

6-13-2012

# Juvenile Drug Court: Predictors of Graduation and Non-Graduation Status

Joshua D. Hoyt  
*Utah State University*

Follow this and additional works at: <https://digitalcommons.usu.edu/etd>

---

## Recommended Citation

Hoyt, Joshua D., "Juvenile Drug Court: Predictors of Graduation and Non-Graduation Status" (2012). *All Graduate Theses and Dissertations*. 1294.

<https://digitalcommons.usu.edu/etd/1294>

This Thesis is brought to you for free and open access by the Graduate Studies at DigitalCommons@USU. It has been accepted for inclusion in All Graduate Theses and Dissertations by an authorized administrator of DigitalCommons@USU. For more information, please contact [dylan.burns@usu.edu](mailto:dylan.burns@usu.edu).



JUVENILE DRUG COURT: PREDICTORS OF GRADUATION  
AND NON-GRADUATION STATUS

by

Joshua D. Hoyt

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

EDUCATIONAL SPECIALIST

in

Psychology

Approved:

---

David Stein, Ph.D.  
Major Professor

---

Donna Gilbertson, Ph.D.  
Committee Member

---

Scott Bates, Ph.D.  
Committee Member

---

Mark McLellan, Ph.D.  
Vice President for Research and  
Dean of the School of Graduate Studies

UTAH STATE UNIVERSITY  
Logan, Utah

2012

Copyright © Joshua Hoyt 2012

All Rights Reserved

## ABSTRACT

Juvenile Drug Court: Predictors of Graduation  
and Non-Graduation Status

by

Joshua D. Hoyt, Educational Specialist

Utah State University, 2012

Major Professor: Dr. David Stein  
Department: Psychology

Drug use has become an epidemic in our nation, filling our jails and prisons with nonviolent offenders. Studies have shown that adult drug courts are a good alternative to the prison system by being successful in reducing recidivism and long term costs. To date, however, few studies have looked specifically at the effectiveness of juvenile drug courts and their cost effectiveness. Further, the possible benefits of lower attrition rate and cost benefit are being overshadowed by the low attrition rate among juvenile drug court participants. Nearly half of all juvenile drug court participants do not complete the juvenile drug court program. Additionally, studies have shown that juvenile participants who do graduate have lower attrition rates and other benefits. Due to the benefits of juveniles who graduate from a juvenile drug court program, understanding the difference between those who graduate and those who do not can add significant understanding on how juvenile drug courts can be modified in order to help juveniles successfully graduate

from the drug court program. This study will shed light on specific pre-drug court demographics and behaviors that were different among juveniles who successfully graduate and those who are unsuccessful in graduating from the juvenile drug court program.

The Idaho Supreme Court, which oversees the JDC program in Idaho, collaborated in this effort by providing a statewide juvenile drug court data set, drawn from the Idaho Statewide Trial Court Automated System (ISTARS). The data set included all information that was gathered for drug court participants during the January 2004 – December 2005 period, for who had completed the program either successfully or unsuccessfully. Subsequent analysis of the data clarified the difference between groups of those who graduated and those who did not graduate, specifically that a significant difference was found between groups in the following characteristics: gender, school attendance, and in-treatment drug tests.

(83 pages)

## PUBLIC ABSTRACT

Juvenile Drug Court: Predictors of Graduation  
and Non-Graduation Status

by

Joshua D. Hoyt, Educational Specialist

Utah State University, 2012

Joshua Hoyt and Dr. David Stein at Utah State University evaluated the differences between juvenile drug court participants who graduate and don't graduate from the juvenile drug court program in Idaho. Joshua Hoyt and Dr. David Stein coordinated this project with Scott Ronan, Idaho Supreme Court felony sentencing alternative specialist. Dr. David Stein has significant experience in conducting research projects centering on drug courts and will be assisting Joshua Hoyt in the implementation of this thesis project. Further, Scott Ronan has significant experience in working with the juvenile drug court program and has access to data that were used in the project.

The project team proposed a one year project to gather and evaluate data on juvenile drug court participants of the juvenile drug courts in Idaho. The project identified specific pre-program participant characteristics, pre-program participant behaviors, and within-program behaviors that differ between participants who graduate and those who do not. We relied on the support of Scott Ronan of the Idaho Supreme Court to provide statewide data that will be used in this project.

The data received from Scott Ronan were analyzed using chi-square and t-score analysis to evaluate differences between groups. The results from this analysis provided further insight into the differences of pre-program participant characteristics, pre-program participant behaviors, and within-program behaviors of those who graduate and those who don't. This further insight can help in deciding who is a good fit for the juvenile drug court program and who is not. Further, it can provide valuable information that will allow juvenile drug court programs to see how they can adjust their programs to better serve juvenile participants, increasing the probability of graduation.

## ACKNOWLEDGMENTS

I would like to thank my wife, April, and my four children, Jonathan, Thomas, Tamar, and TessaLynn, for their love and support.

I would also like to express my gratitude to Scott Ronan for his dedicated service and support of this thesis project. Without his efforts in collecting and providing the data from the Idaho State juvenile program, this project would have been extremely difficult.

In conclusion I would like to thank the faculty and staff who have helped this project come together in a timely and successful manner. Specifically, I would like to give attention and thanks to my chair, Dr. David Stein. Dr. Stein has been invaluable in his patience, support, and dedication to this project.

Joshua Dusk Hoyt

## CONTENTS

	Page
ABSTRACT.....	iii
PUBLIC ABSTRACT .....	v
ACKNOWLEDGMENTS .....	vi
LIST OF TABLES .....	ix
CHAPTER	
I. INTRODUCTION.....	1
Review of the Literature .....	4
Bodies of Literature Examined .....	4
History of Juvenile Drug Courts .....	6
Reasons to Evaluate Predictors of Outcome in Idaho’s JDCs .....	7
Benefits of the Drug Court Model .....	9
Reasons That Graduation is Key to the Future Success of JDC Participants.....	11
Predictors of Graduation.....	14
Age.....	14
Race/Ethnicity.....	18
Gender.....	19
Youth Level of Service/Case Management Inventory (YLS/CMI) .....	22
Age at First Use .....	25
Past Arrests/Convictions.....	27
Drug of First Choice .....	30
Education .....	31
Frequency of Drug or Alcohol Use.....	33
Drug Test Outcomes During JDC Program .....	35
Conclusion .....	36
Purpose and Objectives.....	36
II. METHODS.....	40
Participants.....	40

Procedures .....40  
Missing Data .....42  
Measures ..... 42

III. RESULTS .....44

Demographics and Characteristics of the Sample .....44  
Graduation Rates for Sample .....44  
Research Question #1 .....44  
Research Question #2 .....48  
Research Question #3 .....51

IV. DISCUSSION.....52

Pre-Demographic Variables .....52  
Pre-Behavior Variables .....57  
In-Treatment Drug Tests .....60  
Study Limitations .....61  
Summary .....62

REFERENCES .....65

## LIST OF TABLES

Table	Page
1 Age Predicting Graduation Status of Teens.....	16
2 Ethnicity Predicting Graduation Status of Teens.....	20
3 Gender Predicting Graduation Status of Teens.....	23
4 Age at First Use Predicting Graduation Status of Teens .....	27
5 Arrests Predicting Graduation Status of Teens .....	29
6 Drug of First Choice Predicting Graduation Status of Teens .....	32
7 Education Predicting Graduation Status of Teens .....	34
8 Variables and Coding Methods.....	43
9 Participant Characteristics #1 .....	45
10 Participant Characteristics #2 .....	46
11 Graduation/Non-Graduation Mean Differences and Effect Sizes .....	46
12 Gender * Graduation Status Cross Tabulation .....	47
13 Race * Graduation Status Cross Tabulation .....	47
14 Drug of First Choice * Graduation Status Cross Tabulation .....	49
15 Prior Attendance of School * Graduation Status Cross Tabulation.....	50
16 Frequency of Drug Use * Graduation Status Cross Tabulation.....	50

## CHAPTER I

### INTRODUCTION

Drug use among juvenile offenders is a serious recalcitrant problem throughout the United States. It is estimated that half of all students use alcohol and almost one third of those admitted to binge drinking. Furthermore, 14.6% of students had used inhalants, 25% were marijuana users, and 9.5% had used cocaine before they had finished high school (Ashcroft, Daniels, & Nedelkoff, 2003). In response to these substance use rates and associated problems with treatment failures and recidivism within this population, the justice system has created over 480 juvenile drug courts (JDC) nationwide. Juvenile drug courts, which were first developed in 1995, are modeled after adult drug courts, the first established in Dade County, Florida in 1989.

Drug courts are distinguished from traditional trial courts in many ways. First they are considered to be non-adversarial and the participant is referred to as an addict as opposed to a criminal. Another key difference is the role the court plays in the treatment of the participant. A court team is developed and works together to achieve the goal of restoring the participant to the status of productive, non-criminal member of society, and monitor the participant's progress in treatment.

The drug court team is made up of judges, prosecutors, defense counsel, probation authorities, other corrections personnel, law enforcement, pretrial services agencies, TASC programs, evaluators, an array of local service providers, and the greater community. Further, treatment plans are individualized, intensive, and structured compared to the traditional court treatment which is variable in lengths and intensity.

Perhaps the most unique difference is that all decisions about treatment and dealing with the drug court participant are made as a drug court team (Ashcroft, Daniels, & Herraiz, 1997; Maryland Judiciary, 2006). The drug court judge manages numerous incentives and sanctions based on the behavior of the adolescent (e.g., consistently passing or failing urine screenings). Greater numbers of privileges and less stringent court attendance requirements are put in place as the teen and his or her family make progress. The main incentive for the adolescent offender is that his or her charges will be dropped or sentencing suspended, upon successful “graduation” from drug court which takes about one year.

Many studies have investigated the effectiveness of adult drug courts and tend to suggest positive outcomes both in reducing recidivism (Gutierrez & Bourgon, 2009; Latimer, Morton-Bourgon, & Chrétien, 2006) and in long term cost benefits (Bureau of Justice Assistance Drug Court Clearinghouse, 2006). However, by contrast, very little research has been conducted on juvenile drug courts specifically.

The limited research that has been conducted on juvenile drug courts (JDC) shows that it may be impacting some juvenile offenders more than others. Nationally, about 48% of teens who begin drug court eventually drop out or are terminated prematurely by the programs (Stein, DeBerard, & Homan, 2011). It is most often the case that females tend to benefit slightly more from juvenile drug court programs than males, and Caucasian teens tend to “graduate” from drug court more often than ethnic minority groups (Stein et al., 2011). Also, studies of JDCs and quasi-experiments suggest that recidivism rates for juvenile drug court participants may be only modestly better than

rates for teens placed in typical probation programs. For example, upon reviewing available studies, Shaffer (2006) stated, “The [apparent] limited ability of juvenile drug courts to reduce recidivism may be the result of accepting juveniles who are inappropriate for the drug court services” (p. 12).

To date, few actual experimental studies examining the effectiveness of juvenile drug courts have been conducted and only a handful of studies investigating differences of juveniles characteristics between those who graduate and those who do not have actually been published. The vast majority of reports on factors associated with drug court outcomes are the unpublished program evaluations commonly required of drug court programs by local and federal funding agencies. For instance, only limited research has assessed the personal, psychological, and situational characteristics of teens that succeed in drug court (i.e., graduate) relative to those who do not. The limited knowledge about predictors of outcome makes it difficult for professionals to estimate which teens may benefit from juvenile drug court and which do not. Furthermore, a lack of knowledge in the juvenile drug treatment field makes it difficult to identify weaknesses in the model that explain why some teens drop out or fail to graduate. Indeed, the high, absolute drop-out rates from juvenile drug courts nationally suggest that present drug court models may not accommodate the needs of a majority of substance-abusing offenders.

This thesis project examined predictors of successful versus unsuccessful graduation status of juvenile drug court among participants throughout the state of Idaho. It utilized the statewide data set of the Idaho juvenile drug court, documenting activities

between January 2004 and December 2005. The optimal outcome variable within the dataset that was hypothesized to be associated with various JDC participant characteristics was participants' graduation versus non-graduation status. The predictors of outcome that were available for investigation included: past arrest/convictions, marijuana/alcohol versus other primary drugs of abuse, frequency of use, age at first use, education, gender, ethnic status, age, and proportion of clean urine screens during first month of program.

By examining outcome predictors of outcome, profiles of teens (demographic, psychological, family, etc.) associated with positive and negative outcomes, possible program improvements can be identified. Identifying participant features that relate to successful graduation can help guide future decisions about how to possibly modify programs so as to meet the needs of teens not currently benefitting from drug courts. It may also prove useful in selecting candidates for whom the existing model of intervention seems optimal. In turn, data can be used to favorably impact the program attrition rate and recidivism rates.

## **Review of Literature**

### **Bodies of Literature Examined**

The review that follows summarizes the history of drug courts and how the juvenile drug court program evolved from the adult drug court model. A better understanding of the evolution of the drug courts may help drug court program developers appreciate issues unique to juvenile drug court programs (e.g., relative to

adults in drug court). For example, juveniles have different systems they are involved with (e.g., school, family, and peers), juveniles have a feeling of “invincibility”, and so forth. As such, a treatment/intervention program should take these factors into account.

The review will also highlight what is presently known about general outcomes involving recidivism rates for drug courts. It is helpful in knowing that drug courts might reduce recidivism, but it is also important to understand what might be accounting for the improvement (e.g., program features and participant characteristics that correlate with graduation versus termination). Further, the review examines the costs and benefits of the drug court program compared to traditional courts. If the savings of drug courts over traditional courts is greater, then it seems reasonable that more research should be conducted on how to further expand those cost savings; specifically looking at the characteristics of those participants who are most likely to increase those cost benefits through their successful graduation from drug court.

Finally, this review will summarize what is already known about possible predictors of outcome, specifically predictors that correlate with graduation versus termination. By identifying and summarizing these predictors, it is possible that in the future, more effective criteria for prescreening prospective participants may be identified. Also, such data may help address the question of whether drug courts are presently meeting the demands of the population they are trying to serve. The predictors to be examined in this review are: age, race, gender, Youth Level of Service/Case Management Inventory, age at first use, past arrest/convictions, drug of first choice, education, frequency of use, and drug test outcomes during JDC program.

Because of the limited research conducted on JDCs, this literature review will summarize characteristics from both juveniles and adult participants. Certain predictors of success have been presumed by many contemporary researchers to be age-independent (Boghosian, 2006). Therefore, predictors of adult drug courts may be shown in future studies to correlate with graduation (versus termination) in juvenile drug courts.

### **History of Juvenile Drug Courts**

From 1986 to 1999 the number of offenders in federal prisons grew from 14,976 to 68,360 due to the War on Drugs and felony drug charges. On average, drug offenders in federal prisons grew by more than 12% annually (Pitts, 2006). In response to this, drug courts were formed in the late 1980s. This reduced some of the strain that was placed on the courts and prisons, as well as helped recidivism. Since the first drug court was created in Dade County, Florida in 1989, approximately 2,500 drug courts now exist nationally (Medina, 2008). Due to the success of adult drug courts, it seemed natural in the eyes of many juvenile justice experts to start similar programs for the juvenile population as well. The first juvenile drug court (JDC) was formed in 1995 (Pitts, 2006). Between 1995 and 2010 more than 480 JDCs have been established (Bureau of Justice Assistance Drug Court Clearinghouse, 2009).

The juvenile drug courts adopted many of the same policies, procedures and techniques used in adult drug courts, but a national consensus seems to be that a number of modifications are required due to the developmental needs of adolescents. Some of the challenges to juvenile drug courts included: counteracting the powerful negative influences of peers, gangs, other community members and family; addressing issues

within the family such as drug and alcohol use by parents and siblings; obtaining information about the youth without breaching confidentiality; addressing the sense of invulnerability that children avow; and responding to the many psychological and biological changes that adolescents go through (Pitts, 2006). Also, the living circumstances and situational needs of youth and their families are different than those in the adult population. This means JDCs may need to include different components or areas of emphasis in their interventions than adult drug court (Ashcroft et al., 2003).

### **Reasons to Evaluate Predictors of Outcome in Idaho's JDCs**

There have been many studies conducted on JDCs to ascertain both their effectiveness and to compare juveniles who graduate with those who do not. However, few studies have been conducted in rural states in the Rocky Mountain region. Further, due to the similar policies and guidelines to which all of Idaho's JDCs adhere, a study of the outcomes of participants across the entire state in multiple JDCs is quite justifiable and necessary.

**Rural state in Rocky Mountain region.** Idaho is located in the northwestern U.S. and is the smallest of the eight Rocky Mountain states but is 13<sup>th</sup> in size among the 50 states. Idaho has a total land area of 52,894,974 sq. mi. As of 2010, the U.S. Census Bureau reported that the population of Idaho was 1,567,582 and that number of persons per square mile was just 19 compared to a national average of 87.4 (U.S. Census Bureau, 2011). Over half of its population is living in what is considered to be rural areas with 14.4 % of its total population living in poverty and an unemployment rate of 9.3%. Much of its land is used in agriculture (21.7%) (U.S. Department of Agriculture, 2011).

**Policies and guidelines across Idaho's JDCs are similar.** In a study conducted by Ronan (2006) the question was asked, "Do Idaho juvenile drug courts adhere to the established guidelines?" (p. 19). In this study two surveys were conducted to assess how closely the JDCs of Idaho were adhering to a drug court compliance checklist developed by the Idaho Supreme Court. The checklist was comprised of 5 parts: Screening and Assessment, Drug Court Team, Operations, Treatment, and Funding & Evaluations (Ronan, 2006). These parts or domains were numbered consecutively "1" through "5" in this survey.

The results of the study indicated that the nine JDC coordinators were adhering to the checklist on 77.4% of the 270 possible items. The breakdown of survey results by domain are as follow: Part 1 (82%), Part 2 (85.2%), Part 3 (76%), Part 4 (58.5%), and Part 5 (88.9%) (Ronan, 2006). These percentages show that in all likelihood, the JDCs are quite similar in procedures and policies and are generally compliant. Such comparability justifies examining outcomes across the state collectively.

Furthermore, graduation requirements are similar in the JDCs throughout the state. In order for a juvenile to graduate from the Idaho JDC program, he/she must complete all program requirements. These requirements vary slightly between individual JDCs but generally include the following guidelines. The participant must be in the program from 8-12 months and complete all phases of the program. The participant must also show that they have been clean for at least 6 months, be employed full-time or attending school full-time, paid all court fees including restitution, and complete their treatment program. Graduation is also dependent on the recommendation of the drug

court team (Ronan, 2006). These data also support the premise that a collective, statewide examination of factors relating to drug court outcomes is justifiable from a methodological perspective.

### **Benefits of the Drug Court Model**

Two ways in which researchers have shown that drug courts are successful are through studies of cost benefit and examining predictors of recidivism. Specifically, one of the possible benefits of the drug court program may be that money is being saved compared to traditional adjudication procedures and/or incarceration. Many researchers have to date, examined the cost and apparent benefits of drug courts. These studies showed mixed results but the majority have shown that the long term cost-benefits for both adult and teen drug courts are favorable. According to the Bureau of Justice Assistance Drug Court Clearinghouse (2006), jail/prison daily costs per offender generally run at a minimum of \$40.00 per day. This cost does not include the costs of new construction of jail/prisons. On the other hand, the daily cost of a participant in the drug court program generally runs from between \$8.00 and \$14.00. The cost depends largely on the services that the participant is receiving (Bureau of Justice Assistance Drug Court Clearinghouse, 2006).

While the data are sparse, JDCs appear to offer a reduction in costs compared to incarceration. A report from Bureau of Justice Assistance Drug Court Clearinghouse (2006) showed that administering drug court services to abusing juveniles cost \$14.73 per day, compared to the correctional center cost of \$120.00 per day. According to the Bureau of Justice Assistance (BJA) Drug Court Clearinghouse (2006), which is a report

on the cost benefits of drug courts, four studies conducted by the Clackamas County, Oregon JDC, drug courts in the state of Wyoming, and two studies from North Dakota's JDC found that JDCs appeared to be more cost effective than other correctional options. MacMaster, Ellis, and Holmes (2008) reported in their research that "drug courts are recognized as a cost-effective alternative to traditional methods of processing offenders" (p. 48).

Recidivism is defined as a referral for a similar offense or the same offense, a conviction, or a new petition (Pitts, 2006). A majority of researchers agree that drug courts significantly reduce recidivism among adult drug court participants (Barnoski & Aos, 2003; Cissner & Rempel, 2005; Polakowski, Hartley, & Bates, 2008). One meta-analytic study found that adult drug courts reduce recidivism by 7.5%, while another found that they reduce recidivism by 12.5%; and a third found drug courts reduced recidivism by 12.3% (Gutierrez & Bourgon, 2009).

Yet another meta-analytic study conducted in Canada compared 66 individual drug courts (that included 17,214 offenders who had successfully completed drug court programs) with a control group of 14,505 offenders. The study found that 57% of the participants in the drug court program were not charged with a new criminal offence, compared to 43% of the control group (Latimer et al., 2006).

However, when researchers studied juvenile drug courts specifically, the recidivism results have been mixed. Latimer et al. (2006) reported that drug treatment courts may not be suitable for juveniles as outcomes were deemed to be poor. Additionally, Shaffer (2006) reported in her meta-analysis on drug court research that

while both adult and juvenile drug courts appear effective, adult drug courts seems to do a better job at reducing recidivism. A study of Maryland JDCs revealed a 71% reduction in new convictions among drug court participants (Crumpton et al., 2006). Finally, Henggeler (2007) reported that even though JDCs were more effective than family court in reducing rates of substance use and criminal behavior, the intervention did not translate into reduction of re-arrest or incarceration for drug court participants.

Several factors might play a role in the recidivism of juvenile drug court participants. For example, the severity of the sanctions, the sanction rate, rewards, and termination were all positively related to rates of referral back to court. Furthermore, the more behaviorally demanding the program the more likely it was that the teen would relapse and return to the court system (Polakowski et al., 2008).

### **Reasons That Graduation is Key to the Future Success of JDC Participants**

Many researchers have shown that JDCs are effective, based on the outcome criterion of recidivism (i.e., re-arrest, re-referral back to the court) through research studies, but fewer researchers have examined juvenile drug court graduation rates as an outcome variable of effectiveness of a JDC program. However, Stein et al. (2011) examined an outcome indicator that often predates re-arrest rates for juvenile drug court participants, the so-called graduation rate. Graduation from juvenile drug court occurs when the teen successfully completes the overall drug court program and has been compliant with the majority of program expectations. Graduation takes about one year for most youth (i.e., the duration of most programs). Teens who fail to graduate from drug court usually drop out and elect typical adjudication, or are terminated from the

program due to noncompliance. Stein et al. (2011) examined over 60 juvenile drug court evaluation studies and noted that the mean graduation rate of JDCs is around 48%. Such high typical attrition rates mean that many of the participants in the JDCs are not getting the full benefits of the program.

However, researchers have tended to examine various positive outcomes among those who graduate from JDC versus those who do not (McDaniel & Schmidt, 2007; Sloan, Smykla, & Rush, 2004; Thompson, 2006). By examining graduation as an outcome variable, researchers can assist JDC programs in more effectively choosing candidates who will graduate and thus receive maximal benefits from participation.

By way of example, Thompson (2006) conducted a study on 190 juveniles, half in drug court and half assigned to a control group. Each juvenile participating in the study completed a Child Adolescent Functional Assessment Scale (CAFAS). Those juveniles participating in the JDC program were also evaluated as a function of their graduation status. All three groups (the control group, those who graduated from JDC, and non-graduates from JDC) made gains on the subscales of the CAFAS in the first 90 days. However, those who graduated from the JDC program made substantial treatment gains following graduation, while those who terminated from the JDC program stalled in treatment or even regressed (Thompson, 2006).

Further, Thompson (2006) found that:

juveniles participating in juvenile drug court and ultimately graduating from the program (1) improve their school functioning, (2) decrease inappropriate home/family behaviors, (3) reduce delinquent acts, (4) behave in a way that is

more respectful of others, (5) exhibit fewer fears and anxieties, (6) reduce their use of intoxicating substances and the negative consequences associated with their use, and (7) gain family support. In virtually every domain, drug court graduates' treatment outcomes outstrip the gains made by the comparison group. (p. 26)

Most studies that have investigated the question of who graduates from drug court and who does not show significant differences in the outcomes of participants such as recidivism. For example, McDaniel and Schmidt (2007) conducted a study on the effectiveness of JDCs. One of their findings was that graduating juveniles had a recidivism rate of 27.9% compared to 51.4% of non-graduates. Sloan et al. (2004) found similar results, although not as big in their study. They found that the recidivism results of graduates versus non-graduates to be 7% and 12%, respectively, and that the graduates remained arrest-free for 134 days compared to the non-graduates of only 88 days. Research has also shown that graduates have an increase in positive social and psychological functioning compared to those who have not graduated (Hiller et al., 2010; Rodriquez & Webb, 2004;).

On the other hand, participants who have been terminated from the JDC program are usually incarcerated and receive the full sentence they would have received had they not entered the JDC program. These participants are generally terminated because of new offenses (i.e., drug use), missed appointments (i.e. counseling, court appearances, school attendance), recommendation of treatment provider, or new arrests (Cooper, 2002). Other

possible reasons for termination include self-withdrawal and due to the participant absconding.

This research provides support for the use of graduation versus premature termination as a predictor of success because of reasonable hints from available research regarding the possible benefits that come from juvenile drug court, and particularly, graduation.

### **Predictors of Graduation (As An Outcome)**

Researchers have studied many program and participant characteristics in hopes of determining predictors of success in the JDC program. These variables can be divided into three categories: pre-program participant characteristics, pre-program participant behaviors, and within-program behaviors. Pre-program characteristics include such variables as: age, race, gender, and Youth Level of Service/Case Management Inventory (YLS/CMI) scores. Pre-program behavioral variables include such things as: age at first use, past arrest/convictions, drug of first choice, education, and frequency of drug use. The third category of within-program behavior generally contains such things as drug test results, frequency of drug testing, and other behavioral violations.

#### **Age**

Age is one characteristic that has been studied a great deal in both the adult and JDC programs. The reason this predictor of outcome has been of interest to researchers is that if a particular age group is dropping out of drug court at a rate higher than another age group, it may be that certain program content or behavioral expectations are not

developmentally appropriate or relevant. If studies of juvenile drug courts discover differential premature termination rates for different age groups of youth, it would then be critical to assess whether developmental or age-related factors within programs might account for the difference. However, in general, studies to date of the association between age and graduation have shown mixed results. It should be pointed out however, that the range of age of participants in JDCs is by definition, limited (14-18). This limited age range probably reduces the size of correlations between age and the outcome measure of interest and could help explain why the literature is mixed. For instance, Boghosian (2006) found that there was no relationship between the age of the client and the outcome of graduation status. Boghosian explains that this could be a result of fundamental errors in applying drug court as a model to teens (i.e., generalizing adult drug court procedures to adolescents), the limited age range of the sample used, or that JDCs may not be biased in the services that they use (i.e., effects are uniform regardless of age of the participant).

Table 1 is a summary of the results of evaluation reports associated with different drug courts that examined the correlation between age and whether teens graduate or do not graduate from drug court. The  $r$ -values in Table 1 were derived by transforming chi-square, odd-ratio, or related statistics provided by authors into phi-coefficients which are analogous to Pearson-R correlations. Consistent presentation of a single effect size ( $r$ ) index allows direct comparison of the association with graduation/termination outcomes across studies.

As can be seen, most of the associations between graduation and age of participant are nearly zero, but several, though not statistically significant due to small

study sample sizes, reflect socially meaningful sizes of effect. For example, a phi coefficient ( $r$ -value) of .34 is roughly analogous to the effect size (Cohen's  $d$ )

Table 1

*Age Predicting Graduation Status of Teens.*

Author (year)	$N$	$R$ -Value	$P$ -Value
Carey et al. (2006)	53	0.13	0.35
Crumpton et al. (2006)	96	0	0.8
Dickie (2002)	53	0.07	0.62
Gilmore, Rodriguez, & Webb (2005)	214	-0.08	0.22
Mackin et al. (2010a)	154	0	0.91
Mackin et al. (2010b)	149	0.03	0.8
Shaffer et al. (2002)	57	0.34	0.03
Tappin & McGlashin (2007)	109	0	0.95
A. EC Court	45	0	0.8
B. NC Court	45	0	0.8
Deschenes, Steinlechner Moreno, Moreno Emani, Thompson, Manatt (2001)	55	0.12	0.52
Tranchita & Stein (2004)	380	0.04	0.41
Hickert, Becker, & Prospero (2010)	1504	0.04	0.18
Boghosian (2006)	95	0.12	0.25

value of .65, suggesting a meaningful association. Additional studies examining the association between age of juvenile drug court participants and outcome are needed, especially for certain regions of the country (e.g., Rocky Mountains) as most studies are from the Midwest and eastern jurisdictions of the U.S., because of the variation of findings between the studies and to better establish the existence of a trend between age and graduation/termination.

Shaffer, Latessa, Pealer, and Taylor (2002) found that there was a curvilinear relationship between age and graduation. That is, participants over the age of 18 and under the age of 14 were more likely to graduate. This finding may be a result of the fact that the drug court under study accepted a slightly broader range of participants than the majority of other JDCs. On the other hand, several other studies found that the older the juvenile the more likely they are to graduate (Carey, Waller, & Marchand, 2006; Polakowski et al., 2008).

Studies that have examined adult drug courts have also found that older participants are more likely to be successful in graduating from the drug court program (Henggeler, 2007; Mateyoke-Scriver, Webster, Staton, & Leukefeld, 2004).

In summary, the data involving the association between age of JDC participants and whether they graduate reveals generally weak relationships and unclear trends. Additional research of geographically large and diverse drug courts is needed to determine clearer trends between outcomes and adolescents' age.

**Race/Ethnicity**

Race as a predictor of outcome is worthy of study because if certain ethnic groups are dropping out of juvenile drug court more than others, it would be important to understand why. Differences in outcome as a function of ethnicity or race may mean that the drug court programs are not meeting the individual cultural needs of particular subsets of participants. Consistent outcome trends associated with race would therefore, be of importance in program planning (e.g., there may be a need to improve cultural sensitivity of staff or relevance of activities through revision, enhancement, etc.).

In general, demographic statistics across many drug courts reveal that participants in JDCs tend to be quite diverse, coming from many different ethnic backgrounds. In a broad national analysis of 53 JDC programs, less than half (about 47%) of all participants are Caucasian, with the next highest category being African American (35%). The study also showed that nationally, approximately 15% of JDC participants are Hispanic (The Office of Justice Programs Drug Court Clearinghouse and Technical Assistance Project, 2001). Therefore, since drug courts serve a diverse clientele, it is not yet clear whether differential outcomes might be associated with different racial groups.

To date, studies that have assessed whether race/ethnicity is a predictor of success in drug court programs show mixed results. Mateyoke-Scrivner et al. (2004) for example, found that ethnicity was significant in determining graduation from adult drug court. The researchers found that being Caucasian was a predictor of drug court retention. Sloan et al. (2004) found that 71% of Caucasian juveniles completed drug court compared to only 14% of African American juveniles. On the other hand, at least three other studies (see

Table 2 below) found no relationship. In no case, however, have researchers to date found that ethnic minority teen participants fare significantly better than Caucasian adolescents in drug court.

Table 2 summarizes evaluation reports obtained from drug courts that examined associations between ethnicity and whether teens graduate or do not graduate from drug court.

Additional studies examining the association between race/ethnicity of juvenile drug court participants and outcome are needed, particularly for certain regions of the country (e.g., Rocky Mountains). An examination of available reports show that of the data in the above table, a majority are from the Midwest and eastern jurisdictions of the U.S. Additional data from additional regions of the country data would help to establish whether a national trend exists regarding the association between race/ethnicity and graduation/termination. Because of the mixed results, it is difficult to hypothesize what the relationship between race/ethnicity and graduation status might be.

## **Gender**

The gender of the client entering JDC has been studied as a predictor of outcome more frequently than many of the other variables. It is well known that females and males have unique substance abuse treatment needs. For example, girls tend to use drugs as a means of emotional escape and therefore, may benefit from learning strategies that help them cope with emotional stress. Males on the other hand, outnumber females in overall substance abuse and such behavior is related to learning disabilities such as attention deficit hyperactivity disorder (ADHD), a greater risk of dropping out of school,

Table 2

*Ethnicity Predicting Graduation Status of Teens.*

Author (year)	<i>N</i>	<i>R</i> -Value	<i>P</i> -Value
Anspach, Ferguson, & Phillips (2003)	105	0.01	0.99
Applegate & Santana (2000)	67	0.22	<0.07
Boghosian (2006)	95	0.14	0.18
Crumpton et al. (2006)	96	0.1	0.31
Dickie (2002)	55	0.15	0.27
Gilmore et al. (2005)	241	0.03	0.64
Mackin et al. (2010a)	154	0.15	0.07
Mackin et al. (2010b)	156	0.01	0.88
Mackin et al. (2010c)	80	0.15	0.17
Shaffer et al. (2002)	57	0.32	0.03
Tappin & McGlashin (2007)	109	0.15	0.15
Thompson (2002)	48	0.1	0.52
A. EC Court	45	0.12	0.41
B. NC Court	45	0.14	0.34
Deschenes et al. (2001)	55	0.07	0.59
Tranchita & Stein (2004)	380	0.13	0.41
Hickert et al. (2010)	1504	0.13	0.005
O'Connell et al. (1999)	260	0.24	0.001
LeGrice (2003)	236	0.23	0.001

heightened aggression, increased sexual drive, physical risk taking, and a shortened temper (Ashcroft et al., 2003).

Differences among male and female adolescents in JDC dropout rates may mean that one group is not having its needs met and therefore is more likely to drop out. For this reason, future research may need to assess how to enhance gender-related factors within programs.

Being male has often been correlated with poor prognosis in the JDC program; and according to the The Office of Justice Programs Drug Court Clearinghouse and Technical Assistance (2001) project, 82% of JDC participants are male. In their article *Treating the Tough Cases in Juvenile Drug Court*, the researchers found that only one significant demographic characteristic was related to termination: gender. They found that males were eight times more likely to be terminated from the program compared to females (Polakowski et al., 2008).

Carey et al. (2006) discovered in their study on JDCs that females were more likely to graduate compared to males (71% of females graduated versus 36% of males). They hypothesized that this could be due to the fact that girls internalize more of their problems compared to boys who externalized their problems. As such, the JDC programs were better equipped to handle the internalizing problems evidenced by girls.

However, not all studies found an association between graduation and gender. Both Boghosian (2006) and Mateyoke-Scriver et al. (2004) found no significant relationship between gender and graduation. Boghosian, studying a drug court in Utah (a politically and religiously conservative area of the U.S.), speculated that the lack of an

association could be due to the fact that JDCs show no gender bias in how they treat boys and girls, or that there may have been unknown data collection limitations that might account for the failure to find a significant correlation.

Table 3 presents a summary of evaluation reports obtained from different drug courts examining the correlation between gender and whether teens graduate or do not graduate from drug court. As can be seen, most of the associations between graduation and gender of participant have low statistical significance, but several, though not statistically significant, reflect socially meaningful sizes of effect. Additional studies examining the association between gender of juvenile drug court participants and outcome are needed, especially for certain regions of the country (e.g., Rocky Mountains), as most studies are from the Midwest and eastern jurisdictions of the U.S. because of the variation of the results between studies. Based on the available research, it would be expected that future studies will show that female teens tend to graduate from drug court at somewhat higher rates than boys.

### **Youth Level of Service/Case Management Inventory (YLS/CMI)**

Pre-program assessments of psychological functioning and behavior of participants, through standardized tests, may be useful when asking the question, “Who graduates from drug courts?” Standardized tests may help determine who is a good candidate for a drug court program and perhaps the intensity of treatment the participant needs. The Youth Level of Service/Case Management Inventory (YLS/CMI) has been used in a few studies in an attempt to obtain objective, standardized pretest information about drug court teens (Schmidt, Hoge, & Gomes, 2005). Other studies have examined

Table 3

*Gender Predicting Graduation Status of Teens.*

Author (year)	<i>N</i>	<i>R</i> -Value	<i>P</i> -Value
Anspach et al. (2003)	106	0.14	0.14
Carey et al. (2006)	53	0.25	0.06
Crumpton et al. (2006)	96	0.04	0.65
Dickie (2002)	55	0.31	0.02
LeGrice (2003)	245	0.05	0.41
Mackin et al. (2010a)	154	0.14	0.08
Mackin et al. (2010b)	156	-0.05	0.48
Mackin et al. (2010c)	80	0.26	0.02
Polakowoski et al. (2010)	149	0.13	0.12
Tappin & McGlashin (2007)	111	0.18	0.05
Thompson (2002)	48	0.15	0.32
A. EC Court	45	0.11	0.45
B. NC Court	45	0.02	0.89
Deschenes et al. (2001)	36	0.49	0.001
Tranchita & Stein (2004)	380	0.15	0.3
Hickert et al. (2010)	1504	0.06	0.02

how the YLS/CMI functions in predicting recidivism among youth probationers (Onifade et al., 2008; Onifade, Nyandoro, Davidson, & Campbell, 2010).

The YLS/CMI is a risk/needs assessment administered through an interview which helps professionals, working with youth, evaluate their needs and risks. Further, the YLS/CMI helps professionals select appropriate goals and develop a case management plan for the individual. The assessment has been found to have high reliability (.60 for all 8 domains) and was correlated with the Child Behavior Checklist (CBCL). Further, construct validity was established using the Psychopathy Checklist, Disruptive Behavior Disorders Rating Scale, and Conduct Disorder Symptom List (Schmidt et al., 2005).

The YLS/CMI was validated by gathering information on 263 juvenile offenders between the ages of 12 and 16 which showed that it could correctly differentiate between groups of offenders and non-offenders, as well as show the rate of delinquency (Schmidt et al., 2005). However, Schmidt et al. (2005) found a low correct classification rate of 56% in their longitudinal study of 60 months (107 juveniles).

The YLS/CMI is composed of 42 items assigned to 8 domains. The domains include: (1) Prior and Current Offenses (e.g., number of convictions); (2) Education (e.g., disruptive classroom behavior); (3) Substance Abuse (e.g., substance use interferes with life); (4) Family (e.g., inappropriate discipline); (5) Personality/Behavior (e.g., inflated self-esteem); (6) Peers (e.g., few positive friends); (7) Leisure/Recreation (e.g., limited organized activities); and (8) Attitudes/Orientation (e.g., not seeking help) (Schmidt et al., 2005).

The use of standardized tests such as the YLS/CMI as a correlate of graduation/termination, is important to the field because it could help predict the likely

emotional and behavioral problems the teen may present, and have implications for the intensity of treatment he or she might need. Such measures may be used in the future to determine whether a prospective participant is a poor or good fit for the JDC program. Additional research examining the association between standardized measures of youth problems and graduation rates would be helpful because of the limited research conducted up to this point. With regard to the use of the YSL/CMI in screening youth for drug court, a reasonable speculation would be that lower YLS/CMI scores among participants would be related to higher graduation rates.

### **Age at First Use**

Age at first use of psychoactive substances (drug/alcohol) is important to examine as a predictor of drug court outcome, because it may help identify those participants at greater, long-term drug/alcohol use risk. If those involved in helping drug court youth have a better global understanding of this potential risk factor and its relation to outcome, they might be better able to individualize aspects of the program for that participant (e.g., relapse prevention treatment, more initial urine screening procedures).

Few studies have examined the predictive value of age at first use and as such, there is little evidence for or against it as a predictor of outcome. However, many studies do show that the earlier a person begins using, the worse the prognosis. Also, early use is generally predictive of the development of formal substance use disorders (Gonzalez, 1989; Hawkins, Lishner, Catalano, & Howard, 1986; Sung, Erkanli, Angold, & Costello, 2004; Warner & White, 2003).

Available research also shows that the older a teen defendant is when he or she begins using drugs the lower the risk of recidivism (Polakowski et al., 2008). In an adult drug court study, at least one group of researchers found that prematurely-terminated drug court clients had more extensive drug use histories than those who graduated (Mateyoke-Scrivner et al., 2004).

Boghosian (2006) surmised that by accepting only adolescents with shorter substance use histories, JDCs would experience a higher rate of graduation. However, Boghosian did not find age at first use to be a statistically significant predictor of [graduation] outcome.

Table 4 presents a summary of evaluation reports obtained from drug courts that examined the correlation between age at first use and whether teens graduate or do not graduate from drug court. As can be seen, most of the associations between graduation and age at first use of participant are nearly zero; however, too few studies have been conducted to conclude whether a clear trend exists. Also, chronicity of use is related to age of first use, and it would be helpful to know the risk level of participants of JDCs. For this reason it is assumed that the earlier a participant started using, the more severe the drug problem would be, making it harder to graduate. Therefore, it is reasonable to hypothesize that the earlier a participant starts using, the less likely it is that the participant will graduate.

Table 4

*Age at First Use Predicting Graduation Status of Teens.*

Author (year)	<i>N</i>	<i>R-Value</i>	<i>P-Value</i>
Applegate & Santana (2000)	67	0	0.9
Crumpton et al. (2006)	82	0	0.8
Polakowski et al. (2010)	149	0.19	0.05
Boghosian (2006)	94	0.11	0.29

**Past Arrests/Convictions**

Past arrests/convictions have been studied by some investigators as a possible predictor of success in the JDC program. Juveniles with previous arrests/convictions are more likely to have lower recidivism rates, but not necessarily higher graduation rates. It may prove to be the case that the drug court model is not a good fit for adolescents with more chronic offense and drug use histories if they, in fact, prove to drop out at abnormally high rates. If program failure rates are especially high among this subgroup, future research could then assess whether other resources should be made available for these adolescents or if the judicial and mental health systems can accommodate them better in some other way.

In a study conducted by Polakowski et al. (2008), it was found that the more warrants issued prior to drug court, the less likely participants were to be referred again after leaving drug court. The researchers surmised this to be the case because the drug court they studied was particularly focused on teens with more serious and chronic drug/offender histories. They further examined this question by looking at both those

who graduated and those who were terminated. Yet, Polakowski et al. found that both high and low graduation rate groups who had more warrants were less likely to be referred again. The researchers speculated that the reason that a number of teens had not produced new warrants or referrals was because they may have been sent to detention and were not free to commit more delinquent acts.

Cissner and Rempel (2005) also found that "...participants perform better in drug court if their offenses were more serious—and hence, they face more severe legal consequences if they fail" (p. 14). They also suggest that drug courts might make a greater relative difference to those who have prior criminal records than those who do not. Therefore, they recommend that those over whom the courts can exercise high legal coercion be accepted into JDC, rather than persons with less serious criminal histories (Cissner & Rempel, 2005). By way of example, the Clackamas County Juvenile Drug Court found that prior arrests mildly correlated with program exit status. This JDC found that terminated participants had a greater number of prior referrals while graduates had fewer. Also, a higher number of prior arrests were correlated with a higher number of rearrests (Carey et al., 2006).

Table 5 is a summary of evaluation reports obtained from different drug courts examining associations between past arrests/convictions and whether teens graduate or do not graduate from drug court. As can be seen, some of the associations between graduation and past arrests/convictions of participant are positive, while others are negative or are not significantly different from zero. That is, in three of the programs cited in the table, teens with quite unfavorable, prior delinquency records do better in

drug court than those with favorable records, but the majority of the studies found the opposite relationship or none. It is unclear why such mixed results exist and therefore, additional studies are needed to better determine the trend of this association. Given the trends in the available data, it is expected that additional research would show an inverse association between the extent of teens' criminal record and whether they graduate from drug court.

Table 5

*Arrests Predicting Graduation Status of Teens*

Author (year)	<i>N</i>	<i>R</i> -Value	<i>P</i> -Value
Anspach et al. (2003)	115	0.16	0.09
Applegate & Santana (2000)	67	0	0.9
Crumpton et al. (2006)	96	-0.24	<0.05
Gilmore et al. (2005)	241	-0.26	0.001
LeGrice (2003)	245	0.12	0.06
Mackin et al. (2010a)	124	0.18	0.04
Mackin et al. (2010b)	142	0.07	0.47
Mackin et al. (2010c)	80	0.12	0.32
Searle & Spier (2006)	50	0.19	0.31
Tappin & McGlashin (2007)	109	0.11	0.25
LeCroy & Milligan Associates, Inc. (2003)	65	0.26	0.05
Tranchita & Stein (2004)	380	-0.14	0.05

### **Drug of First Choice**

Drug of first choice is the particular drug that an addict prefers to other drugs. An informal scan of the literature would reveal that marijuana is by far the main substance of use that causes referrals to drug courts and the number one drug of preference by a wide margin (over 80%): alcohol is second. Therefore, strong teen preference for more addicting drugs such as cocaine, meth, and heroin might present special challenges to drug court programs; a reasonable hypothesis is that drugs of preference other than marijuana or alcohol among a sample of teens is negatively related to successful completion of drug court. That is, drugs that are particularly addictive and produce high rates of relapse will also be related to poor graduation rates. If this is generally the case, future research could look at ways to enhance the ability of drug courts to deal with participants that may be failing due to drug of first choice (e.g., higher rates of urine screening and more significant rewards for abstinence).

Although one JDC study has shown that juveniles whose drug of first choice was methamphetamine had better outcomes than peers preferring “softer” drugs or alcohol, it appears that to date, most studies have shown that this is not the case.

Boghosian (2006) for example, found that drug of first choice was not significantly associated with graduation status. However, in two other studies a correlation was found between drug of first choice and graduation. One adult drug court study has found that the probability of success increased if the client did not use heroin or crack (Cissner & Rempel, 2005). Carey et al. (2006) also reported that previous outcome evaluations agreed with the above study. However, in a more recent evaluation,

methamphetamine users were more likely to graduate. The authors of that study explain that this may be a result of the small amount of juvenile methamphetamine users in the study. They also suppose that it could be greater attention given to the juvenile from the team at the JDC as well (Carey et al., 2006).

The LeCroy & Milligan Associates, Inc. (2003) study evaluated several juvenile and family drug courts in Arizona. There were 65 participants, a large majority of them male and an average age of 16. Lecroy and Milligan found that participants whose drug of first choice was marijuana were more likely to graduate with a phi coefficient ( $r$ -value) of .23 (LeCroy & Milligan Associates, Inc., 2003).

Table 6 is a summary of evaluation reports examining the correlation between drug of first choice and whether teens graduate or do not graduate from drug court. The table of correlations reflects associations between teen preference for marijuana, as opposed to “harder” drugs such as cocaine, opiates, etc. with graduation versus non-graduation. As can be seen, most of the associations between drug of first choice and graduation are of none to little significance. However, too few studies have been conducted to truly estimate the trend of association and as such, more studies need to be conducted. Based on the review of literature it is hypothesized that in general, participants who use softer drugs will be more likely to graduate than those who use more addicting drugs.

## **Education**

Education engagement (school attendance) as a possible predictor of graduation/termination has implications for teen success in other behavioral domains

Table 6

*Drug of First Choice Predicting Graduation Status of Teens*

Author (year)	<i>N</i>	<i>R</i> -Value	<i>P</i> -Value
Anspach et al. (2003)	115	0	> 0.91
Applegate & Santana (2000)	67	0.2	> 0.10
Boghesian (2006)	95	0.14	0.19
Gilmore, et al. (2005)	241	0.19	0.003
LeCroy & Milligan Associates, Inc. (2003)	65	0.23	0.05

(e.g., delinquency, teen pregnancy, etc.). Many studies have examined the influence of education and have indicated that failure in school is a predictor of delinquency (Kasen, Cohen, & Brook, 1998; Maguin & Loeber, 1996; Sankey & Huon, 1999; Wiesner & Windle, 2004). As a general rule, experts who work with teens recognize the importance of enhancing education factors within programs. According to Tranchita and Stein's (2004) review of literature, higher education predicted higher rates of graduation from drug courts involving adults.

Mateyoke-Scriver et al. (2004) found through their study of adult drug courts that low education levels have consistently predicted treatment dropout. They further explain that those with lower education have more difficulty in expressing their needs, completing treatment assessments, and may feel inferior to other individuals with higher education. This could be seen in the JDC as well. When juveniles have less education they may find it harder to express their needs and complete assessments. Another study

on JDCs conducted by Henggeler (2007) also showed that there were better outcomes for those who had more education than those who did not. McDaniel & Schmidt (2007) examining drug courts in Wyoming, found that adults within their drug court program who were not high school graduates nor had their GEDs, were less likely to graduate from the program.

Table 7 is a summary of evaluation reports obtained from different drug courts that examined the possible association between education and whether teens graduate or do not graduate from drug court. Additional studies examining the association between education of juvenile drug court participants and outcome are needed, especially for certain regions of the country (e.g., Rocky Mountains), as most studies are from the Midwest and eastern jurisdictions of the U.S., because of the limited number of studies and the significance that education may play in other areas of a teens' life. Consistent with the broader literature on school drop-out, it seems reasonable to assume that drug court participants who are in school prior to drug court will be more likely to graduate than those who are not.

### **Frequency of Drug or Alcohol Use**

Boghosian (2006) suggests that “how often a participant was using drugs/alcohol prior to entering the JDC (another variable related to substance severity), may also help predict graduation status in JDCs” (p. 17). The frequency at which a juvenile is using drugs not only shows the severity of the drug use problem but could also predict the success of the juvenile in the JDC.

Table 7

*Education Predicting Drug Court Graduation Status of Teens*

Author (year)	<i>N</i>	<i>R</i> -Value	<i>P</i> -Value
Applegate & Santana (2000)	67	0	> 0.90
Dickie (2002)	55	0.17	0.23
Gilmore et al. (2005)	241	0.23	0.001
Kralstein (2008)	123	0.08	0.4
LeCroy & Milligan Associates, Inc. (2003)	65	0.24	0.05
Thompson (2002)	48	0.3	0.04
A. EC Court	45	0.34	0.02
B. NC Court	45	0.14	0.36

Few studies have examined the predictive value of frequency of use on juvenile drug court graduation status because it is a requirement that the drug problem be severe in order to enter the JDC program. Therefore, there may exist a “ceiling effect” (i.e., participants are homogenous and generally high levels of drug use are present in all

JDCs). However, Sloan et al. (2004) in their study examined the frequency of substance use among juveniles before entering the JDC program. They also found that juveniles who used drugs less frequently before entering the program were more likely to graduate from drug court than those who used more frequently.

It is reasonable to expect that a juvenile who enters the JDC program with a less severe drug problem will find it easier to complete the program successfully. However, as

mentioned above, to get into the JDC program a juvenile must have a fairly severe drug problem, as programs are often geared more toward such high risk juveniles. Future studies might profitably examine how drug courts might better enhance frequency of use factors within programs. However, it is intuitively reasonable to suspect that drug court participants with less severe drug/alcohol problems will indeed have higher graduation rates than those with severe problems.

### **Drug Test Outcomes During JDC Program**

In drug court, participants are tested frequently to determine if they are using any type of illegal substance. Although it is expected that clients will relapse, chronic non-compliance will result in termination (Carey et al., 2006). It would be helpful if drug courts knew more about the possible association between failed drug tests and premature termination. For example, what number of positive tests actually portends the high likelihood of treatment failure or recidivism? Few studies have examined drug testing variables as predictors of graduation. To date, only one study showed that those who were terminated from a JDC program had a significant percentage of positive drug tests compared to those who were not terminated (Carey et al., 2006). It is plausible that additional studies will reveal that high numbers of positive urine screens during drug court is indeed, related to higher rates of premature termination. Therefore, additional study of this association is needed. Further, it is reasonable to hypothesize that graduates will differ from non-graduates in having fewer positive drug tests.

## **Conclusion**

A rationale has been offered in the literature review (above) for assessing relationships between the different characteristics and behaviors of juveniles (gender, age, race, age at first use, etc.), and whether they successfully graduate from juvenile drug court. However, the results of available studies are often mixed and the magnitude of the relationships varies from study to study. Additionally, a few variables (drug test outcome during program, etc.) have been studied, though very little to date. However, sound rationales for including the aforementioned variables in a study that seeks to predict outcomes of JDCs have been advanced in this proposal. Also, a summary of the benefits of including graduate versus non-graduate as the outcome measure was presented in order to justify its use in future outcome studies. An examination of predictors of graduation/non-graduation is clearly of interest to the Idaho JDC system. Finally, an extensive review of the history and benefits of drug courts was assessed. It was found that many studies show that drug courts can and are an acceptable alternative to traditional courts.

## **Purpose and Objectives**

The purpose of the proposed study is to assess whether there are differences in pre-existing behaviors or characteristics among juvenile drug court participants who graduate from JDC versus those who do not. By better understanding the associations between termination/graduation status and behaviors and characteristics of JDC participant, future JDC programs may have a more firm, empirical basis for

implementing strategic changes and improvements. This in turn could produce lower attrition rates and produce better outcomes.

The following justifications are relevant to the proposed study: (1) Almost no drug court evaluation studies have been conducted for jurisdictions in the Rocky Mountain region of the U.S. and so it would be useful to examine whether differences between groups for this region are similar to other regions---typically the East and Midwest; (2) Almost all existing studies in this area have examined a single drug court, in a single jurisdiction; few studies have evaluated multiple drug court jurisdictions or statewide system. Additional, broad statewide assessments of juvenile drug courts are badly needed by policy-makers and clinicians; and (3) Most existing studies on drug courts come from larger Midwestern and eastern U.S. jurisdictions. A study from a rural state such as Idaho would further contribute to the overall pool of studies that correlate participant and study variables with outcome, building a body of research that could eventually be used for a comprehensive meta-analysis review.

The specific research questions addressed in this study were as follows:

1. What pre-existing participant demographic and personal characteristics differ between participants who do graduate and those who do not?
  - a. Gender? Based on the available research, it would be expected that future studies will show that female teens tend to graduate from drug court at somewhat higher rates than boys.
  - b. Race? Because of the mixed results, it is difficult to hypothesize what the relationship between race/ethnicity and graduation status might be.

- c. Age? In summary, the data involving the association between age of JDC participants and whether they graduate reveals generally weak relationships and unclear trends. For this reason it is hard to hypothesize what will happen.
  - d. Measure of adolescent risk status, the YLSCMI score? With regard to the use of the YSL/CMI in screening youth for drug court, a reasonable speculation would be that lower YLS/CMI scores among participants would be related to higher graduation rates.
2. What pre-JDC behavior problems of participants differ between participants who do graduate and those who do not?
- a. Number of past arrest/convictions? Given the trends in the available data, it is expected that additional research would show an inverse association between the extent of teens' criminal record and whether they graduate from drug court.
  - b. Past drug of first choice? Based on the review of literature it is hypothesized that in general, participants who use softer drugs will be more likely to graduate than those who use more addicting drugs.
  - c. School attendance prior to JDC? Consistent with the broader literature on school drop-out, it seems reasonable to assume that drug court participants who are in school prior to drug court will be more likely to graduate than those who are not.

- d. Past frequency of substance use? It is intuitively reasonable to suspect that drug court participants with less severe drug/alcohol problems will indeed have higher graduation rates than those with severe problems.
- e. Past age at first use differ between groups? Therefore, it is reasonable to hypothesize that the earlier a participant starts using, the less likely it is that the participant will graduate.

3. Does the percentage of positive drug tests differ between groups?

It is reasonable to hypothesize that graduates will differ from non-graduates in having fewer positive drug tests.

## CHAPTER II

### METHODS

#### **Participants**

A total of 124 JDC participants were included in this study. Only those participants of the Idaho State Juvenile Drug Courts, who had either completed or had been terminated from the program between January 2004 and December 2005, were included. The average age of the participants in this sample is 16 ( $SD = 1.15$ ) with a range from 13-18. The majority of participants are male (60%,  $N = 74$ ). Caucasian participants comprise 69% ( $N = 86$ ) of the proposed sample while Hispanics make up 12% ( $N = 15$ ) Native Americans, African Americans, and Bosnian participants are rare (i.e., 6%, 2%, and 3% [ $N = 7$ ,  $N = 2$ , and  $N = 3$ ], respectively). The remaining 9% ( $N = 11$ ) of the available sample is unknown.

#### **Procedures**

The Idaho Supreme Court, which oversees the JDC program in Idaho, collaborated in this effort by providing a statewide juvenile drug court data set drawn from the Idaho Statewide Trial Court Automated System (ISTARS). The data set included all information that was gathered for drug court participants during the January 2004 – December 2005 period, for who had completed the program either successfully or unsuccessfully.

**Policies and guidelines across Idaho’s JDCs are similar.** In a study conducted by Scott Ronan (2006) the question was asked, “Do Idaho Juvenile drug courts adhere to

the established guidelines?” (p. 19). In this study two surveys were conducted to assess how closely the JDCs of Idaho were adhering to a drug court compliance checklist developed by the Idaho Supreme Court. The checklist was comprised of five parts: Screening and Assessment, Drug Court Team, Operations, Treatment, and Funding & Evaluations (Ronan, 2006). These parts or domains were numbered consecutively “1” through “5” in this survey.

The results of the study indicated that the nine JDC coordinators were adhering to the checklist on 77.4% of the 270 possible items. The breakdown of survey results by domain are as follow: Part 1 (82%), Part 2 (85.2%), Part 3 (76%), Part 4 (58.5%), and Part 5 (88.9%) (Ronan, 2006). These percentages show that in all likelihood, the JDCs are quite similar in procedures and policies and are generally compliant. Such comparability justifies examining outcomes across the state collectively.

Furthermore, graduation requirements are similar in the JDCs throughout the state. In order for a juvenile to graduate from the Idaho JDC program, he/she must complete all program requirements. These requirements vary slightly between individual JDCs but generally include the following guidelines: the participant must be in the program from 8-12 months and complete all phases of the program, and the participant must also show that they have been clean for at least six months, be employed full time or attending school full time, paid all court fees including restitution, and complete their treatment program. Graduation is also dependent on the recommendation of the drug court team (Ronan, 2006). These data also support the premise that a collective, statewide

examination of factors relating to drug court outcomes is justifiable from a methodological perspective.

### **Missing Data**

There was a substantial amount of data missing from the data set that was received from the Idaho Supreme Court. When discussing this with Ronan (personal communication, February 24, 2011) it was found out that the ISTAR program was new to the JDCs and so those responsible for entering the data were not entering in all of the data. However, Ronan (personal communication, February 24, 2011) went back to each of the sites and gathered as much of the information as possible.

### **Measures**

All variables were coded based on information contained in the data set. Table 8 contains information explaining how each variable was coded.

Table 8

*Variables and Coding Methods*

Variable Measured	Coding Method
Outcome	Graduation versus termination. Determining graduation status was straightforward, as it was clearly noted in the data set as <i>Y</i> or <i>N</i> .
Age	Age was recorded, in years, at time of entry into JDC program. Age was calculated by subtracting intake date from birth date.
Race	Race was coded for Caucasian or non-Caucasian.
Gender	Male or Female.
LSCMI	The score that was recorded on the data set was used for analysis.
Age at First Use	The age that was recorded on the data set was used for analysis.
Frequency of Use	Was coded by assigning participants to two groups; those who used more than two times/week and those who used two times or less per week.
Education	The data set clearly noted if the participant was in school upon intake as a <i>Y</i> or <i>N</i> .
Drug of First Choice	Drug of first choice was coded for marijuana/alcohol versus non-marijuana/alcohol drugs (e.g. methamphetamine, cocaine, etc.).
Number of arrests before entering JDC	The number of arrests were counted from the data set and recorded.
Drug Tests During JDC	The number of positive drug tests was recorded and used for analysis.

## CHAPTER III

### RESULTS

#### **Demographics and Characteristics of the Sample**

Tables 9 and 10 are included as a summary of the demographics of the sample used in the study.

#### **Graduation Rates for Sample**

The graduation rate for this sample was 35.5% ( $n = 44$ ) which is lower than the 48% reported by Stein et al. (2011). Table 11 describes the mean differences and effect sizes between graduates and non-graduates.

#### **Research Question #1**

Research Question #1 explores the pre-drug court characteristics (gender, race, age, YLSCMI) of the juveniles and compares those who did graduate with those who did not graduate from JDC. Each variable was examined using either a  $t$  test or chi-square.

**Gender.** The relationship between gender and graduation status was examined using a chi-square analysis. Based on this sample there was a significant association between gender and graduation,  $\chi^2(1, N = 122) = 23.68, p < .001$ . Specifically, a significantly greater proportion of female drug court participants graduated than males (see Table 12)

Table 9

*Participant Characteristics #1*

Variable		<i>n</i>	%		<i>n</i>	%	<i>n</i>	%	
Gender	Male	74	60	Female	48	39	Unknown	2	2
Race	White	86	69	Non-White	27	22	Unknown	11	9
Drug of First Choice	Marijuana/ Alcohol	58	47	Non-marijuana/ Alcohol	36	29	Unknown	30	24
Frequency of Use	Less than twice/week	32	26	More than twice/week	41	33	Unknown	51	41
School Attendance Prior to JDC	Attended school prior	57	46	Did not attend school prior	63	51	Unknown	4	3

Table 10

*Participant Characteristics #2*

Variable	Mean	SD	Minimum	Maximum	Number Missing
Age	16.02	1.15	13	18	1
Age at first use	12.45	2.06	6	16	53
YLSCMI score	23.17	6.44	10	37	67
Number of arrests	1.89	1.30	1	9	25
Percentage of positive drug tests	16%	21%	0%	100%	30

Table 11

*Graduation/Non-Graduation Mean Differences and Effect Sizes*

Variable	Graduated Mean	Non-Graduated Mean	Graduate SD	Non-Graduate SD	Pearson's <i>r</i>	Cohen's <i>d</i>
<i>Pre-Existing Participant Characteristics</i>						
Age	15.86	16.10	1.03	1.21	0.09	-0.2
YLS/CMI Score	20.95	24.25	7.09	5.8	0.25	-0.51
<i>Pre-JDC Behavior Problems of Participants</i>						
Age at First Use	12.71	12.41	1.6	2.16	0.1	-0.21
Number of Arrests	1.73	2	1.2	1.4	0.07	0.16
<i>In Program Behavior of Participants</i>						
% of Positive Drug Tests	4%	25%	.05	.24	0.51	-1.18

Table 12

*Gender \* Graduation Status Cross Tabulation*

Gender	Non-Graduate	Graduate	Total
Female	19	29	48
Male	61	13	74
Total	80	42	122

**Race.** Chi-square analysis was conducted to determine whether an association exists between graduation status and race (i.e., Caucasian and non-Caucasian status). Due to the low number of teens comprising each racial group, race was coded as Caucasian or non-Caucasian. No significant association was found between race and graduation status,  $\chi^2 (1, N = 113) = 0.95, p = .33$  (Table 13).

Table 13

*Race \* Graduation Status Cross Tabulation*

Race	Non-Graduate	Graduate	Total
Non-Caucasian	18	8	26
Caucasian	51	36	87
Total	69	44	113

**Age.** A *t* test assessed whether significant age differences existed between the teens who graduated from drug court and those that did not. No significant differences were found,  $t(121) = -1.10, p = .272$ .

**YLS/CMI.** Group means for graduated and non-graduated groups were compared for the screening test, the YLS/CMI. This variable fell short of significance,  $t(55) = -1.91, p = .06$ . Those who graduated had a lower mean YLS/CMI score than those who did not graduate suggesting better adjustment and fewer symptoms of mental disorders.

## **Research Question #2**

Research Question #2 examined the relationship between pre-program behaviors (number of arrests, drug of first choice, school attendance prior to JDC, frequency of use, and age at first use) of participants and graduation status. Each variable was examined using either a *t* test or chi-square analysis.

**Number of arrests.** A T-test was used to analyze the relationship between the number of arrests a participant had prior to JDC and graduation status. There was no significant difference between those who graduated and those who did not with regard to their pre-program arrests,  $t(97) = -1.01, p = .31$ .

**Drug of first choice.** Chi-square analysis was used to assess whether a relationship existed between graduation status and drug of first choice. Drug of first choice was coded for marijuana/alcohol versus non-marijuana/alcohol drugs (e.g. methamphetamine, cocaine etc.) based on the need to logically group high normative

drugs versus low normative drugs. This variable fell short of significance,  $\chi^2(1, N = 94) = 3.50, p = .06$ . This suggests that non-marijuana/alcohol users graduated more frequently than those who used marijuana/alcohol as their drug of first choice (Table 14).

Table 14

*Drug of First Choice \* Graduation Status Cross Tabulation*

Drug of First Choice	Non-Graduate	Graduate	Total
Marijuana/Alcohol	37	22	59
Non-Marijuana/Alcohol	15	20	35
Total	52	42	94

**School attendance prior to JDC.** A chi-square analysis was used to assess whether an association exists between school attendance prior to JDC and graduation status. The participants were coded as either attending school or not attending school prior to JDC. A significant relationship was found between school attendance and graduation status,  $\chi^2(1, N = 120) = 8.34, p = .004$ . Those who attended school regularly prior to JDC tended to graduate from drug court at far higher rates than those who did not (Table 15).

**Frequency of substance use.** Frequency of substance use was coded by assigning participants to two groups; those who used more than two times a week and those who used two times or less per week. A chi-square analysis was conducted to assess whether a

relationship existed between this dichotomous variable and graduation status. No significance was found,  $\chi^2(1, N = 73) = 2.07, p = .15$  (Table 16).

Table 15

*Prior Attendance of School \* Graduation Status Cross Tabulation*

School Attendance	Non-Graduate	Graduate	Total
Not in School Prior	48	15	63
In School Prior	29	28	57
Total	77	43	120

Table 16

*Frequency of Drug Use \* Graduation Status Cross Tabulation*

Frequency	Non-Graduate	Graduate	Total
Less Than 2x/Week	21	11	32
More Than 2x/Week	20	21	41
Total	41	32	73

**Age at first use.** The age at first use was self-reported by participants. A T-test was used to assess whether the graduation and non-graduation groups differed significantly on this variable. No significant difference between the graduation and non-graduation groups were found,  $t(68) = .64, p = .52$ .

**Research Question #3**

Research Question #3 examined the relationship between graduation status and percentage of positive drug tests during drug court among participants. The percentage was determined by dividing the number of positive drug tests (e.g., drug test result positive, drug test was shown to be diluted, drug test showed no result, and drug test result no show, i.e., participant did not show up for the drug test) by total number of drug tests. A significant effect for percentage of drug tests among this sample was found,  $t(92) = -5.66, p < .001$ . Participants who did not graduate had a significantly higher mean of percentage (25%) of positive drug tests compared to those who did graduate (4%).

## CHAPTER IV

### DISCUSSION

It was hypothesized that juveniles who participated in Juvenile Drug Courts (JDCs) would differ between graduation and non-graduation depending on two groups of characteristics: pre-demographics and pre-behavior problems, as well as outcomes of urine tests during the program. Pre-program demographics included: gender, race, age, and YLSCMI score. Pre-behavior problems include: number of arrests/convictions, drug of first choice, school attendance, frequency of drug use, and age at first use. Further, it was hypothesized that in treatment, drug tests would differ among those juveniles who graduated JDCs and those who did not.

#### **PRE-Demographic Variables**

In this sample, gender was found to be significantly associated with graduation status from JDC. Further, group differences on the YLS/CMI were found to fall short of significance, but had a meaningful size of effect (Pearson  $r = .25$ ). However, there was no significant association between either race or age and graduation status. There are several reasonable explanations for these findings that will be discussed further below for each individual variable.

**Gender.** Based on a review of the literature (presented above), it was expected that females would graduate at higher rates from JDCs. The finding that girls graduated at proportionately higher rates than boys is consistent with other research that has been conducted on JDCs (Carey et al., 2006; Polakowski et al., 2008). However, there were

some studies that did not find a relation between gender and graduation status in their studies (Boghosian, 2006; Mateyoke-Scriver et al., 2004).

Females comprise a little over one-third of this sample and yet they made up 69% of the participants who graduated from JDCs. This could mean that, as Carey et al. (2006) hypothesized, JDC programs are more helpful in assisting participants who struggle with “internalizing” problems as opposed to “externalizing” problems—which in turn are closely related to gender. Specifically, males are much more likely to evidence externalizing problems than females who tend to internalize (Ashcroft et al., 2003). Also, it may be that female adolescents are more responsive and compliant with imposed authority and therefore graduate at higher rates for this reason (Endler & Marino, 1972; Tuma & Livson, 1960). It may also be that adolescent females demonstrate higher levels of decision-making skills and problem solving skills (Radecki & Jaccard, 1996). This makes female adolescents better able to realistically assess the effects of their behavior on future consequences. Additional research is needed to assess the reasons why girls graduate at higher rates than boys from drug court and, this in turn, may help program directors adjust procedures or interventions to increase the retention rates of male participants.

**Race.** Participants of JDCs are diverse, though a majority tend to be Caucasian (The Office of Justice Programs Drug Court Clearinghouse and Technical Assistance Project, 2001). In addition, being Caucasian is considered a risk factor for developing a substance use disorder (Farrabee, Shen, Grella, & Anglin, 2001; Kilpatrick, Acierno, Saunders, Resnick, & Best, 2000). This study found no significant association between

race and graduation status. This is not consistent with the findings of other studies which found that Caucasians were more likely to graduate from JDC (Mateyoke-Scriver et al., 2004; Sloan et al., 2004). The present result could mean that there was no cultural or ethnic bias in the Idaho JDCs associated with program procedures, staff-participant interactions, etc. and therefore the JDCs were equally effective for both Caucasian juvenile and ethnic minority juveniles. This result might also have been associated with the relatively small sample of racial/ethnic minorities within the sample (i.e., only 21.8% of the participants were non-White). Due to the small representation of minority participants, it may be difficult to determine if a relationship truly exists between race and graduation status. Nevertheless, since this study included JDCs throughout Idaho, it seems that the study may not generalize to JDCs outside of Idaho.

**Age.** In much of the literature, on adult drug courts, older participants are more likely to graduate from drug court (Henggeler, 2007; Mateyoke-Scriver et al., 2004). Further, Shaffer et al. (2002) found a curvilinear relationship between graduation status and age, while other researchers found that the older the juvenile participant is the more likely the participant is to graduate (Carey et al., 2006; Polakowski et al., 2008). However, overall Table 1 shows that most studies found little to no relationship between age and graduation status. This can be due to the fact that most participants in JDCs represent a narrow age range (13-18). Indeed, the present study too, found no relation between the age of the participant when entering the program and graduation status. As mentioned above, participants in JDCs are within a narrow age range (i.e., mean age of 16.02,  $sd = 1.15$ ). The youngest participant in the present study was 13 while the oldest

participant was 18. Therefore, the lack of an age range reduced the possibility of finding an association between graduation and age in this sample.

It is also possible that no age difference between graduates and non-graduates was found because the Idaho JDCs are unbiased when it comes to quality of service and juveniles of different age groups; this is a speculation that is consistent with the finding regarding race and graduation. It would appear that the lower-than-average overall premature termination rate, coupled with the lack of an association between graduation status and the variables of Race and age, reflect the above-average, overall quality of Idaho's juvenile drug courts.

**YLS/CMI.** The YLS/CMI has been used in other studies to determine standardized pretest information about juveniles participating in JDCs and in predicting recidivism among youth probationers (Onifade et al., 2008, 2010; Schmidt et al., 2005). However, to date no studies have examined whether scores differ among those who graduate from JDCs and those who do not. If it was established that a standardized test such as the YLS/CMI correlated with graduation/termination it might be a useful prognosticator of which youth need high intensity versus low intensity monitoring, treatment, drug testing, etc. during drug court, which might improve teens' prospects for graduating.

In this study the YLS/CMI variable fell short of showing a significant association between YLS/CMI scores for participants who graduated versus those who did not (i.e., those who graduate from JDC had a lower mean YLS/CMI score than those who did not graduate). Scores on the YLS/CMI are placed into four different ranges based on the

normative data from 263 Canadian adjudicated offenders: low (0-8), moderate (9-22), high (23-34), and very high (35-42). The normative sample scores ranged from 2-35 ( $M = 11.52$ ,  $SD = 8.33$ ). Participants in this study had a mean of 20.95 ( $SD = 7.09$ ), which would mean that they fell within the moderate range of risk/need factors. On the other hand, those participants who did not graduate had a mean of 24.25 ( $SD = 5.8$ ), which would mean that they fell within the high range of risk/need factors. Participants falling in the moderate range of risk/need would have lower risks within each of the eight subscales (i.e., prior and current offenses, family circumstances/parenting, education/employment, peer associations, substance abuse, leisure/recreation, personality/behavior, and attitudes/orientation compared to those participants who fell in the high range (Grisso, Vincent, & Seagrave, 2005).

One reason why a more compelling mean difference on the YLS/CMI was not found between graduates and non-graduates might have to do with possible ceiling effects. That is, in order to be admitted into a JDC program, it is a requirement that juveniles have fairly severe behavioral and substance abuse problems. Since all participants in a JDC program tend to have moderate to severe problems, this narrow range of YLS/CMI scores may make it hard to document significant differences between programs graduates and non-graduates. Indeed, this seems apparent when one compares this sample's mean ( $M = 23.04$ ,  $SD = 6.44$ , range = 10-37) to that of the normative sample ( $M = 11.52$ ,  $SD = 8.33$ , range = 2-35) (Grisso et al., 2005). The fact that the sample mean of the present drug court cohort is twice as large as the sample mean of the normative group for the YLS/CMI suggests a likely ceiling effect within the sample.

### **Pre-Behavior Variables**

In this sample, school attendance by the participant prior to entering the JDC program was a significant distinguishing characteristic of graduates and non-graduates. Additionally, drug of first choice just fell short of significance ( $p = .06$ ). On the other hand, number of arrests/convictions, frequency of drug use, and age at first use were found to not be related to graduation status. The reasons for these findings will be discussed below for each variable.

**Number of past arrests/convictions.** In the literature reviewed above, it was found that there were mixed outcome findings for juveniles who had more past arrests/convictions prior to entering JDC. And in the present study, no significant differences were found between groups in the number of past arrests/convictions. This finding could relate to the fact that juvenile participants are younger and have a shorter arrest history, making them more similar in number of arrests; and that referrals are typically made to drug court by jurisdictions once a teen reaches a certain threshold for arrests. The present investigator has no way of assessing this speculation. On the other hand, it may very well be that JDCs are quite responsive or attentive to the emotional, behavioral and social needs of juveniles, irrespective of their arrest history and any behavioral problem history they bring into the JDC. More studies need to be conducted in this area to better understand the mixed results of studies that have examined the effects of arrest history of juveniles and how it correlates with graduation status if any.

**Drug of First Choice.** The majority of studies have shown that when a juvenile's drug of first choice is a "softer drug" (e.g., marijuana or alcohol) then they have better

success in the JDC program (Carey et al., 2006; Cissner & Rempel, 2005). However, as can be seen on Table 6, many studies have not found a correlation between drug of first choice and graduation status.

In this sample, drug of first choice fell short of a significant difference between groups in adolescents. That is, those participants who used harder drugs were more likely to graduate than those who used marijuana/alcohol. This is in agreement with the study conducted by Carey et al. (2006), but is surprising considering the other studies that have shown the opposite to be true. It clearly invites further study and replication because drug-of-choice may usefully dictate the type and intensity of specific therapy for particular substances and intensity of overall monitoring, drug testing, etc.

**School attendance prior to JDC.** In the review of literature, it was found that in both adult drug courts and in JDCs that school attendance has shown to be a predictor of higher rates of graduation (Henggeler, 2007; Mateyoke-Scriver et al., 2004; McDaniel & Schmidt, 2007; Tranchita & Stein, 2004). It was for this reason that it was hypothesized that graduates in this study would be more frequently attending school prior to JDC as opposed to those who do not graduate.

In this sample, it was found that those who graduated from JDC were significantly more likely to be in school prior to JDC compared to those who did not graduate. This result is consistent with, for example, Buckley, Sheehan, and Chapman (2009), who found that the more connected to school adolescents are, the less likely they are to take risks. Additionally, school connectedness is widely viewed as a protective measure for adolescents in that friends at school help them stay away from risky behaviors, including

drug use. For instance, Galaif, Newcomb, Vega, and Krell (2007) found in a study of over 2,500 adolescent males coming from diverse backgrounds, that school was negatively correlated with adolescent drug use. This could explain why participants who attended school prior to JDC would more likely graduate from JDC. It may also mean that JDCs need to change their programs in order to address the different needs (e.g. positive peer support, connectedness with an organization, etc.) of those who are not attending school. Further research needs to be conducted to identify exactly why those who are not attending school prior to JDC are not graduating as frequently as those who are.

**Frequency of drug use.** Little research has been conducted on the frequency of pre-drug court drug use among participants and eventual graduation status. As mentioned above in the literature review, this is probably due to the fact that in order to get into JDC, a juvenile needs to have a moderate-to-severe drug problem. However, Sloan et al. (2004) examined the correlation between frequency of use and graduation, and found that juveniles who used less often prior to entering JDC were more likely to graduate. For this reason, it was hypothesized that graduates would differ from non-graduates by using less frequently.

There was no significant difference between graduates and non-graduates and the frequency in which they used drugs found in this sample. This could mean that the JDCs are just as effective in treating juveniles with higher frequencies of use as those with lower rates of use. A limitation of this variable is that it is based on self-report of the

juvenile. If a more accurate measure of frequency were used, a meaningful difference between the two groups might be revealed.

**Age at first use.** Table 4 above shows that there have been few studies that have examined age of first use as a predictor of outcome in the JDC program and those that have did not find significance between age at first use and graduation. Further, Boghosian (2006) hypothesized that if JDCs accepted juveniles with shorter drug histories, there would be greater success among JDCs. However, Boghosian found no significant differences between graduates and non-graduates as well. Even though there have been few studies examining the predictive value of age at first use, it has been shown that the earlier a person begins using, the worse their overall prognosis (Gonzalez, 1989; Hawkins et al., 1986; Sung et al., 2004; Warner & White, 2003). Yet in the present sample there was no significant relationship between age at first use and graduation status. This finding is consistent with other studies that have examined the significance of age at first use and graduation status. However, more studies examining this issue should be conducted. If it is truly the case that age at first use does not play a significant role in graduation outcome, this could mean that those juveniles with longer histories of drug use are not any less likely to graduate from the JDC program and that this is an irrelevant screening variable or program entry criterion.

### **In-Treatment Drug Tests**

As has been noted, one study by Carey et al. (2006) found that participants who had been terminated from a JDC program had a higher percentage of positive drug tests.

It seems reasonable that this would be the case since chronic non-compliance during one's participation in a JDC program will invariably lead to termination. However, it would be important to better understand at what point a participant should be terminated in relation to percentage of positive drug tests. Should a participant be terminated when he/she has 15% positive drug tests, should it be higher or lower? Further research needs to be conducted to address this important question.

In the present study, significant group differences were found in the percentage of positive drug tests. This result, similar to a few other reports in the literature, invites questions about exactly how to reduce the frequency of "dirty" urine screens. Many drug courts use repetitive relapse as evidence by failed urine screens as one criterion for terminating teens from drug court. But current research has yet to document the point at which relapse or the frequency of failed urine screens truly serves as a prognosticator of likely future failure in the overall drug court program, and thus, justifies dismissal. The present study nevertheless documents this indicator of increased risk of failure.

### **Study Limitations**

Limitations of the present study include reduced racial diversity in the overall Idaho sample relative to many other JDC programs around the country. Idaho is made up primarily of a White, non-Hispanic population (U.S. Census Bureau, 2011). Thus, the findings may not generalize to other locations that have a higher minority population. Future studies using more diverse samples may find for example, that relationship between race and other important variables of interest, and graduation status, are

significant. Also, the study was affected in unknown ways by missing data, which reduced the overall sample size significantly and made the overall results less robust than they might have otherwise been. For example, an examination of the variable YLS/CMI reveals a sample of only 57, which means that there were 67 participants missing data in this variable. Future studies with more degrees of freedom may find greater significance between the YLS/CMI and graduation status. Another possible limitation of the study is that the data was drawn from several different JDCs and the integrity of those programs is impossible to know by this researcher. This is significant because there is no way to know for sure if all of the different JDC sites are treating individuals the same. Furthermore, as is the case with many juvenile drug court studies, some of the most critical data required reliance on participants' self-report (e.g., drug of first choice, age of first use, etc.). The reliability of these self-report variables is unknown.

Future studies should examine other variables that may play a role in the graduation status of juveniles, such as spirituality, SES status, and support of families. It is important that once a strong profile of non-graduates of JDCs emerges, that JDCs explore ways in which they can individualize their programs to better support these non-graduates.

## **Summary**

Three variables were significantly related to graduation versus non-graduation status: gender, school attendance prior to JDC, and percent of positive drug tests while in

program. Additionally, two other variables approached significance ( $p = .06$ ), YLS/CMI score, and drug of first choice.

The significance of gender may mean that JDCs need to adjust treatment to better fit to the needs of males that enter their programs. It may be that some programs are not addressing the specific needs that male's exhibit and for this reason males are not as successful. The significance of school attendance may help JDCs better understand the importance of school attendance prior to and during JDC treatment. Further, JDCs may not be a good fit for juveniles who are not attending school prior to JDC and should be ruled out from participating in the program. Also, due to the significant difference in percentage of positive drug tests between those who graduate and those who don't, this should be further examined in order to decide at what point a participant should be terminated from the program. It could mean that participants who have a certain percentage of positive drug tests should be terminated from the program, as opposed to waiting and then being terminated and still needing to fulfill requirements of the court.

In addition, the effect size of the YLS/CMI score may signify that those who have higher scores are not a good fit for the JDC program. Further, the YLS/CMI score should be further researched to better ascertain if it is a significant factor in predicting JDC graduation and if so, the cutoff scores that will help determine success in the program. Also, further research needs to be conducted on drug of first choice, as significance just fell short. By gaining a better understanding of the relationship between drug of first choice and graduation status, it would help facilitators dictate the type and intensity of specific therapy for particular substances and intensity of overall monitoring, drug

testing, etc. For instance, it may be that youth who use more addictive drugs such as methamphetamine or cocaine become more cognizant of the seriousness of their health and psychological problems and are more motivated to succeed in drug court. Such a speculation is worthy of further investigation.

Consideration of variables that were significant along with those that approached significance fails to reveal a clear profile or “prototype” youth that is most likely to graduate from drug court. However, it does appear that participants with less severe life problems as rated on the YLS/CMI, who continue to participate in school and have a lower percentage of positive drug tests do better within the JDC. Further, it appears that participants who have a more severe drug of first choice are more likely to graduate as well. This may mean that JDCs are better equipped in dealing with those participants that are not as severe in relation to life problems or that JDCs need to adapt their program to those who have more severe life problems by increasing monitoring, drug testing, etc.

Due to the benefits of JDCs and the limited space that is available within programs, it is important that participants accepted into the programs are able to successfully complete the programs. For this reason, it is important to continue to look at the differences in characteristics between those who graduate and those who do not. It may be that those who would not graduate would be better served by either standard adjudication or possibly other treatments, saving room for juveniles with drug problems who would be successful in the JDC program.

## REFERENCES

- Anspach, D., Ferguson, A., & Phillips, L. (2003). *Evaluation of Maine's statewide juvenile drug treatment court program: Fourth year outcome evaluation report*. Augusta, ME: College of Arts and Sciences, University of Southern Maine.
- Applegate, B., & Santana, S. S. (2000). Intervening with youthful substance abusers: A preliminary analysis of a juvenile drug court. *The Justice System Journal, 21*, 281-300.
- Ashcroft, J., Daniels, D. J., & Herraiz, D. S. (1997). *Defining drug courts: The key components*. Washington, DC: U.S. Government Printing Office.
- Ashcroft, J., Daniels, D. J., & Nedelkoff, R. R. (2003). *Juvenile drug courts: Strategies in practice* (Document no. NCJ 197866). Washington, DC: U.S. Government Printing Office.
- Barnoski, R., & Aos, S. (2003). *Washington state's drug courts for adult defendants: Outcome evaluation and cost-benefit analysis* (Document No. 03-03-1201). Olympia, WA: Washington State Institute for Public Policy.
- Boghosian, S. (2006). *Juvenile drug courts: Using participant characteristics to predict outcome* (Master's thesis). Department of Psychology, Utah State University, Logan, UT.
- Buckley, L., Sheehan, M., & Chapman, R. (2009). Adolescent protective behavior to reduce drug and alcohol use, alcohol-related harm and interpersonal violence. *Journal of Drug Education, 39*(3), 289-301. doi:10.2190/DE.39.3.e

- Bureau of Justice Assistance Drug Court Clearinghouse. (2009, November). *Summary of drug court activity by state and county: Juvenile and family drug courts*. Washington, DC: American University, Justice Programs Office, School of Public Affairs. Retrieved from <http://www.american.edu/spa/jpo/>
- Bureau of Justice Assistance Drug Court Clearinghouse. (2006, November). *Cost benefits/costs avoided reported by drug court programs and drug court program evaluation reports*. Washington, DC: American University, Justice Programs Office, School of Public Affairs.
- Carey, S., Waller, M., & Marchand, G. (2006). *Clackamas County juvenile drug court enhancement: Process, outcome/impact and cost evaluation: Final report*. Portland, OR: NPC Research.
- Cissner, A. B., & Rempel, M. (2005). *The state of drug court research: Moving beyond 'do they work?'* (Grant number 98-DC-VX-K007). New York, NY.
- Cooper, C. S. (2002). Juvenile drug user treatment courts in the US: Initial lessons learned and issues being addressed. *Drug court: Current issues & future perspective*, 213-240. Huntsville, TX: Office of International Criminal Justice.
- Crumpton, D., Carey, S., Mackin, J., Finigan, M., Pukstas, K., Weller, J., Linhares, R., & Brekhus, J. (2006). *Harford County juvenile drug court performance evaluation: Program process, outcome, and cost analysis final (Final Report)*. Portland, OR: NPC Research [www.npcresearch.com](http://www.npcresearch.com).
- Deschenes, E. P., Steinlechner Moreno, K., Moreno Emani, V., Thompson, E., & Manatt, K. (2001). *Evaluation of the Los Angeles County juvenile drug court program: A*

*preliminary process and outcome evaluation.* Long Beach, CA: Cal State University, Long Beach.

Dickie, J. (2002). *Summit County juvenile court drug court: Evaluation report July 1, 2000 - June 30, 2001.* Akron, OH: The Institute for Health and Social Policy, University of Akron.

Endler, N. S., & Marino, C. J. (1972). The effects of source and type of prior experience on subsequent conforming behavior. *The Journal of Social Psychology*, 88(1), 21-29.

Farrabee, D., Shen, H., Grella, C. E., & Anglin, D. A. (2001). The effect of drug treatment on criminal behavior among adolescents in DATOS-A. *Journal of Adolescent Research*, 16, 679-696.

Galaif, E. R., Newcomb, M. D., Vega, W. A., & Krell, R. D. (2007). Protective and risk influences of drug use among a multiethnic sample of adolescent boys. *Journal of Drug Education*, 37(3), 249-276. doi:10.2190/DE.37.3.c

Gilmore, A. S., Rodriguez, N., & Webb, V. (2005). Substance abuse and drug courts: The role of social bonds in juvenile drug courts. *Youth Violence and Juvenile Justice*, 3, 289-315.

Gonzalez, G. M. (1989). Early onset of drinking as a predictor of alcohol consumption and alcohol-related problems in college. *Journal of Drug Education*, 19(3), 225-230.

Grisso, T., Vincent, G., & Seagrave, D. (2005). *Mental health screening and assessment in juvenile justice.* New York, NY: The Guilford Press.

- Gutierrez, L., & Bourgon, G. (2009). *Drug treatment courts: A quantitative review of study and treatment quality*. (Document No. PS3-1/2009-4E-PDF). Ottawa, Canada.
- Hawkins, J. D., Lishner, D. M., Catalano, R. F., & Howard, O. M. (1986). Childhood predictors of adolescent substance abuse: Toward an empirically grounded theory. *Journal of Children in Contemporary Society, 18*, 11-48.
- Henggeler, S. W. (2007). Juvenile drug courts: Emerging outcomes and key research issues. *Current Opinion in Psychiatry, 20*, 242-246.
- Hickert, A. O., Becker, E., & Prospero, M. (2010). *Evaluation of Utah juvenile drug courts: Final report*. Salt Lake City, UT: Utah Criminal Justice Center, University of Utah.
- Hiller, M. L., Malluche, D., Bryan, V., DuPont, M. L., Martin, B., Abensur, R., Leukfeld, C., & Payne, C. (2010). A multisite description of juvenile drug courts: Program models and during-program outcomes. *International Journal of Offender Therapy and Comparative Criminology, 54*, 213-236.
- Kasen, S., Cohen, P., & Brook, J. (1998). Adolescent school experiences and dropout, adolescent pregnancy, and young adult deviant behavior. *Journal of Adolescent Research, 13*(1), 49-72.
- Kilpatrick, D. G., Acierno, R., Saunders, B., Resnick, H. S., & Best, C. L. (2000). Risk factors for adolescent substance abuse and dependence: Data from a national sample. *Journal of Consulting and Clinical Psychology, 68*(1), 19-30.

- Kralstein, D. (2008). *Evaluation of the Suffolk County juvenile treatment court: Process and impact findings*. New York, NY: Center for Court Innovation.
- Latimer, J., Morton-Bourgon, K., & Chrétien, J. (2006). *A meta-analytic examination of drug treatment courts: Do they reduce recidivism?* (Document No. rr06-7). Ottawa, Canada.
- LeCroy & Milligan Associates, Inc. (2003). *Juvenile drug court program evaluation: Final report*. Tucson, AZ.
- LeGrice, L. (2003). *Effectiveness of juvenile drug court in reducing delinquency* (Doctoral dissertation). Available from Proquest Information and Learning Company. (UMI Microform 3117572)
- Mackin, J. R., Lucas, L. M., Lambarth, C. H., Waller, M., Herrera, T. A., Carey, S. M., & Finigan, M. W. (2010a). *Anne Arundel County juvenile treatment court outcome and cost evaluation*. Portland, OR: NPC Research.
- Mackin, J. R., Lucas, L. M., Lambarth, C. H., Waller, M., Herrera, T. A., Carey, S. M., & Finigan, M. W. (2010b). *Baltimore County juvenile drug court outcome and cost evaluation*. Portland, OR: NPC Research.
- Mackin, J. R., Lucas, L. M., Lambarth, C. H., Waller, M., Herrera, T. A., Carey, S. M., & Finigan, M. W. (2010c). *St. Mary's County juvenile drug court outcome and cost evaluation*. Portland, OR: NPC Research
- MacMaster, S. A., Ellis, R. A., & Holmes, T. (2008). Combining drug court with adolescent residential treatment: Lessons from juvenile and adult programs. *Residential Treatment for Children & Youth*, 23(1), 45-60.

- Maguin, E., & Loeber, R. (1996). Academic performance and delinquency. *Crime and justice: A review of the research*, 20, 145-264. Chicago, IL: University of Chicago Press.
- Maryland Judiciary. (2006) *Traditional court vs. drug court*. Retrieved from <http://www.courts.state.md.us/index.html>
- Mateyoke-Scrivner, A., Webster, J. M., Staton, M., & Leukefeld, C. (2004). Treatment retention predictors of drug court participants in a rural state. *The American Journal of Drug and Alcohol Abuse*, 30(3), 605-625.
- McDaniel, R., & Schmidt, K. (2007). *The Wyoming department of health mental health and substance abuse services division report to the governor and the joint labor, health, and social services interim committee*. Cheyenne, WY: Wyoming Department of Health.
- Medina, R. (2008). *El Paso County juvenile drug court program: Comprehensive report, June 2004 through December 2007*. Reno, NV: School of Social Research and Justice Studies, University of Nevada, Reno.
- O'Connell, J. P., Nestlerode, E., & Miller, M. L. (1999). *Evaluation of the Delaware juvenile drug court diversion program*. Dover, DE: Statistical Analysis Center (Publication No. 100703991005). Retrieved from <http://www.state.de.us/budget/sac/default.shtml>
- Onifade, E., Davidson, W., Campbell, C., Turke, G., Turner, K., & Malinowski, J. (2008). Predicting recidivism in probationers with the Youth Level of Service

- Case Management Inventory (YLS/CMI). *Criminal Justice and Behavior*, 35(4), 474-483.
- Onifade, E., Nyandoro, A. S., Davidson, W. S., & Campbell, C. (2010). Truancy and patterns of criminogenic risk in a young offender population. *Youth Violence and Juvenile Justice*, 8(1), 3-18.
- Pitts, W. J. (2006). Measuring recidivism in a juvenile drug court: Systematic outcome study of a juvenile drug court using historical information. *The Southwest Journal of Criminal Justice*, 3(1), 17-34.
- Polakowski, M., Hartley, R. E., & Bates, L. (2008). Treating the tough cases in juvenile drug court: Individual and organizational practices leading to success or failure. *Criminal Justice Review*, 33, 379-405.
- Radecki, C. M., & Jaccard, J. (1996). Gender-role differences in decision-making orientations and decision-making skills. *Journal of Applied Social Psychology*, 26, 76-94.
- Rodriguez, N., & Webb, V. J. (2004). Multiple measures of juvenile drug court effectiveness: Results of a quasi-experimental design. *Crime & Delinquency*, 50, 292-314.
- Ronan, S. (2006). *Evaluating Idaho juvenile drug courts: A statewide process evaluation* (unpublished Master's thesis). Boise State University, Boise, ID.
- Sankey, M., & Huon, G. F. (1999). Investigating the role of alienation in a multicomponent model of juvenile delinquency. *Journal of Adolescence*, 22, 95-107.

- Schmidt, F., Hoge, R. D., & Gomes, L. (2005). Reliability and validity analyses of the youth level of service/case management inventory. *Criminal Justice and Behavior, 32*(3), 329-344.
- Searle, W., & Spier, P. (2006). Christ church youth drug court pilot: One-year follow-up study. Wellington, NZ: Ministry of Justice. ISBN: 0-478-29019-5
- Shaffer, D. K. (2006). *Reconsidering drug court effectiveness: A meta-analytic review*. Ann Arbor, MI: ProQuest Information and Learning Company.
- Shaffer, D. K., Latessa, E. J., Pealer, J., & Taylor, C. Y. (2002). Cuyahoga County juvenile drug court process evaluation. Retrieved from <http://www.uc.edu/criminaljustice/ProjectReports/CuyahogaJuvenileDCpdf.pdf>
- Sloan, J. J., III, Smykla, J. O., & Rush, J. P. (2004). Do juvenile drug courts reduce recidivism: Outcome of drug courts and an adolescent substance abuse program. *American Journal of Criminal Justice, 29*(1), 95-115.
- Stein, D. M., Deberard, S., & Homan, K. (2011). *Predictors of juvenile drug treatment court outcome: A meta-analytic review*. Unpublished manuscript.
- Sung, M., Erkanli, A., Angold, A., & Costello, E. J. (2004). Effects of age at first substance use and psychiatric comorbidity on the development of substance use disorders. *Drug & Alcohol Dependence, 75*(3), 287-299.
- Tappin, R. J., & McGlashan, L. (2007). *Evaluating "reclaiming futures": Final performance review*. Concord, NH: New Hampshire Public Policy Studies, [www.nhpolicy.org](http://www.nhpolicy.org).

- The Office of Justice Programs Drug Court Clearinghouse and Technical Assistance Project. (2001). *Juvenile drug court activity update: Summary information*. Washington, DC: American University Press.
- Thompson, K. M. (2002). *Statistical summary of North Dakota Juvenile Drug Court—May 2000 to June 2002*. Fargo, ND: Department of Sociology, North Dakota State University.
- Thompson, K. M. (2006). *An outcome evaluation of juvenile drug court using the child and adolescent functional assessment scale* (Document No. BX-0007). Fargo, ND.
- Tranchita A., & Stein, D. M., (2004). *Predictors of graduation and rearrest in a contemporary juvenile drug court program*. Logan, UT: Department of Psychology, Utah State University.
- Tuma, E., & Livson, N. (1960). Family socioeconomic status and adolescent attitudes to authority. *Child Development*, 31,387-399. doi:10.2307/1125912
- U.S. Census Bureau. (2011, October). *State & county Quick facts: Idaho*. Retrieved November 1, 2011 from <http://quickfacts.census.gov/qfd/states/16000.html>.
- U.S. Department of Agriculture. (2011, October). *State Fact Sheets: Idaho*. Retrieved November 1, 2011 from <http://www.ers.usda.gov/Statefacts/ID.HTM>
- Warner, L. A., & White, H. R. (2003). Longitudinal effects of age at onset and first drinking situations on problem drinking. *Substance Use and Misuse*, 38(14), 1983-2016.

Wiesner, M., & Windle, F. (2004). Assessing covariates of adolescent delinquency trajectories: A latent growth mixture modeling approach. *Journal of Youth and Adolescents*, 33(5), 431-442.