrest outcomes. The dependent variables consist of data from the 18-month interview with drug court participants and non-participants, except for drug court completion (participants only). Drug court completion is a dichotomous variable. It is coded such that those who have graduated are coded as 1 and those who have either dropped out or who have been kicked out are coded as 0.

The drug use outcome is operationalized by responses to the following question: "Since [the] last interview, have you used or possessed either drugs or drug paraphernalia?" This variable is dichotomized such that a "no" response is coded as 0 and a "yes" response is coded as 1.

The self-reported crime outcome is operationalized by responses to the following questions: (1) "Since [the] last interview, have you committed any property crimes?", (2) "Since [the] last interview, have you committed any violent crimes?", (3) "Since [the]

last interview, have you committed any other crimes against people?", and (4) "Since [the] last interview, have you carried a gun, knife, or other weapon?". This variable is dichotomized such that a "no" response to all of the questions is coded as 0 and any "yes" responses are coded as 1.

The self-reported drug-related crime outcome is operationalized by responses to the following questions: (1) "Since [the] last interview, have you sold any drugs?" and (2) "Since [the] last interview, have you committed any other drug crimes, such as manufacturing, trafficking, or prescription fraud?" This variable is dichotomized such that a "no" response to both questions is coded as 0 and a "yes" response to either question is coded as 1.

The arrest outcome is operationalized by responses to a series of statements. These include (1) "any violent arrests- since 6M/past year," (2) "any crimes against people arrests- since 6M/past year," (3) "any weapon arrests- since 6M/past year," (4) "any drug possession arrests- since 6M/past year," (5) "any drug sales arrests- since 6M/past year," (5) "any other drug arrests- since 6M/past year," (6) "any DUI arrests- since 6M/past year," and (7) "any property arrests- since 6M/past year." These responses are based on self-reports, which were then checked by MADCE staff against available arrest records for the individual. This variable is dichotomized such that a "no" response to all of the questions is coded as 0 and any "yes" responses are coded as 1.

The independent variables in this study are drug court participation, age, race/ethnicity, gender, social support, treatment motivation, and substance use history. The independent variables consist of data collected at the baseline interview with drug court participants and non-participants. Drug court participation is operationalized by

responses to the question "Is [the] respondent currently in [a] drug court?". This question was asked for both drug court participants and individuals in the comparison courts. This variable is dichotomized such that individuals in the comparison courts are coded as 0 and drug court participants are coded as 1. Age is reported as age in years. Race/ethnicity is operationalized by responses to the statement requesting respondents' "self-reported race." Race/ethnicity is represented by a series of dummy variables for whites, blacks, Hispanics, and others. The comparison category is whites. Gender is operationalized by the interviewers' responses to the statement "record the respondent's gender." Gender is dichotomized such that females are coded as 0 and males are coded as 1.

Social support is operationalized by responses to several questions. These include items regarding whether the respondent: (1) "has someone in family to talk with," (2) "has someone in family to turn to," (3) "has someone in family who understands," (4) "has someone in family to love," (5) "has someone in family to help find [a] place to live," (6) "has someone in family to help find [a] job," (7) "has someone in family to provide support," (8) "has someone in family to provide transportation to work," and (9) "has someone in family to provide financial support." Each of these questions is coded on a Likert scale ranging from strongly disagree, which is coded as 1, to strongly agree, which is coded as 5. Factor analysis shows that these variables load highly onto a single factor, with all factors loadings equal to .80 or higher. Cronbach's alpha for this social support index is .974, which is quite high. Based on the factor analysis results and Cronbach's alpha, responses to these questions are summed to create an index of social support. Higher scores represent higher levels of social support.

Treatment motivation is operationalized by responses to several questions. These are based on agreement or disagreement with the following statements: (1) "you need help over drugs/alcohol," (2) "treatment programs can really help you," (3) "you want to be in a drug program," (4) "you want to make changes in [your] drug/alcohol use," (5) "you are an alcoholic or addict," and (6) "you want help to keep from returning to habits." Each of these questions is coded on a Likert scale ranging from strongly disagree, which is coded as 1, to strongly agree, which is coded as 5. Factor analysis shows that these variables load on a single factor, with all factor loadings equal to .64 or higher. Cronbach's alpha for this index is .841. Responses to these questions are thus summed to create an index. Higher scores on this treatment motivation index represent higher levels of motivation.

Substance use history is represented by three variables: alcohol use history, marijuana use history, and history of using other drugs. Alcohol use history is operationalized by responses to a statement regarding whether the respondent has "ever used alcohol on a regular basis." Marijuana use history is operationalized by responses to a statement regarding whether the respondent has "ever used marijuana on a regular basis." Both of these variables are dichotomized such that individuals who did not use the drug regularly are coded as 0 and individuals who did use the drug are coded as 1. History of using other drugs is operationalized by responses to items asking if various substances were "ever used on a regular basis." These substances include prescription drugs, methadone, hallucinogens, cocaine, heroin, and amphetamines. Each of these questions is dichotomized such that a "no" response is coded as 0 and a "yes" response is coded as 1. Factor analysis shows that not all of these variables load onto a single factor.

Factor loadings range from .24 to .59. Cronbach's alpha for this index is .56, which is relatively low. These issues may be due to the fact that the numbers of respondents answering "yes" to these questions individually are low. These results are not ideal, but, conceptually, it makes logical sense to combine these drug use variables into a single index. Therefore, responses to these questions are summed to create an index of substance use history. Higher scores, indicating more "yes" responses, represent more drug use.

Several variables are used as control variables in the analyses presented in this thesis. These variables include drug court type, comparison court type, education, and work status. A series of dummy variables representing the various drug courts and comparison courts are used as control variables in some analyses. In this case, the drug courts were assigned letters from A to W. However, courts D, F, H, L, N, Q, W had fewer than 25 cases per court. In order to protect the anonymity of respondents (per ICPSR data security agreement), these courts were combined into a single control variable. The comparison courts were assigned letters A through E. Comparison courts D and E had fewer than 25 cases per court and so were combined to protect anonymity. For each court variable (both drug court and comparison court), individuals who were not in that specific court, or group of courts, were coded as 0 and individuals who were in that specific court or group were coded as 1. The comparison category is drug court K because it has the largest number of participants in the sample. The purpose of including specific court and comparison condition variables is to examine whether the programs varied in their effectiveness, thereby allowing some assessment of whether court context mattered for the outcomes. Education is a continuous variable represented by number of years of

education. Work status is a dichotomous variable. Individuals not working for pay at the time of the interview are coded as 0 and individuals working for pay at the time of the interview are coded as 1.

Analyses

Several types of analyses are used in this study. First, descriptive statistics are used to show the distributions of the variables. Next, zero order correlations are examined in order to assess the bivariate relationships between the variables. Factor analysis and reliability analyses are used to determine if it is acceptable to combine variables into indexes. Finally, logistic regression is used for the primary statistical analyses in the current study. This type of regression is useful when dichotomous dependent variables are used, as is the case here. Drug court completion, relapse outcomes, recidivism outcomes, and arrest outcomes are all dichotomous variables. Therefore, predicting unit change in these variables, as with OLS regression, has no meaning. Logistic regression provides the relative odds of obtaining a given result. These odds, or odds ratios, are the ratios of the odds of events occurring to them not occurring. As such, logistic regression provides the odds of the dependent variable occurring for the unit change in each independent variable, net of the effects of the other independent variables in the model. The equation for this type of regression is as follows:

$$\text{Ln}\,[p/(1-p)] = b_0 + b_1x_1 + b_2x_2 + b_3x_3 \ldots b_kx_k + e$$

In this equation, p represents the probability of an event, such as being re-arrested, b_0 represents the y-intercept, x_1 to x_k represent the independent variables, and e is the error term (Hosmer, Lemeshow, and Sturdivant, 2013).

Logistic regression does not assume normality, linearity, or homogeneity of variance for the dependent variables, as is the case with OLS regression. More specifically, logistic regression does not assume that the dependent variables follow a normal distribution, that a linear relationship exists between the dependent and independent variables, and that variances are homoskedastic for the independent variables (Guido, Winters, and Rains, 2006). Logistic regression also assumes that the independent variables are linearly related to the log odds (Hosmer et al., 2013).

Using logistic regression, several sets of analyses are conducted. For drug court completion, two models are analyzed. First, only drug court participants and the factors potentially associated with drug court completion are examined. These factors include age, race/ethnicity, gender, social support, treatment motivation, and drug use history. This analysis allows assessment of whether these factors affect program success and failure among drug court participants. A second model is analyzed, which includes the individual drug court variables in addition to the factors that may affect program completion in order to assess whether any relationships change when the courts are accounted for and whether the courts themselves have any impact on program completion. For the other dependent variables, three models are tested. First, for each outcome a model is examined that includes the drug court participation variable in order to assess whether there are differences in the outcomes between participants and non-participants. The second model includes drug court participation as well as the factors that may affect each group's outcomes: age, race/ethnicity, gender, social support, treatment motivation, and drug use history. This model allows for conclusions to be drawn regarding whether the relationship between drug court participation versus non-

participation and post-program outcomes changes when these factors are held constant. In addition, this set of models will allow for an examination of whether these other factors are associated with the outcomes when participant status is held constant. Finally, a third model is analyzed to examine contextual effects of the drug courts and comparison courts. In this model, the individual court variables are included instead of the single variable for drug court participation. The independent variables of age, race/ethnicity, gender, social support, treatment motivation, and drug use history are also included. This model allows for an analysis of whether any relationships between the factors and outcomes change when the individual courts are accounted for. Further, this model will uncover any relationships between specific courts and the outcomes, indicating the courts' contextual effects. In each model, variance inflation factors are all below 4. Therefore, multicollinearity is not an issue for these analyses.

In the following analyses, only cases with non-missing data are used. Cases with missing data are listwise deleted. This results in the deletion of about 18% of the sample in most analyses. The variables with the most missing data are the dependent variables. Although 1,149 respondents are drug court participants, only 662 respondents are included in the drug court completion outcome variable because individuals still participating in the drug court cannot be included. The outcomes of drug-related crimes, other crimes, and relapse each have slightly more than 300 missing cases due to attrition. The re-arrest outcome variable has slightly over 900 missing cases due to both attrition and lack of accurate arrest records.

The following chapter provides a detailed overview of the results of these analyses.

Chapter Four

Results

In this chapter, descriptive statistics, bivariate correlations, and results of the logistic regression analyses are discussed. Additionally, whether the study's hypotheses are supported is addressed.

Descriptive Statistics

Table 4.1 shows the descriptive statistics for the variables in this study. For the dependent variables, at 18 months, 59.73% of drug court participants graduated, 12.01% of the entire sample self-reported at least one criminal behavior, 12.84% of the sample reported at least one drug-related criminal behavior, 43.11% of the sample self-reported relapse, and 5.97% of the sample was re-arrested.

Regarding the demographics of this sample, age ranges from 18 to 67 years, with an average of 33 years. The sample is also 69.79% male, 57.89% white, 34.48% black, 5.45% Hispanic, and 2.19% other races. The average level of education is 13 years and 36.27% of respondents worked for pay at the baseline interview.

The scores on the social support index range from 9 to 45, with an average of 36. This indicates that respondents have relatively high levels of social support overall. For the treatment motivation index, scores range from 6 to 34, with an average of 23, suggesting that the respondents have medium levels of treatment motivation overall. For substance use history, 57.61% of the sample used alcohol, 70.41% used marijuana, and 70.29% used other types of drugs prior to court involvement. Finally, 1,149 of the respondents were drug court participants (only 662 of these respondents are included in the drug court completion outcome because any respondents still participating in the drug

courts are not included) and 632 of the respondents were in a comparison court. Distributions across courts are also shown.

Table 4.1: Descriptive Statistics

Dependent Variables	**N**	**Mean**	**(SD)**	**Minimum**	**Maximum**
Drug Court Completion (Participants Only)	662	.5973	.491	0	1
Self-Reported Crimes	1454	.1201	.325	0	1
Drug-Related Crimes	1454	.1284	.335	0	1
Drug Use	1454	.4311	.495	0	1
Arrests	854	.0597	.237	0	1
Independent Variables					
Age	1454	33.71	10.47	18.01	67.73
Male	1454	.6979	.4593	0	1
White	1454	.5788	.4939	0	1
Black	1454	.3448	.4754	0	1
Hispanic	1454	.0545	.2269	0	1
Other	1454	.0219	.1464	0	1
Education	1454	13.24	2.39	3	19
Work	1454	.3627	.4809	0	1
Treatment Motivation	1454	22.76	6.88	6	34
Social Support	1454	36.04	7.73	9	45
Alcohol Use	1454	.5761	.4943	0	1
Marijuana Use	1454	.7041	.4566	0	1
Other Drug Use	1454	1.35	1.31	0	6
Drug Court Participation	1454	.6451	.4786	0	1
Drug Court A	1454	.0584	.2345	0	1
Drug Court B	1454	.0281	.1652	0	1
Drug Court C	1454	.0443	.2059	0	1
Drug Court E	1454	.0483	.2144	0	1
Drug Court G	1454	.0179	.1329	0	1
Drug Court I	1454	.0236	.1518	0	1
Drug Court J	1454	.0185	.1349	0	1
Drug Court K	1454	.0713	.2574	0	1
Drug Court M	1454	.0236	.1518	0	1
Drug Court O	1454	.0337	.1805	0	1
Drug Court P	1454	.0309	.1730	0	1
Drug Court R	1454	.0556	.2292	0	1
Drug Court S	1454	.0258	.1587	0	1
Drug Court T	1454	.0567	.2313	0	1
Drug Court U	1454	.0191	.1369	0	1
Drug Court V	1454	.0208	.1427	0	1
Other Drug Courts	1454	.0724	.2593	0	1
Comparison A	1454	.0657	.2478	0	1
Comparison B	1454	.0954	.2939	0	1
Comparison C	1454	.1376	.3445	0	1
Other Comparison	1454	.0522	.2225	0	1

Bivariate Correlations

Table 4.2 shows correlations between the dependent variables. Results are all statistically significant at the p<.05 level and are all in the expected directions. Importantly, drug court completion is negatively correlated with drug crimes (-0.20), drug use outcomes (-0.34), other crimes (-0.21), and arrests (-0.31). These results are theoretically relevant because drug court participation is expected to result in lower odds of these outcomes. There are positive correlations between drug crimes and drug use outcomes (0.40), other crimes (0.33), and arrests (0.26). There are also positive correlations between drug use outcomes and other crimes (0.22) and between other crimes and arrests (0.56).

Table 4.2. Bivariate Correlations Between Dependent Variables

	court completion	drug crimes	other crimes	use outcomes	arrests
court completion	1.00				
n	673				
drug crimes	-0.20*	1.00			
n	672	1472			
other crimes	-0.21*	0.33*	1.00		
n	673	1472	1473		
drug use outcomes	-0.34*	0.40*	0.22*	1.00	
n	672	1471	1473	1474	
arrests	-0.31*	0.26*	0.56*	0.42*	1.00
n	404	853	853	854	854

*p<.05

Table 4.3 shows correlations between the main independent and dependent variables. Correlations are all weak, although several are statistically significant at the p<.05 level. Drug court completion is correlated with age (0.12), white (0.05), black (-0.08), Hispanic (0.07), education (0.04), work status (0.13), and social support (0.01). Only the correlations between drug court completion, age, black, and work status are statistically significant. Drug court completion is also negatively correlated with male (-

0.05), treatment motivation (-0.03), alcohol use (-0.04), marijuana use (-0.12), and other drugs use (-0.04). Only the correlation with marijuana use is statistically significant. Most of these correlations are in the expected directions, except for the relationship between drug court completion and male. Being male is negatively correlated with court completion, but it is not a significant correlation.

Drug court participation is negatively correlated with drug crimes (-0.05), drug use outcomes (-0.10), other crimes (-0.02), and arrests (-0.02). Only the correlation between participation and drug use outcomes is statistically significant, but all are in the expected directions because drug court participation is expected to be associated with lower odds of these outcomes. For this study, these relationships are especially important because they demonstrate that drug court participation is, at least to some extent, associated with these outcomes, although not to the extent expected.

Age is significantly and negatively correlated with drug crimes (-0.15), drug use outcomes (-0.12), other crimes (-0.14), and arrests (-0.09). It is expected that older individuals have better outcomes than younger individuals, so these associations, though low, lend some support for that claim because they are in the expected direction. Male is significantly and positively correlated with drug crimes (0.06), drug use outcomes ((0.06), and other crimes (0.09). These correlations for gender are not in the expected direction because males are expected to perform better than females on these outcomes. Being white is significantly and negatively correlated with drug crimes (-0.08) and drug use outcomes (-0.06). Being black is significantly and positively correlated with drug crimes (0.07) and drug use outcomes (0.05). The correlations between race and the dependent variables are in the expected directions, although they are all low, because

whites are expected to perform better than others on these outcomes. However, Hispanic and other races are not significantly correlated with any of these outcomes. Importantly, treatment motivation and social support are not significantly correlated with the outcomes. It is expected that higher levels of treatment motivation and social support are associated with lower odds of these outcomes, but there are no significant correlations. Marijuana use history is significantly and positively correlated with drug crimes (0.08), drug use outcomes (0.18), other crimes (0.11), and arrests (0.09). These are low, but are as expected because more drug use is theoretically expected to result in less favorable outcomes. Use of other drugs is significantly and positively correlated with drug crimes (0.10), drug use outcomes (0.08), and other crimes (0.08). As with marijuana use, these are as expected for the same reasons. Although these correlations between independent and dependent variables are weak, they indicate theoretically important relationships.

Table 4.4 shows correlations for the individual drug courts and dependent variables. These correlations are all weak, although some are statistically significant at the .05 level. Overall, the results show few patterns suggestive of key systematic differences across the programs in terms of their effectiveness. One exception concerns drug court program P, which is positively correlated with drug crimes (0.09), other crimes (0.07), and program completion (0.11). Of the correlations between comparison courts and dependent variables, shown in Table 4.5, only comparison court A seems to be systematically related to the outcomes. Court A respondents were more likely to commit drug crimes (0.08), to relapse (0.09), and to be rearrested (0.09).

Table 4.3. Bivariate Correlations Between Independent and Dependent Variables

	drug court	age	male	white	black	hisp	other	educ	work	motiv	support	alcohol	marij	other drugs
court completion	0.05	0.12*	-0.05	0.05	-0.08*	0.07	-0.03	0.04	0.13*	-0.03	0.01	-0.04	-0.12*	-0.04
n	673	673	673	673	673	673	673	673	673	673	663	673	673	673
drug crimes	-0.05	-0.15*	0.06*	-0.08*	0.07*	0.01	0.01	-0.05*	-0.07*	0.00	-0.02	-0.04	0.08*	0.10*
n	1472	1472	1472	1472	1472	1472	1472	1472	1472	1471	1453	1472	1472	1472
other crimes	-0.02	-0.14*	0.09*	0.01	-0.01	0.01	-0.01	-0.06*	-0.02	0.00	0.00	0.03	0.11*	0.08*
n	1474	1474	1474	1474	1474	1474	1474	1474	1474	1473	1455	1474	1474	1474
drug use outcomes	-0.10*	-0.12*	0.06*	-0.06*	0.05*	0.03	-0.01	-0.07*	-0.03	-0.02	0.00	-0.02	0.18*	0.08*
n	1473	1473	1473	1473	1473	1473	1473	1473	1473	1472	1454	1473	1473	1473
arrests	-0.02	-0.09*	0.03	-0.04	0.04	-0.03	0.02	-0.05	-0.06	0.02	-0.02	0.00	0.09*	-0.02
n	854	853	854	854	854	854	854	854	854	854	839	854	854	854

*p<.05

Table 4.6 shows correlations between the independent variables and indicates two important general findings. Drug court participation is negatively correlated with age (-0.10), male (-0.04), and black (-0.11). Only the correlations with age and black are statistically significant. Drug court participation is positively correlated with white (0.09), Hispanic (0.04), other race (0.01), education (0.07), work (0.06), treatment motivation (0.20), social support (0.05), alcohol use (0.04), and other drug use (0.03). The correlations with white, education, work, and treatment motivation are statistically significant. These correlations indicate that there are some differences in who participates in drug courts versus comparison courts, which may impact the relationship between drug court participation and the outcomes. However, all of these correlations are weak.

Age is significantly and negatively correlated with marijuana use (-0.21), but is significantly and positively correlated with alcohol use (0.13) and other drug use (0.12). Age is also significantly and positively correlated with treatment motivation (0.25). Male is positively correlated with alcohol use (0.09) and marijuana use (0.16), but male is negatively correlated with treatment motivation (-0.14) and other drug use (-0.07). White is positively correlated with alcohol use (0.19), marijuana use (0.06), and other drugs use (0.22). White is negatively correlated with social support (-0.10). Black is negatively correlated with alcohol use (-0.16), marijuana use (-0.04), and other drugs use (-0.19). Interestingly, treatment motivation is positively correlated with alcohol use (0.11) and other drugs use (0.36). Social support is negatively correlated with alcohol use (-0.09) and other drugs use (-0.11).

Table 4.4. Bivariate Correlations Between Individual Drug Courts and Outcomes

	Drug Courts																
	A	B	C	E	G	I	J	K	M	O	P	R	S	T	U	V	Other
drug use	0.10*	0.01	0.01	0.00	-0.03	-0.03	0.00	0.00	-0.09*	-0.04	0.04	0.04	-0.11*	-0.06*	-0.03	-0.03	-0.08*
n	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473
drug crimes	0.01	-0.03	0.04	-0.02	-0.04	-0.01	-0.02	-0.02	-0.04	-0.03	0.09*	0.08*	-0.04	-0.02	-0.02	-0.05*	-0.05
n	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472
other crimes	0.02	-0.04	0.01	-0.05*	-0.02	0.03	0.06*	-0.03	-0.03	0.00	0.07*	-0.04	-0.03	-0.01	0.05	-0.04	0.02
n	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474
arrests	0.01	-0.01	0.00	0.01	0.00	0.03	0.04	0.09*	-0.03	0.01	0.00	-0.02	-0.03	-0.05	-0.04	-0.04	-0.03
n	854	854	854	854	854	854	854	854	854	854	854	854	854	854	854	854	854
court completion	0.08	-0.02	-0.19*	0.11*	-0.05	0.02	0.06	-0.01	-0.01	0.06	0.11*	-0.04	0.00	0.01	0.01	-0.10*	-0.06
n	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673	673

*p<.05

Table 4.5: Bivariate Correlations Between Comparison Courts and Outcomes

	Comparison Courts			
	A	B	C	DE
drug crimes	0.08*	0.04	-0.02	0.01
n	1472	1472	1472	1472
other crimes	0.04*	0.01	0.01	-0.02
n	1474	1474	1474	1474
drug use	0.10*	0.02	0.05*	0.01
n	1473	1473	1473	1473
arrests	0.09*	-0.02	-0.02	0.01
n	854	854	854	854

*p<.05

Table 4.6.: Bivariate Correlations Between Independent Variables (n= 1,781)

	age	male	white	black	hisp	other	educ	work	motiv	support	alcohol	marij	other drugs	drug court
age	1.00													
male	-0.03	1.00												
white	-0.10*	-0.06*	1.00											
black	0.15*	0.07*	-0.85*	1.00										
hisp	-0.08*	0.01	-0.28*	-0.17*	1.00									
other	0.00	-0.03	-0.18*	-0.11*	-0.04	1.00								
educ	0.14*	0.01	0.14*	-0.12*	-0.05*	-0.01	1.00							
work	-0.09*	0.16*	0.19*	-0.24*	0.09*	-0.01	0.14*	1.00						
motiv	0.25*	-0.14*	-0.02	0.06*	-0.09*	0.02	-0.01	-0.24*	1.00					
support	-0.08*	0.01	-0.10*	0.13*	-0.02	-0.06*	-0.06*	0.04	0.00	1.00				
alcohol	0.13*	0.09*	0.19*	-0.16*	-0.08*	0.00	0.04	0.05*	0.11*	-0.09*	1.00			
marijuana	-0.21*	0.16*	0.06*	-0.04	-0.03	0.00	-0.04	0.03	0.01	-0.03	0.12*	1.00		
other drugs	0.12*	-0.07*	0.22*	-0.19*	-0.08*	0.02	0.07*	-0.09*	0.36*	-0.11*	0.20*	0.19*	1.00	
drug court	-0.10*	-0.04	0.09*	-0.11*	0.04	0.01	0.07*	0.06*	0.20*	0.05	0.04	0.00	0.03	1.00

*p<.05

Regression Analyses

In order to assess whether the bivariate patterns hold in multivariate analyses, logistic regression analyses are conducted. Table 4.7 shows the results for drug court completion among drug court participants only. Model 1 does not include any of the individual court variables. The results indicate that age is the only statistically significant predictor among the key independent variables. Holding all else constant, older participants in the drug court sample are more likely than younger participants to graduate from drug court programs. The relationship between age and drug court graduation is statistically significant (p=.001). Work status is also a significant predictor, with employed persons' odds of completion 1.69 times larger than unemployed persons' odds of completion. This indicates that employed persons are more likely than unemployed persons to complete the programs. None of the other independent variables are related to drug court completion. Model 2 tests for contextual effects by including the individual drug court variables. After inclusion of these variables, age remains a statistically significant predictor. Older drug court participants are more likely than younger participants to graduate from drug court programs. In model 2, black becomes a statistically significant predictor such that blacks have .45 lower odds of completion than whites. Regarding the individual drug courts, people in drug courts C, G, and V have significantly lower odds of program completion than those in court K (the court excluded in the model). The odds are all .294 or lower. Additionally, individuals in drug courts E and P have significantly higher odds of program completion than those in court K. The odds are 3.45 and 9.51 respectively.

Table 4.7: Logistic Regression Results for Factors Predicting Completion Among Drug Court Participants Only (n=662)

Variables	**Model 1**	**Model 2**
	Odds Coef. (SE)	Odds Coef. (SE)
Age	1.030 .030* (.009)	1.040 .039* (.010)
Black	.690 -.370 (.136)	.450 -.798* (.111)
Hispanic	1.380 .322 (.548)	1.267 .236 (.563)
Other	.685 -.378 (.332)	.529 -.636 (.269)
Gender	.826 -.191 (.153)	.715 -.335 (.142)
Social Support	1.000 .000 (.011)	1.004 .004 (.012)
Treatment Motivation	.988 -.011 (.015)	.992 -.008 (.017)
Alcohol	.754 -.282 (.136)	.949 -.052 (.188)
Marijuana	.764 -.269 (.152)	.908 -.096 (.191)
Other Drugs	.955 -.045 (.068)	.963 -.037 (.074)
Work	1.690 .525* (.304)	1.844 .612* (.370)

Education	.988	1.012
	-.011	.012
	(.033)	(.037)
Court A		.843
		-.171
		(.335)
Court B		.474
		-.746
		(.235)
Court C		.145
		-1.932*
		(.089)
Court E		3.345
		1.207*
		(1.54)
Court G		.294
		-1.223*
		(.162)
Court I		1.028
		.028
		(.483)
Court J		1.690
		.525
		(.883)
Court M		.589
		-.528
		(.290)
Court O		1.305
		.266
		(.640)
Court P		9.506
		2.252*
		(6.58)
Court R		.690
		-.370
		(.266)
Court S		.748
		-.289
		(.358)

Court T		.683
		-.381
		(.278)
Court U		.759
		-.275
		(.427)
Court V		.237
		-1.437*
		(.128)
Other Courts		.508
		-.676
		(.181)
Cons.	1.293	.632
	.256	-.458
	(.998)	(.529)
X^2	37.92	106.86
df	12	28

*p<.05

Table 4.8 shows the logistic regression results for drug-related crimes. Model 1 addresses the hypothesis that drug court participants will fare better than non-participants in terms of drug-related crimes (recidivism). Model 1 does not include any of the other independent variables. Results indicate that drug court participants do not have statistically different odds of drug-related crimes than non-participants. Model 2 includes the other key independent and control variables, and in these results drug court participation remains a non-significant predictor of drug-related crimes. Model 2 addresses the hypotheses that whites, males, people with higher levels of social support, people with higher levels of treatment motivation, and people with less extensive drug use histories will all be less likely than their counterparts to commit drug-related crimes. Statistically significant predictors are age, black, gender, and use of other drugs. Specifically, older people are less likely than younger people to commit drug-related

crimes. Blacks have 2.42 higher odds of committing drug-related crimes than whites. Males have 1.54 higher odds of committing drug-related crimes than females. Finally, individuals who use drugs other than alcohol and marijuana have 1.43 larger odds of committing drug-related crimes than those who do not use other drugs. All of these relationships, except for the results regarding gender, are in the expected directions. Model 3 tests for contextual effects by including the individual drug court and comparison court variables in place of the single drug court participation measure. Results indicate that the predictor variables of age, black, gender, and use of other drugs remain statistically significant and their respective odds ratios do not change by much between model 2 and model 3. Regarding the individual courts, people in drug court R have 3.09 higher odds of committing drug-related crimes than those in court K (the court excluded in the model). Additionally, people in comparison court A have 3.48 higher odds of committing drug-related crimes than people in drug court K.

Table 4.8: Logistic Regression Results for Drug Crimes (n=1,423)

Variables	**Model 1**	**Model 2**	**Model 3**
	Odds Coef. (SE)	Odds Coef. (SE)	Odds Coef. (SE)
Court Participation	0.749 -0.288 (0.119)	0.720 -.320 (0.125)	- - -
Age		0.940 -0.060* (0.009)	0.939 -0.063* (0.010)
Black		2.420 0.880* (0.485)	1.921 0.652* (0.439)
Hispanic		1.600 0.470 (0.603)	1.132 0.124 (0.457)
Other		2.170 0.770 (1.140)	1.783 0.578 (0.979)
Gender		1.540	1.578

	0.430*	0.456*
	(0.303)	(0.319)
Social Support	0.990	0.989
	-0.010	-0.010
	(0.010)	(0.011)
Treatment Motivation	1.000	1.011
	0.000	0.012
	(0.014)	(0.015)
Alcohol	0.840	0.879
	-0.170	-0.128
	(0.147)	(0.160)
Marijuana	1.190	1.171
	-.170	0.158
	(0.255)	(0.255)
Other Drugs	1.430	1.400
	0.360*	0.337*
	(0.094)	(0.096)
Education	0.990	0.966
	-0.020	-0.034
	(0.035)	(0.035)
Work	0.730	0.757
	-0.320	-0.277
	(0.141)	(0.159)
Court A		2.461
		0.900
		(1.286)
Court B		0.951
		-0.050
		(0.691)
Court C		2.215
		0.795
		(1.115)
Court E		1.086
		0.083
		(0.612)
Court G		0.721
		-0.326
		(0.795)
Court I		0.995
		-0.004
		(0.656)
Court J		1.213
		0.193
		(0.876)
Court M		0.609
		-0.495
		(0.509)
Court O		0.904
		-0.100
		(0.649)

Court P			2.726 1.002 (1.400)
Court R			3.098 1.130* (1.431)
Court S			0.556 -0.586 (0.464)
Court T			1.082 0.078 (0.577)
Court U			1.148 0.138 (0.834)
Other Courts			0.798 -0.225 (0.414)
Comp A			3.478 1.246* (1.590)
Comp B			1.774 0.573 (0.804)
Comp C			1.523 0.420 (0.664)
Other Comp			2.213 0.794 (1.179)
Constant		0.840 -0.180 (0.637)	0.422 -0.862 (0.364)
X^2	3.25	102.61	130.26
df	1	13	31

*p<.05

Table 4.9 shows logistic regression results for other crimes. Model 1 addresses the hypothesis that drug court participants will fare better than non-participants in terms of other crimes (recidivism). Model 1 indicates that drug court participants do not have statistically different odds of other crimes than non-participants. Model 2 addresses the hypotheses that whites, males, people with higher levels of social support, people with higher levels of treatment motivation, and people with less extensive drug use histories

will all be less likely than their counterparts to recidivate. In model 2, drug court participation remains non-significant. Model 2 results indicate that the statistically significant predictor variables are age, gender, marijuana use, and use of other drugs. Older people are less likely than younger people to recidivate. Males have 1.85 higher odds of recidivism than females. Marijuana users have 1.60 higher odds of recidivism than non-marijuana users. Users of other drugs have 1.19 higher odds of recidivism than those who do not use other drugs. With the exception of the results regarding gender, each of these relationships is in the expected direction. Model 3 tests for contextual effects. After the inclusion of the individual court variables, age, gender, marijuana use, and use of other drugs remain statistically significant. Participants of drug courts A, J, P, and U are all significantly more likely (at least 2.9 times or higher) than individuals in drug court K to recidivate. Further, people in comparison court A have 2.77 higher odds of recidivism than individuals in court K.

Table 4.9: Logistic Regression Results for Other Crimes (n=1,454)

Variables	**Model 1**	**Model 2**	**Model 3**
	Odds Coef. (SE)	Odds Coef. (SE)	Odds Coef. (SE)
Court Participation	0.908 -0.096 (0.150)	0.850 -0.150 (0.151)	- - -
Age		0.950 -0.040* 0.009	0.956 -.044* (0.009)
Black		1.100 0.200 0.222	1.062 0.061 (0.235)
Hispanic		1.050 0.050 (0.408)	0.878 -0.130 (0.364)
Other		0.820	0.691

	-0.190	-0.369
	(0.521)	(0.449)
Gender	1.850	1.696
	0.620*	0.528*
	(0.383)	(0.359)
Social Support	0.990	0.997
	-0.004	-0.002
	(0.011)	(0.011)
Treatment Motivation	1.000	1.014
	0.007	0.014
	(0.014)	(0.015)
Alcohol	1.150	1.126
	0.140	0.119
	(0.207)	(0.210)
Marijuana	1.600	1.577
	0.470*	0.455*
	(0.368)	(0.367)
Other Drugs	1.190	1.212
	0.180*	0.192*
	(0.078)	(0.083)
Education	0.940	0.941
	-0.060	-0.060
	(0.033)	(0.034)
Work	0.840	0.773
	-0.180	-0.256
	(0.156)	(0.155)
Court A		2.960
		1.080*
		(1.612)
Court B		0.620
		-0.470
		(0.525)
Court C		2.299
		0.832
		(1.278)
Court E		0.711
		-0.340
		(0.521)
Court G		1.441
		0.365
		(1.236)
Court I		2.200

	0.788
	(1.298)
Court J	4.386
	1.478*
	(2.590)
Court M	0.698
	-0.358
	(0.590)
Court O	2.111
	0.747
	(1.352)
Court P	3.493
	1.251*
	(1.943)
Court R	1.072
	0.070
	(0.635)
Court S	1.017
	0.017
	(0.751)
Court T	1.536
	0.429
	(0.836)
Court U	3.779
	1.329*
	(2.281)
Court V	0.394
	-0.929
	(0.435)
Other Courts	2.055
	0.720
	(1.010)
Comp A	2.771
	1.019*
	(1.393)
Comp B	1.913
	0.648
	(0.954)
Comp C	2.183
	0.781
	(1.004)
Other Comp	1.476

			0.389
			(0.901)
Constant		0.420	0.193
		-0.860	-1.640
		(0.323)	(0.173)
X^2	0.34	65.55	95.58
df	1	13	31

*p<.05

Table 4.10 shows the logistic regression results for relapse. Model 1 addresses the hypothesis that drug court participants will fare better than non-participants in terms of relapse. Results indicate that drug court participants have significantly lower odds of relapse than non-participants. Specifically, drug court participants have .66 lower odds of relapse than non-participants. After the inclusion of the other independent variables in model 2, drug court participation remains statistically significant. Net of the effects of the other independent variables, drug court participation remains a significant predictor of relapse such that drug court participants still have .66 lower odds of relapse than non-participants. Model 2 also addresses the hypotheses that whites, males, people with higher levels of social support, people with higher levels of treatment motivation, and people with less extensive drug use histories will all be less likely than their counterparts to relapse. The significant predictor variables are age, black, marijuana use, and use of other drugs. Older people are less likely than younger people to relapse. Blacks have 1.44 higher odds of relapse than whites. Marijuana users have 1.94 higher odds of relapse than non-marijuana users. Users of other drugs have 1.17 higher odds of relapse than those who do not use other drugs. Each of these relationships is in the expected direction. When the individual court variables are included in model 3, results indicate that age, marijuana use, and use of other drugs remain significant predictors. However, black is no longer a significant predictor. Participants in drug court A have 3.39 higher odds of

relapse than those in drug court K. Furthermore, participants in drug courts M and S have significantly lower odds of relapse than those in drug court K. Finally, people in comparison court A have 2.38 higher odds of relapse than those in drug court K.

Table 4.10: Logistic Regression Results for Relapse (n=1,454)

Variables	**Model 1**	**Model 2**	**Model 3**
	Odds Coef. (SE)	Odds Coef. (SE)	Odds Coef. (SE)
Court Participation	0.658 -0.419* (0.072)	0.660 -0.420* (0.078)	- - -
Age		0.980 -0.020* (0.005)	0.975 -0.025* (0.006)
Black		1.440 0.360* (0.190)	1.318 0.276 (0.206)
Hispanic		1.510 0.410 (0.402)	0.991 -0.008 (0.282)
Other		1.190 0.180 (0.457)	1.108 0.102 (0.449)
Gender		1.190 0.170 (0.149)	1.220 0.198 (0.158)
Social Support		1.000 0.000 (0.007)	1.004 0.003 (0.007)
Treatment Motivation		0.990 -0.004 (0.009)	1.010 0.010 (0.010)
Alcohol		0.930 -0.070 (0.110)	0.930 -0.072 (0.116)
Marijuana		1.940 0.660* (0.259)	1.993 0.689* (0.274)
Other Drugs		1.160	1.180

	0.160*	0.165*
	(0.055)	(0.060)
Education	0.970	0.972
	-0.030	-0.027
	(0.022)	(0.023)
Work	0.950	0.878
	-0.050	-0.129
	(0.118)	(0.119)
Court A		3.388
		1.220*
		(1.18)
Court B		1.199
		0.182
		(0.483)
Court C		1.044
		0.043
		(0.367)
Court E		1.122
		0.115
		(0.396)
Court G		0.823
		-0.193
		(0.411)
Court I		0.680
		-0.385
		(0.278)
Court J		1.155
		0.144
		(0.501)
Court M		0.263
		-1.335*
		(0.134)
Court O		0.704
		-0.350
		(0.294)
Court P		1.298
		0.261
		(0.511)
Court R		1.557
		0.443
		(0.506)
Court S		0.145

			-1.928*
			(0.084)
Court T			0.617
			-0.481
			(0.205)
Court U			0.715
			-0.335
			(0.319)
Court V			0.570
			-0.561
			(0.268)
Other Courts			0.566
			-0.568
			(0.176)
Comp A			2.387
			0.870*
			(0.771)
Comp B			1.049
			0.048
			(0.313)
Comp C			1.649
			0.500
			(0.445)
Other Comp			1.360
			0.308
			(0.474)
Constant		1.290	0.672
		0.260	-0.397
		(0.645)	(0.381)
X^2	14.65	97.71	180.40
df	1	13	31

*p<.05

Table 4.11 shows logistic regression results for re-arrest. Model 1 addresses the hypothesis that drug court participants will fare better than non-participants in terms of re-arrests. Results demonstrate that drug court participants do not have significantly lower odds of re-arrest than non-participants. In the analyses in model 2, drug court participation remains non-significant. Model 2 also addresses the hypotheses that whites,

males, people with higher levels of social support, people with higher levels of treatment motivation, and people with less extensive drug use histories will all be less likely than their counterparts to be re-arrested. The variables of age and marijuana use are significant predictors of re-arrest. Older individuals have lower odds of re-arrest than younger individuals. Marijuana users have 2.19 higher odds of re-arrest than non-marijuana users. These relationships are in the expected direction. With the addition of the individual court variables in model 3, age and marijuana use remain statistically significant predictors. Interestingly, treatment motivation becomes a significant predictor in model 3, such that individuals with higher levels of treatment motivation are more likely to be re-arrested than individuals with lower levels of treatment motivation. This is in the opposite direction than predicted. In model 3, none of the drug or comparison court variables are significant predictors.

Table 4.11: Logistic Regression Results for Arrests (n=854)

Variables	**Model 1**	**Model 2**	**Model 3**
	Odds Coef. (SE)	Odds Coef. (SE)	Odds Coef. (SE)
Court Participation	0.843 -0.170 (0.255)	0.770 -0.260 (0.251)	- - -
Age		0.960 -0.040* (0.016)	0.958 -0.042* (0.017)
Black		1.290 0.260 (0.452)	1.386 0.326 (0.564)
Hispanic		0.450 -0.810 (0.468)	0.374 -0.983 (0.404)
Other		1.610 0.480	1.672 0.514

	(1.290)	(1.442)
Gender	1.210	1.057
	0.190	0.056
	(0.409)	(0.369)
Social Support	0.980	0.994
	-0.020	-0.005
	(0.019)	(0.020)
Treatment Motivation	1.030	1.060
	0.030	0.059
	(0.027)	(0.031)
Alcohol	1.090	1.005
	0.090	0.005
	(0.346)	(0.339)
Marijuana	2.180	2.394
	0.780*	0.873*
	(0.867)	(0.969)
Other Drugs	0.880	0.894
	-0.130	-0.111
	(0.123)	(0.130)
Education	0.970	0.973
	-0.020	-0.027
	(0.061)	(0.063)
Work	0.640	0.576
	-0.440	-0.551
	(0.231)	(0.220)
Court A		1.217
		0.196
		(1.09)
Court B		0.392
		-0.934
		(0.443)
Court C		0.325
		-1.123
		(0.283)
Court E		0.389
		-0.943
		(0.302)
Court G		0.574
		-0.554
		(0.651)
Court I		0.704
		-0.350

			(0.532)
Court J			1.070
			0.068
			(0.953)
Court M			0.257
			-1.355
			(0.288)
Court O			0.870
			-0.138
			(0.757)
Court P			0.313
			-1.160
			(0.361)
Court R			0.372
			-0.988
			(0.318)
Court S			0.189
			-1.663
			(0.212)
Court T			0.129
			-2.045
			(0.142)
Other Courts			0.322
			-1.131
			(0.237)
Comp A			1.769
			0.570
			(1.13)
Comp B			0.265
			-1.325
			(0.189)
Comp C			0.534
			-0.626
			(0.336)
Other Comp			0.961
			-0.038
			(0.206)
Constant		0.220	0.141
		-1.500	-1.957
		(0.299)	(0.206)
X^2	0.31	22.81	40.32
df	1	13	31

*p<.05

Overall, the results offer partial support for the hypotheses. The results indicate partial support hypothesis 1. Drug court participants are less likely to relapse, but they are equally likely as non-participants to recidivate and to be re-arrested. Hypothesis 2 predicted that older individuals would be more likely than younger individuals to complete a drug court program. The results support this hypothesis. The results also show support for hypothesis 3. Older individuals are less likely to relapse, to recidivate, and be re-arrested. There is limited support for hypotheses 5 and 13. Hypothesis 5 predicted that whites would be less likely than individuals of other races to relapse, to recidivate, and to be re-arrested. In this study, whites are less likely than blacks, but not other groups, to relapse, to recidivate, and to be re-arrested. Hypothesis 13 predicted that individuals with less extensive drug use histories would be less likely than individuals with more extensive drug use histories to relapse, to recidivate, and to be re-arrested. Individuals who regularly use drugs other than marijuana and alcohol are more likely to commit drug crimes, to relapse, and to commit other crimes. However, marijuana users are also more likely than non-marijuana users to relapse, to commit other crimes, and to be re-arrested.

Hypotheses 4, 6, 8, 10, and 12 are not supported based on these results. These hypotheses stated that whites, males, individuals with higher levels of social support, individuals with higher levels of treatment motivation, and individuals with less extensive substance use histories would all be more likely than their counterparts to complete a drug court program. There is also no support for hypotheses 7, 9, and 11. Hypothesis 7 predicted that males would have lower recidivism rates than females. Instead, the results indicate that males are more likely than females to commit drug-related crimes and to commit other crimes, but gender was not a significant predictor of relapse or re-arrest.

Hypothesis 9 predicted that individuals with higher levels of social support would have lower rates of relapse, recidivism, and re-arrest. In fact, social support was not a significant predictor of any of the outcomes. Similarly, hypothesis 11 predicted that individuals with higher levels of treatment motivation would have lower rates of relapse, recidivism, and re-arrest. Treatment motivation was not a significant predictor of these outcomes with one exception. It became a positive and significant predictor of arrest once individual court variables were introduced into the model. This result is contrary to the hypothesis.

The next chapter discusses the substantive significance of and explanations for the results. In addition, the implications for the future of drug courts, the limitations of the current analyses, and, finally, directions for future research on drug courts are addressed.

Chapter Five

Discussion and Conclusion

In this chapter, I discuss the findings of the analyses, limitations, and directions for future studies. Additionally, I discuss the implications of the findings for research on drug courts.

Drug Court Completion

One focus in this study was on factors that predict drug court graduation. The findings indicate that age is one of the few significant predictors. Older participants are more likely to graduate from drug court programs than younger participants, regardless of contextual effects of the individual courts. This result is consistent with previous studies (Marlowe et al., 2012; Goldkamp, 1994; Goldkamp et al., 2001; Peters and Murrin, 2000; Kalich and Evans, 2006). Additionally, race was a significant predictor after including the individual drug courts. Blacks are less likely to graduate from drug court programs than whites. Being employed was also associated with a greater likelihood of completion. Surprisingly, gender, social support, treatment motivation, and substance use history do not predict drug court graduation for this sample. These results may be due to the fact that many respondents from the drug court sample were either had missing data or were still participating in the drug court at the 18-month interview and therefore, were not included in the analyses. More accurate relationships between these factors and drug court graduation could not be obtained without the full drug court sample. Additionally, these factors may not impact likelihood of graduation because graduation may be an effect of the drug court programs themselves, and not these individual attributes. Indeed, there did appear to be some contextual effects of the individual courts. As such, the types

of drug court models may provide more accurate predictors of graduation among participants.

Drug Court Participation and Outcomes

The results for whether drug court participants fare better than non-participants for the outcome of relapse show that drug court participants do have better relapse outcomes. This result is consistent with the meta-analyses involving data from a variety drug courts (GAO 2005, 2011). However, for the other outcomes of self-reported recidivism and re-arrest, drug court participants do not perform significantly better than non-participants. These results are inconsistent with previous studies, which typically find that drug court participants have lower rates of recidivism and re-arrest (Belenko, 1998; Wilson et al., 2006; Mitchell et al., 2012; Sevigny et al., 2013). While it makes logical sense that drug court participants are less likely to relapse than non-participants due to the mandated treatment involved in drug court programs, it does not make sense that participants and non-participants have no significant differences on the outcomes of self-reported recidivism and re-arrest. This finding may be due to the fact that, for the arrest outcomes variable, there are hundreds of missing cases for the entire sample. This may have biased the results in such a way as to mask any significant relationship between drug court participation and these outcomes.

A second explanation for why drug court participants and non-participants do not differ on self-reported recidivism and re-arrest outcomes may have to do with the variations in individual drug court programs. Factors internal to individual drug court programs may affect these outcomes, and so, using a variable for drug court participation does not account for these individual program differences (Goldkamp et al., 2001). The

results showed some differences in efficacy across courts except for the re-arrest outcome. Without a standard model or accreditation criteria for drug court programs, it is difficult to assess whether drug courts in general have the intended outcomes.

Finally, participants and non-participants may not differ on self-reported recidivism and re-arrest because these outcomes were from the 18-month interview. The present study did not account for when participants graduated or failed. Therefore, participants who graduated earlier during the data collection process may have lower odds of recidivism and re-arrest than non-participants at 6 months, but not at18 months. This would indicate a time effect such that any positive outcomes diminish over time (Goldkamp et al., 2001). However, such data were not available for this study to assess this assertion.

Factors and Drug Court Participation

After the inclusion into the model of the factors listed previously predicting relapse, recidivism, and re-arrest outcomes, several important findings emerged. First, drug court participants have lower odds of relapse than non-participants, even when controlling for these other factors. However, participation remains a non-significant predictor of the other outcomes in the multivariate models. Second, age is a strong predictor of each outcome such that older individuals have lower odds of relapse, recidivism, and re-arrest than younger individuals. This finding may be explained by the age-crime curve. Criminal and delinquent behaviors peak in adolescence and gradually this behavior decreases as individuals age (Hirschi and Gottfredson, 1983). Age is associated with drug use in a similar way as criminal involvement. Thus, older individuals in this sample may have lower odds of each outcome than younger

individuals because they are unlikely to engage in these behaviors anyway as they get older. The results related to age and program outcomes are consistent with previous findings (Marlowe et al., 2012; Goldkamp, 1994; Goldkamp et al., 2001; Peters and Murrin, 2000; Kalich and Evans, 2006).

Third, race/ethnicity is a strong predictor of both recidivism and relapse. However, this relationship stands only for blacks such that blacks have higher odds of both recidivism and relapse than whites. This finding is consistent with the literature (Goldkamp et al., 2001; Kalich and Evans, 2006). This result may be due to the fact that drug courts and standard courts are not sensitive to cultural and racial/ethnic differences among defendants. As such, these courts may be unknowingly catering to white defendants, who are the majority, while simultaneously sabotaging minority defendants by treating everyone the same (Hartley and Phillips, 2001).

Fourth, gender is a significant predictor of recidivism, but not relapse or re-arrest. Males have higher odds of recidivism than females. This result is in contrast with some of the drug court literature, which found that females have higher odds of recidivism (Peters and Murrin, 2000; Marlowe et al., 2012). This finding may be related to the gender gap in crime (Steffensmeier and Allan, 1996). Males commit more crimes in general than females, and this may result in males recidivating more than females as well.

Finally, substance use history is a strong predictor of each outcome, but the type of substance matters. Specifically, whether the individual is a marijuana user or a user of other substances affects the likelihood of each outcome. Marijuana users have higher odds of non-drug-related crimes, relapse, and re-arrest than non-marijuana users. Users of other substances have higher odds of relapse and recidivism than those who do not use

these drugs. These findings are inconsistent with some previous findings (Miethe et al., 2000; Kalich and Evans, 2006; Bouffard and Richardson, 2007). Previous studies found that marijuana users had lower post-program recidivism, but users of more serious drugs had higher recidivism rates. However, it is clear that both marijuana users and users of other drugs have higher odds than non-users of unsuccessful outcomes. This result may have to do with the fact that, in this sample, many of the respondents used marijuana along with another drugs. The use of multiple drugs confuses these results slightly because it is difficult to parse out which drugs have effects on outcomes. However, for the individual substances, the variance was too low to leave them as separate items.

No other factors predict these outcomes, contrary to the hypotheses. Reasons for no relationships between the other factors, especially social support and treatment motivation, and the outcomes are unclear. However, one explanation may be that the responses to these variables do not vary widely within the sample. That is, a small portion of the sample falls on the lower end of the social support and treatment motivation scales while a larger portion of the sample falls toward the middle and upper end of the scales. Without a more even distribution of responses, the relationship between these factors and the outcomes may statistically non-significant. Furthermore, these variables were measured at the baseline interview. Respondents reported levels of treatment motivation and social support at baseline, but these levels may have changed throughout the study. Levels of treatment motivation and social support at baseline may not accurately predict 18-month outcomes, especially if levels changed substantially throughout the programs.

An examination of possible contextual effects of the drug courts and comparison courts reveals that there are some significant relationships between individual courts and

the outcomes, but the emergence of these new relationships does not greatly impact the previously discussed significant relationships between the various factors and outcomes, with the exceptions of race losing significance as a predictor of relapse and treatment motivation becoming a significant predictor of re-arrest. It is possible that the few courts (both drug courts and comparison courts) that do have significant impacts on the outcomes are somehow different than the other courts, despite being overall quite similar. These courts may differ in their treatment programs or the quality of their judges, for instance. Additionally, the participants assigned to these courts may differ in some way from other participants, although the bivariate results suggest few differences. Surprisingly, treatment motivation emerges as a significant predictor of re-arrest when these individual court variables are included in the model. However, individuals with higher levels of treatment motivation have higher odds of re-arrest, which is in contrast with the prior study on treatment motivation (Marlowe et al., 2012). This odd result may be due to the fact that there were many missing cases for the arrest outcomes, which may have biased the results for this outcome. Furthermore, higher levels of treatment motivation may indicate more serious addiction and criminal histories. Therefore, these individuals are more likely to be re-arrested despite their reported treatment motivation.

Study Implications

The results have important implications for drug courts. In each model, drug court participants have lower odds of relapse, regardless of other factors, indicating drug courts' effectiveness in this regard. However, drug courts may not be more effective than traditional courts for reduced recidivism and re-arrest. Relatedly, there may be contextual effects of the various individual courts such that some courts are more effective than

others. As such, an implication of this result might mean evaluating which individual courts result in the best outcomes and adapting other programs to the models that work best. As far as which group has better post-program outcomes, it is clear that older individuals perform better than younger individuals across the board. However, the other factors produced mixed results. Factors such as race, gender, and substance use history are associated with some of the outcomes, but the results are relatively inconsistent in that the relationships change between outcomes and between models. Because of this, it is difficult to determine for whom drug courts work best in general.

The results also have theoretical implications. The drug court model is based on both rational choice theory and deterrence theory. In the drug court model, individuals are considered to be rational actors who consider the costs and benefits of their behaviors before acting. Furthermore, drug courts are intended to have deterrent effects by imposing "swift, certain and increasingly severe penalties for continued drug use" (Harrell and Roman, 2001:209). Given drug courts' impact on relapse outcomes, it seems that there is some deterrent effect because participants do have lower odds of relapse than non-participants. Regarding individuals' rational choice processes, drug courts may influence individuals' costs/benefits analyses not only within the program (to avoid sanctions), but also post-program (to avoid relapse and further punishment) based on these results. However, the rational choice and deterrence frameworks underlying the drug court model may not be the best frameworks overall because drug court participants do not have lower odds of self-reported recidivism and re-arrest than non-participants. More exploration of the specific reasons why drug court participants act as they do is an area for future research and theoretical development in this area.

Conclusion

This evaluation of the effectiveness of drug courts offers a unique contribution to the literature on drug courts by considering factors affecting success and failure within drug court programs and several post-program outcomes including recidivism, relapse, and re-arrest. Previous studies considered only one or two program outcomes, so the current study expands on this line of research. Further, this study considered data derived from several different drug courts across the United States. Previous studies have evaluated just one or two drug courts. By assessing many drug courts, the current study's findings are more generalizable than previous findings. In general, the findings support the claim that drug courts result in lower rates of relapse for participants. However, drug court participation did not impact recidivism and re-arrest. Furthermore, while age is a consistent predictor of both program completion and post-program outcomes, other factors may impact some outcomes, but not others.

The limitations of this evaluation may have contributed to some of the contradictory findings. Specifically, the unreliability of self-report measures for recidivism and the large number of missing cases for arrests are major drawbacks both to the MADCE study and the current research. Additionally, the fact that several survey items were combined and dichotomized to create the outcome measures, while maximizing simplicity, may have resulted in a loss of detail, which masked important relationships.

Future research should consider how the relationships between drug court participation, the factors, and outcomes might change when the variables are not dichotomized. More detail may allow for more nuanced relationships to emerge. Larger

sample sizes, for both the drug court and comparison samples, may also lead to more promising results. Considering the large number of missing cases for the arrest outcomes, it is necessary for future research to attempt to obtain more complete records. Arrest outcomes are essential to include in drug court evaluations, so this line of research should be pursued further.

Generally, the results from this thesis provide some positive results regarding the effectiveness of drug courts. Drug courts do produce positive outcomes regarding relapse, and as such, are a viable alternative to incarceration in this sense. Some factors, such as age, race, gender, and substance use history may be important to consider in terms of their relation to drug court completion and post-program outcomes. By understanding the relationships between these factors and program outcomes, practitioners can better adapt the drug court programs to individuals who are less likely to have positive outcomes. This study illuminates some of the complexities related to the effectiveness of drug courts, but more research must be done in order to further progress towards treatment-based alternatives for nonviolent drug offenders.

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