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FINDING ITS PLACE:

THE EFFECT OF RACE ON DRUG COURT OUTCOMES

by

Benjamin Gilbertson

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ABSTRACT
FINDING ITS PLACE:
THE EFFECT OF RACE ON DRUG COURT OUTCOMES

by

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The University of Wisconsin-Milwaukee, 2013
Under the Supervision of Professor Don Green

The most recent statistics on United States adult drug courts indicate that there are more

than 1,400 courts currently in operation nationwide (National Institute of Justice 2013).

This number is rather astounding given that drug courts only emerged in Miami, Florida

in 1989. However, what is more astounding is the fact that in the two decades drug

courts have existed, they have been studied more than all other criminal justice programs

combined (Honda and Sheen 2011; Marlowe 2010). As successfully completing one's

drug court program (i.e., graduating) often indicates whether a former participant will

recidivate, myriad researchers and federally-funded studies have used graduation rates to

measure the effectiveness of drug courts. However, inconsistencies remain in drug court

literature, particularly whether the race of program participants affects the likelihood of

graduating. This is in part due to the failure of previous studies controlling for a number

of legal, extralegal, and programmatic variables that have been found to influence drug

court outcomes, as well as problems with small sample sizes and single-site studies.

Therefore, this study further investigates drug court graduation rates and asks to what

extent can drug court outcomes be assigned solely to the basis of race?

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INTRODUCTION

The most recent statistics on United States adult drug courts indicate that there are more than 1,400 courts currently in operation nationwide (National Institute of Justice 2013). This number is rather astounding, given that drug courts only emerged in Miami Florida during the late 1980s in the context of the crack cocaine epidemic, high drug offender recidivism rates, and the revolving door costs associated with them.[1] However, what is more astounding is the fact that in the two decades drug courts have existed, they have been researched more than all other criminal justice programs combined (Honda and Sheen 2011; Marlowe 2010). As opposed to the primarily punitive stance taken by traditional criminal court, drug courts seek to combine punitive methods (e.g., jail time and probation) with rehabilitative and therapeutic treatments for drug offenders that acknowledge the severity of drug addiction while still holding drug court participants accountable for their behavior. The blend of positive and negative sanctions is achieved via cooperation between various public health services and criminal justice faculties, thereby increasing the likelihood of drug court participants graduating from their program.[2]

Because graduating from drug court generally decreases participants' chances of recidivating for a drug offense, graduation rates are often used as the primary measure of a drug court's success. In fact, of the five components developed by the National Institute of Justice (NIJ) to evaluate drug court performance, two are directly concerned with graduation rates: 1) increasing the percentage of graduates and 2) increasing the

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[1] Recidivism is defined as repeat offenses.
[2] "Graduation" and "program completion" are used synonymously throughout the remainder of this study.

total number of participants who graduate from their program (NIJ 2013). Indeed, such

principles are the products of various single-site and nationwide drug court evaluations

that have identified graduation as being able to predict the likelihood of recidivating for

former drug court participants (Anspach and Ferguson 2003; National Institute of Justice

2002; Government Accountability Office 2005).

Despite the proliferation of drug courts and the general commendation of their

positive effects on public health, inconsistencies remain within the literature with respect

to participant race/ethnicity.[3] That is, approximately half of all drug court evaluations

note significant discrepancies in drug court graduation rates between individuals of

different races/ethnicities while the remaining half state no such discrepancies exist

(DeVall and Lanier 2012). Prompted by the equivocal results, the Board of Directors of

the National Association of Drug Court Professionals (NADCP) issued a resolution in

June 2010 that called for drug courts to explore variations in graduation rates for

individuals of different races (NADCP 2010).[4] Even with the suggestions and advice

expressed in the NADCP resolution, individual studies still report divergent findings

(DeVall and Lanier 2012; McKean and Warren-Gordon 2011).

The inconsistencies are often a function of several conceptual and methodological

issues within each study that include, but are not limited to: 1) being unable – or simply

neglecting – to control for factors that vary between participants of different races; 2)

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[3] This study uses "race" and "racial" to refer to "ethnicity" and "ethnic" for the sake of redundancy, even though these concepts are not synonymous in the sociological sense.
[4] The NADCP does not directly oversee or regulate drug court operations, as this is the responsibility of specific judicial entities within specific jurisdictions. Because the NADCP is considered the "leading national organization on best practices and evidence-based practices in drug courts," however, drug courts typically abide by their recommendations and procedures (Marlowe 2013: 40).

grouping racial minorities into a single non-White category; 3) studying individual drug courts or selecting programs based on convenience (e.g., financial, geographic, data availability); and 4) disregarding the varying treatment methods across drug courts.

This last point is critical for drug court researchers and evaluators to consider, given the variability in treatment methods across drug courts. Though the majority of United States drug courts operate according to a set of guidelines established by the NADCP and have access to a logic model developed by the National Institute of Justice (NIJ) for self-evaluation, not all drug courts have access to the same amount of funding nor do they serve the same populations which can affect graduation rates across different programs. For example, it can be reasonably assumed that an African American participant who feels as if the program staff is not treating them fairly is less likely to graduate than a White individual who believes the program staff allows them to "share their side of the story." This discord (or lack-there-of) can certainly influence participants' chances of successfully completing their program. Furthermore, program completion can also be influenced by program provisions (e.g., electronic monitoring, regular and random drug tests, and mental health or substance abuse treatment).

This study attempts to address the contradictory findings in the literature by using a new dataset that includes data from multiple drug courts throughout the U.S. and controls for the programmatic differences across courts through the inclusion of a series of measures that identify these programmatic differences. In addition, unlike more previous research, participant race in the present study is not limited to White/non-White classification, but rather examine race as a multi-category construct. Lastly, this study

controls for a number of legal and extralegal variables found in prior research to be important predictors of drug court outcomes. In order to concretely identify whether race influences graduation from drug court, the present study first examines the effect of race on drug court graduation and subsequently explores the effect of race on drug court graduation after controlling for legal, extralegal, and programmatic variables.

LITERATURE REVIEW

Although the research on drug courts has been prolific, the findings with respect to the influence of participant race on program completion have been mixed with a number of studies reporting higher graduation rates for White participants (Brewster 2001; Hartley and Phillips 2001; Schiff and Terry 1997; Sechrest and Shicor 2001; Butzin et al. 2002; Gray and Saum 2005; Wolf et al. 2003; Miller and Shutt 2001; Senjo and Leip 2001). Other research indicates higher program completion for minority participants, most notably for African Americans (Vito and Tewksbury 1998; Brown 2011). Further complicating the discussion of race effects is the growing body of literature that finds no significant difference in drug court graduation amongst participants of different races (Saum et al. 2001; Roll et al. 2005; Evan et al. 2009; Hickert et al. 2009; Rempel and DeStefano 2002). Despite the inconsistencies, however, the general consensus within the drug court literature is that African Americans tend to graduate at lower rates than Whites (Marlowe 2013). Table 1 presents the graduation rates for the racial groups included in each of the aforementioned studies.

(TABLE 1 AT OR ABOUT HERE.)

After reviewing the drug court literature, four key issues emerged that can induce inconsistencies regarding race effects on program completion. First, the vast majority of drug court research included participant race as merely a control variable with any race effect findings discussed ad hoc. As a result, researchers who used race as a control variable as opposed to a primary independent variable may have neglected to include other variables that are commonly associated with race. According to Marlowe (2013), this is a "critical[ly] unanswered question" (44) within the drug court literature, such that it is not known whether the racial discord in graduation rates is "a function of race per se or whether it might reflect the influence of other factors that are correlated with race" (44) including but not limited to drug of choice, socioeconomic status, marital status, living situation, and criminal history (Dannerbeck et al. 2006; Beckett et al. 2005). In failing to include variables that are correlated with race, researchers may inadvertently assign likelihood of graduation to race rather than the variables that are truly affecting graduation.

A second limitation of prior drug court research is the grouping of racial minority participants into a single "non-White" category (Senjo and Leip 2001; Hartley and Phillips 2001; Gary and Saum 2005; Hickert et al. 2009; McKean and Warren-Gordon 2011; DeVall and Lanier 2012). Drug courts are primarily concerned with measuring the outcomes of participants as compared to individuals convicted of drug offenses and processed via traditional criminal court. Though drug courts do not aim to discriminate between participants of different races, they are nonetheless driven by a desire to justify their usefulness and typically report findings at an aggregate level (e.g., 40 percent of

participants successfully completed a program). While not entirely intentional, reporting findings in this way can conceal potential weaknesses in terms of the performance of select subpopulations such as racial minorities.

The third and fourth limitations of drug court evaluations with respect to race are closely related. That is, contradictory findings often arise from single-site evaluations with homogenous populations, services, and treatments compared to multi-site analyses in which the separate programs have varying characteristics. Single-site evaluations can be problematic on account of the populations served, characteristics of the program itself as well as program staff, and availability of services and treatments. For example, some studies have analyzed sites where the vast majority of participants are White (Brown 2011; Dannerbeck et al. 2006; DeVall and Lanier 2012; Hickert et al. 2009), thereby limiting the generalizability of the findings to racial minorities. Another issue with single-site evaluations is that certain participant features may be more pronounced than others such as drug of choice, employment status, or criminal history (Rossman et al. 2011c). Even with studies that analyze multiple sites, the generalizability of findings can be compromised if researchers do not control for programmatic differences. As mentioned previously, drug courts operate using the suggestions and findings put forth by the NADCP but are subject to evaluation and funding on behalf of local jurisdictions. In other words, drug court protocol is not enforced universally. Whether actual employees of drug courts oversee case management can influence graduation as can the court's communication and enforcement of specific sanctions for specific participant behavior, among other program regulations (Rossman et al. 2011d).

For either single- or multi-site program evaluations, the racial/ethnic makeup of program staff and cultural proficiency/sensitivity can influence the magnitude of race effects on graduation. Marlowe (2013) identified one drug court program that used "culturally tailored interventions" (46) for African American males and consequentially improved program success for those individuals. Other researchers have also noted the importance of cultural sensitivity training for program staff who serve racially diverse populations (Gebelein 2000; Huddleston and Marlowe 2011) and the NADCP formally adopted these suggestions in its June 2010 racial and ethnic minority resolution. A final problem with select single- and multi-site evaluations is small sample size. A number of studies have sample sizes less than 200 participants (Senjo and Leip 2001; Miller and Shutt 2001; Brewster 2001; Hartley and Phillips 2001; Sechrest and Shicor 2001; Butzin et al. 2002; Brown 2011; McKean and Warren Gordon 2011; Roll et al. 2005). Small samples such as these can affect generalizability of findings to the drug court population overall in addition to increasing the likelihood of Type-I and Type-II error. It should be noted, however, that sample size is often a function of the length of program evaluation. Studies that oversee sites for several years will surely have larger samples than studies that are limited to one or two years of monitoring.

The literature review for this study identified only four studies that purposively addressed the issue of race and graduation from drug court (Rempel et al. 2003; Dannerbeck et al. 2006; McKean and Warren-Gordon 2011; and DeVall and Lanier, 2012). That is, these studies had explicit research questions and/or hypotheses regarding participant race and its effect on program completion. Of these four studies, three

identified significant racial differences in graduation rates (Rempel et al. 2003; Dannerbeck et al. 2006; McKean and Warren-Gordon 2011) and one ran separate but similar regression models for participants of different races (i.e., models that included the same variables but were limited to either White or non-White participants) (DeVall and Lanier 2012). Each of these studies is reviewed in detail to better fixate the goals and methods of the present study within the context of its literary predecessors. However, it should be noted that the discussion of the findings for each study varies not only between the studies themselves, but between different models, sites, and subpopulations within each study as well. In other words, few if any similarities exist in terms of consistent findings for these studies that sought to investigate race effects on drug court outcomes.

With respect to race-specific findings, DeVall and Lanier's (2012) examination of White and non-White male participants in the Seahawk Drug Treatment Court Program discovered that for White participants, those who were older, had a high school education, and were employed were more likely to graduate from drug court. On the contrary, White participants with a greater number of dependents were less likely to graduate. For non-Whites, those who were employed were more likely to graduate. McKean and Warren-Gordon's (2011) single-site evaluation of a drug court program in Madison County, Indiana noted a lower likelihood of graduation for Black participants. Dannerbeck et al. (2006) compiled data from ten Missouri drug courts and observed only one significant, race-specific finding such that Black cocaine users compared to White cocaine users were less likely to graduate. Lastly, Rempel et al. (2003) drew from five New York state drug courts and identified higher graduation rates for Hispanics

compared to African American participants at one of the five sites included in their analysis.

In addition to participant race, the aforementioned researchers included a number of extralegal variables such as gender (Rempel et al. 2003; Dannerbeck et al. 2006; McKean and Warren-Gordon 2011); age (Rempel et al. 2003; Dannerbeck et al. 2006; McKean and Warren-Gordon 2011; DeVall and Lanier 2012); marital status (Dannerbeck et al. 2006; DeVall and Lanier 2012); number of children and/or dependents (Dannerbeck et al. 2006; DeVall and Lanier 2012); level of education (Rempel et al. 2003; Dannerbeck et al. 2006; McKean and Warren-Gordon 2011; DeVall and Lanier 2012); employment and/or school enrollment status (Rempel et al. 2003; Dannerbeck et al. 2006; McKean and Warren-Gordon 2011; DeVall and Lanier 2012); and living situation (Dannerbeck et al. 2006) in their analyses.

As regards the extralegal variables controlled for in these studies, McKean and Warren-Gordon (2011) found males and those employed were more likely to graduate. Dannerbeck et al. (2006) noted females, those who were 26 or older, employed, married, and living in a community with a medium-to-high socioeconomic status level were more likely to complete their program. Lastly, Rempel et al. (2003) found males, older participants, and those who were employed or enrolled in school were more likely to have success in drug court, while heroin users and Hispanics were less likely to have success.

In addition to extralegal variables, these studies also attempted to control for a number of legal variables as well. Addiction history and severity (Rempel et al. 2003;

Dannerbeck et al. 2006; DeVall and Lanier 2012), depression severity (McKean and Warren-Gordon 2011), drug of choice or prior drug use (Rempel et al. 2003; Dannerbeck et al. 2006; McKean and Warren-Gordon 2011; DeVall and Lanier 2012), and various assessments of criminal history (Rempel et al. 2003; Dannerbeck et al. 2006; McKean and Warren-Gordon 2011; DeVall and Lanier 2012) were all measured at some level. DeVall and Lanier (2012) were the only researchers who identified legal variables that predicted the likelihood of graduation for different racial groups. Whites whose drug of choice was methamphetamine rather than marijuana were more likely to graduate, while non-Whites who reported an older age at onset of substance use had higher rates of completion. The remaining studies were able to detect other legal variables that predicted graduation. Specifically, Dannerbeck et al. (2006) identified those who entered drug court as a diversion program were more likely to graduate. Conversely, those who were re-entries (i.e., those who had served time before entering drug court) were less likely to graduate. Heroin users had lower rates of program completion compared to all other drug users in Rempel et al.'s (2003) study. McKean and Warren-Gordon (2011) did not find any support for legal variables being able to predict program completion or failure.

Programmatic variables have been studied the least with respect to the influence of race on drug court outcomes. Though Dannerbeck et al.'s (2006) study analyzed data from multiple drug courts, the researchers did not control for any programmatic differences. Rempel et al. (2003) also used data from multiple sites, but failed to adequately control for programmatic variance. That is, the researchers controlled for the legal coercion of courts (e.g., differences in negative sanctions bestowed on participants),

in-program behavior of participants, and treatment type, yet these controls were not used for all sites due to missing data on these variables. Hence, Rempel and colleagues excluded these controls from the regression models for those sites with missing data. Therefore, the researchers' efforts to control for program variation were underutilized. Also lacking in these studies are adequate variables that control for differences in the participants' assessment of their program. Neither DeVall and Lanier (2013) nor Dannerbeck and colleagues (2006) took into account variation between participant experiences. Rempel and co-authors (2003) controlled for the swiftness of treatment offered to participants as well as treatment modalities, yet they state that this was included more as a proxy for addiction severity. The only variable McKean and Warren-Gordon (2011) employed to control for participant experiences in drug court was the number of absences from mandated treatment sessions.

Additional limitations of these studies are also important to consider, the first of which is site selection. Both DeVall and Lanier (2012) and McKean and Warren-Gordon's (2011) studies are based on single drug courts (with only male participants in DeVall and Lanier's sample) while Dannerbeck et al. (2006) and Rempel et al.'s (2003) work is based on a collection of drug courts within a single state. A second limitation of these studies is the lack of racial variance in the researchers' analyses. Dannerbeck et al. (2006) investigated differences only between Whites and Blacks, while DeVall and Lanier (2012) and McKean and Warren-Gordon (2011) collapsed racial minorities into a single non-White category. Additionally, only 33 percent of DeVall and Lanier's (2006) sample were non-Whites, and McKean and Warren-Gordon (2011) as well as

Dannerbeck et al. (2006) had less than 20 percent of their respective samples consist of

racial minorities. The present study builds on the contributions of these studies that have

made explicit efforts to identify the place of race in terms of completing drug court.

Moreover, it includes additional potentially relevant legal variables (e.g., detailed

measures of prior criminal history) and controls for programmatic differences between

programs themselves as well as participants.

<div align="center">**METHODS**</div>

Data

      The dataset used in this study is borrowed from Rossman, Roman, Zweig,

Lindquist, Rempel, Willison, Downey, and Fahrney's (2011) Multi-site Adult Drug Court

Evaluation (MADCE) and was acquired via the Inter-consortium for Political and Social

Research (ICPSR). Funded by NIJ, this multi-year study (2003-2008) consisted of 23

separate drug courts across seven states.[5] The selection of sites was facilitated by a

nationwide web-based survey conducted between February and June 2004 of all existing

adult drug courts that had been functional for one year or more at the outset of the study.

The purpose of this was to identify a robust set of drug courts with respect to the

populations they served, the treatment they offered, and the protocol by which they

operated. Courts that were geographically proximal to one another was also an important

quality, in that researcher travel costs might be reduced (Rossman et al. 2011c). The

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[5] Rossman and co-authors also recruited six comparison sites in order to compare drug court operations with other forms of treatment. For the purposes of this study, those comparison sites and the selection methods used to include them are not discussed.

researchers' efforts identified 593 drug courts meeting the desired conditions with 380 (64.08 percent) completing the survey in its entirety (Rossman et al. 2011c).

Concurrent to the distribution of the web-based survey, Rossman and her colleagues met with a variety of professionals from various academic and research institutions to establish more detailed criteria that would further guide their site selection. After deliberation, substance abuse treatment, leverage in monitoring clients, and the predictability of a court's sanctioning policies were selected as the main criteria by which specific sites would be chosen (Rossman et al. 2011c). The researchers further identified desirable courts using "HotSpot mapping and subjective criteria about how geographically close courts were" (Rossman et al. 2011c: 57), contacted specific drug courts within the geographic clusters, and arranged personal visits to finalize site selection. Thus, the final sample consisted of 23 drug courts (3.88 percent of the 593 drug courts that met the initial desired conditions or 6.05 percent of the 380 courts that completed the survey) in Florida (2), Georgia (2), Illinois (2), New York (8), Pennsylvania (2), South Carolina (1), and Washington (6).

Data Collection

Participant data at each site were gathered via three separate personal interviews at baseline, 6 months post-baseline, and 18-months post-baseline. Because this study is concerned with those who were eligible for drug court participation at baseline as well as their final disposition, the baseline and 18-month interviews are of primary concern. Baseline interviews were conducted within six weeks of program admittance between

March 2006 and June 2006; the 18-month interviews were conducted between September 2006 and January 2008 (Rossman et al. 2011c).

The majority of interviews used computer-assisted personal interviewing (CAPI) with pencil and paper interviews administered for individuals who were incarcerated in institutions that barred the use of laptops (Rossman et al. 2011c). All individuals who participated in the study signed a consent form after it was read to them by the interviewer. In order to lessen the chances of attrition, monetary incentives were offered to non-incarcerated individuals in the form of cash and money orders were deposited in incarcerated individuals' accounts (so long as the facility allowed it) after the interviews were completed.

Response Rates and Analytic Sample

For the purposes of this study, only those participants who self-reported definitive 18-month disposition status were considered eligible. Rossman et al.'s study began with 1,347 drug court participants, though only 1,147 participants reported data for at least one variable at the time of the 18-month interview (85.15 percent). Of those 1,147 persons, 931 provided data for their respective 18-month program status (69.11 percent of those at baseline; 81.17 percent of those initially deemed eligible for participation of the present study). Of those 931 participants, 599 reported definitive disposition data (i.e., "Graduated" or "Failed to Graduate") at their 18-month interview; thus, the final sample for this study consists of 599 cases (44.47 percent of initial baseline participants; 52.22 percent of the cases deemed eligible for participation in this study; and 64.34 percent of the 931 cases that reported some type of final disposition status). This sample was

reached by: a) excluding 11 cases (1.18 percent) that did not report any 18-month

program provision data (i.e., variables measuring the types of services and forms of

supervision placed on participants at the 18-month interview); b) dropping 58 cases (6.23

percent) due to missing data on one or more of the variables used in the baseline program

fairness scale; c) omitting 18 cases (1.93 percent) because of missing data on one or more

of the variables used in the 18-month program fairness scale; d) removing 9 cases (0.97

percent) and 1 case (0.10 percent) as a result of missing data on "Arrests Before Age 18"

and "Marital Status," respectively; and 235 cases (25.24 percent) that reported "Still in

Drug Court" as their 18-month disposition status. [6] [7]

Missing Data

Listwise deletion, mean imputation, and hot deck imputation were used to handle

missing data. Mean imputation was used to address 259 cases (43.24 percent of analytic

sample) with missing data on "Age." To remedy this, missing cases were partitioned

according to their corresponding marital status category ("Never Married," "Married,"

and "Divorced/Separated/Widowed"). Mean ages were then computed according to these

categories and were imputed for those cases with missing data on "Age." For the 170

cases for which variables used to construct the program provision indices were missing

data, hot deck imputation was used. First, cases were stratified according to the

respective program the participant attended. This was done on the basis of each site

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[6] The percentages discussed here refer to the 931 cases with some type of final disposition status.
[7] Though the majority of prior drug court research has found a positive relationship between length in program and graduating from drug court, it would be imprudent to make conclusive claims regarding the likelihood of those still in drug court at their 18-month interview to graduate or be terminated from their program. Therefore, these cases are excluded from this analysis.

being able to allocate the same types of services and supervision for their participants.

Next, cases were stratified according to their drug court participant identification number

assigned by the author of this study. Finally, cases with missing data were imputed with

the values of the preceding case that did not possess missing data ("hot deck" procedure).

On 12 occasions, a single case lent its value to, at most, two cases with missing data due

to the way cases were stratified (24 cases in total). However, this method of imputation

should not have significantly affected the findings because of its infrequency and its

operation on only two consecutive cases.

Weighting and Complex Variance Estimation

The authors of the Multi-Site Adult Drug Court Evaluation recognized several

"threats to validity" (Rossman et al. 2011d: 15) of their study, namely attrition bias and

site-level clustering. With respect to attrition bias, the authors hypothesized that

participant attrition was namely a result of differences in "community-level

characteristics of some, but not other sites" as well as differences in research interviewers

assigned to specific "state-based geographic clusters" (Rossman et al. 2011d: 17). As a

result, a retention model was developed using baseline participant characteristics and

state-cluster variables that retained and attrited participants differed on using bivariate

comparisons (e.g., low- and high-risk offenders). Super weights were created that did

away with nearly all significant differences between retained and attrited participants at

the 18-month interview (Rossman et al. 2011). Hierarchical modeling was used to

address site-level clustering (i.e., the clustering of certain participant characteristics at

specific sites). This type of modeling was used while conceding an increased likelihood

of Type-II error or failing to report a significant effect when it does exist.

Dependent Variable

The dependent variable for this study was the "18-Month Disposition" status of a

drug court participant. The particular question that was posed to the participants

regarding their 18-month disposition status was phrased as follows: "Are you no longer

in drug court because…" with response options of "You graduated?," "You dropped out

of it yourself?," "You were kicked out of it?," or "You were put in jail?" (Rossman et al.

2011e: 15). In order to address the research question of this study, "Dropped Out

Yourself," "Kicked Out," and "Put in Jail" were collapsed and labeled "Failed to

Graduate." As was previously mentioned, participants who were still in drug court at the

time of their 18-month interview were excluded from this analysis. After taking into

account the complex variance estimation and weights for this study, the final distribution

for the dependent variable was: 60.0 percent had graduated and 40.0 percent had failed to

graduate (N = 599; see Table 2 for weighted descriptive statistics, Table 3 for unweighted

descriptive statistics of participants with some type of final disposition status).

(TABLE 2 AT OR ABOUT HERE.)

(TABLE 3 AT OR ABOUT HERE.)

Independent Variable

Race was measured using the following question: "Which of the following best

describes you? Please choose all that apply." The response options provided were

"White," "Black or African American," "American Indian or Alaskan Native," "Asian or

East Indian," "Hispanic, Latino, or Spanish," or "Native Hawaiian or other Pacific Islander" (Rossman et al. 2011: 2011e: 1). This study uses a four-category race variable that was created by Rossman and colleagues. The final weighted distribution of this variable is as follows: 55.5 percent White, 31.5 percent Black/African American, 6.5 percent Hispanic/Latino/Spanish, and 6.4 percent another racial category, including those who identified as multiracial (N = 599; see Table 2 for weighted descriptive statistics, Table 3 for unweighted descriptive statistics of participants with some type of final disposition status).

Legal, Extralegal, and Programmatic Variables

Other variables of interest used in this study are: gender; age; marital status; primary child care responsibilities; level of education; job for pay; annual income (all sources); place of residence (where participants mostly lived six months prior to the baseline interview); addiction severity index scores; depression severity index scores; drug of choice; arrests before age 18; prior violent crime convictions; prior property crime convictions; prior drug offense convictions; and prior DUI/OWI convictions (see Table 2 for weighted descriptive statistics, Table 3 for unweighted descriptive statistics of participants with some type of final disposition status). It is vital to locate specific variables that typically differ between individuals of different races because these variables may influence the likelihood of graduating more than race itself.

For instance, regular supervision by and contact with a drug court judge is extremely important for addicted or abusing offenders due to the fact that without this consistency, approximately 70 percent of drug court participants will fail to complete

their programs (NADCP 2011). Additionally, for drug court participants who are also

parents, they are more likely to comply with and complete their program (NADCP 2011).

Because of this compliance, children benefit as well, for children of family drug court

participants are able to avoid spending time in "out-of-home placements" (NADCP

2011).

This study also includes two indices and two scales to control for individual

differences concerning drug court experience. These indices and scales were constructed

to investigate the differences between participant assessments of program provisions and

assessments of program fairness at the baseline and 18-month interviews, as well as to

assess any mediating effects on the likelihood of graduating. The indices consist of a

series of 18 dichotomous questions that inquire about the types of services, treatments,

and forms of supervision offered.[8] A primary components factor analysis identified six

distinct factors in the baseline provision index and five distinct factors in the 18-month

provision index. Despite the revelation of several factors in both factor analyses, all 18

questions were employed in the provision indices due to their ability to collectively

establish a metric for a particular drug court's provisions while allowing for a comparison

across all drug courts. For example, asking participants whether they are required to take

random drug tests is very different from asking participants whether they have regular

contact with their case manager, yet both questions help to quantify the provisions and

supervision a particular site offers. Because each question in the indices was

dichotomous, "Yes" responses received a score of "1" with "No" responses receiving a

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[8] See Appendix B for the individual questions verbatim.

score of "0" (range 0-18). Scores closer to 18 indicated more program provision and supervision. In order to measure the internal consistency of each index, Chronbach's alpha levels were calculated. For the baseline provision index, the Chronbach's alpha level was 0.61; the Chronbach's alpha level for the 18-month provision index was 0.88. The weighted mean values for the baseline and 18-month program provision indices were 11.3 and 9.6, respectively (N = 599; see Table 2 for weighted descriptive statistics).

With regard to the scales, they entail a set of 15 statements that used a five-point Likert scale to measure participant assessments of the program and program staff.[9] A primary components factor analysis revealed three separate factors for both the baseline and 18-month scales. Like the program provision indices, each statement within the factor analysis was included in the scales. Combining these variables into a single scale allowed for a comparison between participants with various perceptions of program fairness. For example, whether a case manager emphasizes the importance of drug and alcohol treatment is not the same as whether a judge knows participants by name, yet both measure some aspect of program fairness. Both scales were constructed so that all items were added together, then divided by 15 (the number of items in the scale) to keep scores within the "Strongly agree-Strongly disagree" 5-point range. A Chronbach's alpha level of 0.91 was calculated for the 18-month fairness scale. For the 18-month program fairness scale, a Chronbach's alpha level of 0.93 was estimated. The mean values for the baseline and 18-month program fairness scales were 4.1 and 4.0, respectively (range of 1-5) (N = 599; see Table 2 for weighted descriptive statistics).

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[9] See Appendix B for the individual questions verbatim.

Analytic Procedure

Each of the statistical operations in this study was computed using Stata 12. This study uses a bivariate analysis to assess drug court graduation rates among races. However, in order to better understand the influence of other variables on race and how this may effect graduating from drug court, this study uses logistic regression to compare differences between those who had graduated from their respective drug court program to those who failed to graduate at the time of their 18-month interview. A series of five nested models were run to assess the predictive significance of race and other control variables on 18-month disposition. The first model examines the effect of race only; the second model tests race and a collection of legal and extralegal variables; the third model investigates the effects of race, a collection of legal and extralegal variables, and the baseline provision index and fairness scale; the fourth model inspects race, legal and extralegal variables, and the 18-month provision index and fairness scale; finally, the fifth model includes all variables in its analysis. This series of regression models are used to measure the experiences of participants while in drug court as well as how those experiences can potentially mediate the likelihood of graduation. Moreover, an additional regression model is used to assess potential race effects between White and non-White participants, consistent with racial categorization of prior research.

RESULTS

The results of the bivariate analysis are presented in Table 4 and depict the frequency and percentage of drug court graduates for specific racial categories. Overall, the bivariate model predicting final disposition by race was not significant ($\chi^2(1) = 3.55$,

$p = .314).^{10}$ This finding is consistent with a handful of studies that did not find

significant differences in graduation rates between participants of different races at the

bivariate level (Saum et al. 2001; Rempel and DeStefano 2002; Roll et al. 2005; Evans et

al. 2009; Hickert et al. 2009). Although this analysis is not the first to present non-

significant race effects, it is nonetheless within the minority of studies reviewed that

suggest race bears no weight on successfully completing a drug court program.

(TABLE 4 AT OR ABOUT HERE.)

Tables 5, 6, and 7 present the results of the five logistic regression models that

assess the influence of race and other predictor variables on the 18-month disposition of

drug court participants. Coefficients are listed in both tables, but to facilitate

interpretation odds ratios (OR) are also included. Odds ratios with values greater than

one designate positive effects relative to the reference category; odds ratios with values

less than one indicate negative effects relative to the reference category; and odds ratios

equal to one denote no effect. "Failed to Graduate" serves as the reference category for

the dependent variable, as this study intends to model program success rather than

failure.[11] [12]

In Table 5, Model 1 depicts the effects of race only on 18-month disposition.

Overall, Model 1 compared to the null model was not statistically significant ($LR\chi^2 =$

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[10] Because of limitations with the Stata software, the results of the bivariate analysis were not weighted nor was a complex variance estimation applied.

[11] Due to Rossman et al.'s use of hierarchical modeling in their research design and the number of variables included in Models 2 through 5, Stata could not compute values for overall model significance. The coefficients, standard errors, and odds ratios discussed here and presented in Tables 4, 5, and 6 were computed when taking into account hierarchical modeling and the retention/attrition weight for the 18-month interview. The LR-Chi Square ($LR\chi^2$) values and p-values presented reflect those computed when only the retention/attrition weight was accounted for.

[12] For the sake of redundancy, "failed to complete," "18-month disposition," "program completion," and "graduate" are used interchangeably.

5.15, *p* = .161). Like the results produced in the bivariate model, race by itself did not

significantly predict program completion as was further evidenced in more inclusive

models. This finding is important such that even without legal, extralegal, and

programmatic controls, participant race did not significantly predict graduation or

termination from drug court. This result by itself implies other variables are more

predictive of program completion, in accordance with Marlowe (2013) and Finigan

(2009).

Model 2 (race plus legal and extralegal variables) was statistically significant

(LRχ^2 = 73.02, *p* = .000) and accounted for 11.36 percent of the variance in 18-month

disposition. Two extralegal variables were significant predictors of program completion,

those being age (*OR* = 1.029, *p*≤.05) and place of residence (someone else's residence

versus own residence: *OR* = 0.562, *p*≤.01; homeless/some other place versus own

residence: *OR* = 0.250, *p*≤.01). In other words, the majority of those who were not living

in their own residence prior to entering drug court were less likely to graduate. Three

legal variables – arrests before age 18 (1-3 versus zero: *OR* = 0.745, *p*≤.05), prior violent

crime convictions (yes versus no: *OR* = 0.413, *p*≤.05), and property crime convictions

(yes versus no: *OR* = 0.522, *p*≤.01) were also significant predictors of program

completion and all reaffirm results from prior research.

(TABLE 5 AT OR ABOUT HERE.)

Table 6 presents Model 3 (race plus legal and extralegal variables along with the

baseline program provision index and fairness scale) and Model 4 (race plus legal and

extralegal variables and the 18-month program provision index and fairness scale).

Model 3 was statistically significant (LRχ^2 = 75.13, p = .000) and accounted for 11.72 percent of the variance in program completion. Participant age was one of two significant extralegal variables that significantly predicted program completion (OR = 1.030, $p\leq$.05). Place of residence was the second significant extralegal variable that predicted graduating from drug court (someone else's residence versus own residence: OR = 0.566, $p\leq$.01; homeless/some other place versus own residence: OR = 0.263, $p\leq$.001) and is consistent with the results from Model 2. Drug of choice was one of two significant legal variables in Model 3 that predicted program completion (amphetamine versus alcohol: OR = 2.464, $p\leq$.05). Prior property crime convictions was the other legal variable that significantly predicted program completion (yes versus no: OR = 0.517, $p\leq$.01). Neither the baseline program index nor scale was significant which suggests that baseline measures isolated from other programmatic measures during the drug court experience cannot predict program completion.

(TABLE 6 AT OR ABOUT HERE.)

Model 4 was also statistically significant (LRχ^2 = 142.29, p = .000) and accounted for 33.48 percent of the variance in 18-month disposition. Place of residence was one of two significant extralegal variables (someone else's residence versus own residence: OR = 0.626, $p\leq$.05; homeless/some other place versus own residence: OR = 0.243, $p\leq$.001). The second extralegal variable that was significantly predictive of 18-month disposition was addiction severity upon entering drug court (OR = 0.917, $p\leq$.01), the first time it was significant in any of the models. As verified by prior research, participants with severe addictions are less likely to graduate. Furthermore, four legal variables – drug of choice

(amphetamines versus alcohol: OR = 2.563, $p\leq.05$; all other drugs versus alcohol: OR = 2.266, $p\leq.05$), arrests before age 18 (1-3 versus zero: OR = 0.566, $p\leq.05$), prior violent crime convictions (yes versus no: OR = 0.292, $p\leq.05$), and property crime convictions (yes versus no: 0.449, $p\leq.001$). Finally, the two 18-month programmatic variables were also significantly predictive of graduating (program provision index: OR = 1.191, $p\leq.001$; program fairness scale: OR = 4.849, $p\leq.001$), suggesting that the more services and supervision provided and the more fairly participants feel treated, the more likely they were to graduate.

Lastly, Model 5 (or the full model) appears in Table 7. It includes all of the aforementioned variables in order to measure the experiences of drug court participants and how these experiences can mediate the likelihood of program completion. Overall, this model was statistically significant ($LR\chi^2$ = 133.46, p = .000) and accounted for 36.50 percent of the variance in 18-month disposition. Likelihood ratio tests were run to assess whether including all variables in Model 5 improved the predictive capabilities from Models 1, 2, 3, and 4. When comparing Model 5 to Model 1, the likelihood ratio test indicated that Model 5 was in fact better at predicting 18-month disposition than Model 1 ($LR\chi^2$ = 263.80, p = .000). When Model 2 was compared to Model 5, the likelihood ratio test again suggested that Model 5 improved the predictive capability of 18-month disposition ($LR\chi^2$ = 192.82, p = .000). When Model 3 was compared to model 5, the likelihood ratio test once again indicated that Model 5 enhanced the predictive power of 18-month disposition ($LR\chi2$ = 189.72, p = .000). Lastly, when Models 4 and 5 were

compared, Model 5 once more served as a better model for predicting 18-month

disposition ($LR\chi^2 = 28.10$, $p = .000$).

<div align="center">(TABLE 7 AT OR ABOUT HERE.)</div>

As was calculated in Models 2 and 3, participant age significantly predicted

program completion ($OR = 1.036$, $p \leq .05$). As was true in Models 2, 3, and 4, place of

residence was significantly predictive of program completion (someone else's residence

versus own residence: 0.651, $p \leq .05$; homeless/some other place versus own residence:

$OR = 0.268$, $p \leq .01$). Drug of choice significantly predicted program completion, similar

to the findings in Models 3 and 4 (amphetamine versus alcohol: $OR = 3.097$, $p \leq .05$). The

number of arrests participants had before age 18 was significant as well, though in Model

5, both categories of "1-3" arrests and "4 or More" arrests were significant whereas only

"1-3" was significant in Models 2 and 4 (1-3 versus zero: $OR = 0.543$, $p \leq .01$; 4 or more

versus zero: $OR = 0.457$, $p \leq .05$). Property crime convictions were yet again significant

(yes versus no: $OR = 0.425$, $p \leq .001$). For the first time in any of the models, scores on

the baseline program fairness scale were significantly predictive of success in drug court

($OR = 0.380$, $p \leq .001$). Surprisingly, participants with higher scores on the scale were less

likely to complete their program, the most unexpected result in any of the models.

Like in Model 4, the 18-month program provision index was significant once again in

Model 5 ($OR = 1.219$, $p \leq .001$). Lastly, scores on the 18-month program fairness scale

were significant in predicting graduation from drug court ($OR = 6.212$, $p \leq .001$). Both of

the results of the 18-month programmatic measures were consistent with those of

previous models.

To assess whether the baseline and 18-month indices and scales mediated the effects of race on program completion, the findings of Model 2 were compared to those of Models 3, 4, and 5 to investigate if any of the racial categories became significant in the absence of these indices and scales. Seeing as race was never statistically significant in any of the models, this suggests that there are no differences in graduating from drug court between participants of different races even when program experiences themselves differ.

An additional regression model was run with race as sole predictor variable, yet was recoded into a binary White/non-White variable. This was performed in order to assess whether grouping racial minorities into a single category influenced program completion as prior research has found (Schiff and Terry 1997; Senjo and Leip 2001; Hartley and Phillips 2001; Gray and Saum 2005; McKean and Warren-Gordon 2011; DeVall and Lanier 2012). After running the analysis, the recoding of race into a dichotomous variable had no significant effect on program completion LRχ^2 = -397.41, p = .213), in line with the only study reviewed for the present study that categorized race in this manner and had a non-significant race effect (Hickert et al. 2009). The results are presented in Table 8.

(TABLE 8 AT OR ABOUT HERE.)

DISCUSSION AND LIMITATIONS

This study sought to address a number of problems with prior research that assessed the effect of race on drug court graduation. After controlling for previously excluded or neglected variables in addition to a number of other legal and extralegal

variables, race did not have a significant effect on program outcome. This finding is consistent with a handful of studies reviewed that also found no race effects on graduating from drug court (Saum et al. 2001; Rempel and DeStefano 2002; Roll et al. 2005; Evans et al. 2009; Hickert et al. 2009). Even when race was recoded in line with prior research (White versus non-White), race had no significant effect on program outcome. To the author's knowledge, this is the first study that has specifically addressed the issue of race in completing drug court and discovered no race effects. In other words, while race may dictate one's experience in other realms of the criminal justice system, it has no direct effect on one's time spent in adult drug court.

The non-significance of race in graduating from drug court is indeed a significant finding, especially when one considers the robust nature of the data collection efforts and the methods used to analyze the data. That is, Rossman et al.'s (2011a) successful attempt in collecting data from 23 separate drug courts – each serving different populations, employing different forms of services and supervision, and residing in different areas of the U.S. – allows for the findings of the present to study to be generalized to the drug court participant population at large. Also allowing for generalization is the present study's use of programmatic controls. Even though participant treatment services vary across drug courts, the application of these programmatic controls holds constant these differences that are typically poorer for racial minorities compared to Whites (Marlowe 2013). Moreover, the inclusion of variables guided by prior research (Dannerbeck et al. 2006; Beckett et al. 2005; Marlowe 2013) and that are commonly correlated with race (drug of choice, socioeconomic status, place

of residence, etc.) aided in identifying variables that are more predictive of program completion than race.

Specifically, place of residence was the most consistent predictor of drug court outcomes. Offenders who were living with someone else, were homeless, or had some other dubious living situation upon first entering drug court were less likely to graduate from drug court than were those living in their own residence. This finding suggests that participants living with people other than themselves or their family upon entering drug court are more susceptible to engaging in deviant activities including drug use. Prior property crime convictions was also a consistent, significant predictor of drug court outcomes. Participants with at least one conviction preceding their participation in drug court were less likely to graduate than those with no convictions. This finding is consistent with prior research that drug courts work best for those with a long line of criminal activity by providing conventional structure to their lives (Marlowe 2011). Although future research should identify the type of property crime (e.g., theft versus arson) and/or the financial damage caused by it, this finding may prove useful for drug court staff in that they can more directly address the needs and habits of participants with a history of property crimes. Drug of choice was also a consistent, significant predictor of program completion. Specifically, amphetamine users were more likely to graduate from their program than alcohol users. Reasons for this are somewhat unclear, but may have to do with the availability of and access to one's drug of choice. In other words, amphetamine addicts may have more limited opportunities to use than alcoholics. The 18-month program provision index was also a significant predictor of drug court

outcomes, such that with an increase in the services provided and forms of supervision mandated, the more likely participants were to graduate. Additionally, the 18-month program fairness scale significantly predicted program completion as one might expect. That is, the more fairly participants felt they were being treated in drug court, the more likely they were to comply with the rules of the program, thereby increasing the chances of graduation. The only perplexing significant finding in any of the models appeared in Model 5: those who reported higher scores on the baseline program fairness scale (or those who felt they were treated more fairly) were less likely to graduate from their program. One possible explanation for this finding is that participants may have overestimated the fairness of the drug court staff at the beginning of their time in drug court. As time elapsed while in the program, participants with initially high assessments of program fairness developed a more realistic understanding of the program, such that it was not as reasonable as they had assumed. As a consequence of their disappointment, they may have developed resentment for program staff, became noncompliant, and failed to graduate.

Despite the efforts of this study to correct problems with previous research on the effect of race on drug court outcomes, limitations should be noted. The most notable of this study's limitations is the use of drug court completion as the dependent variable rather than recidivism data. While the general consensus among drug court research is that the chances of recidivating within several years after graduating from drug court are low, this does not entirely eliminate the possibility of relapse. Moreover, it cannot be assumed that participants who fail to complete their program do so as a result of drug use.

Myriad reasons exist for a participant failing to complete drug court, including the inability to attend all required meetings as well as a lack of finances that pay for court-ordered treatment. Consequently, recidivism data may prove more telling of the effects of drug court rather than the widely agreed upon proxy of program completion. However, Marlowe (2011) cautions researchers when making comparisons of program outcomes between graduates and non-graduates, as "[t]here is a serious risk that dropouts or terminated cases may have had relatively more severe problems prior to entering the criminal justice system, due to such negative characteristics as lower motivation for change, lesser social supports, or more serious substance abuse problems" (63).

Marlowe's (2011) concern is closely related to the second limitation of this research: the absence of data that describes how one is selected for drug court participation. Despite the fact that Whites, African Americans, and Hispanics use and sell drugs at similar rates (American Civil Liberties Union 2011; Moskos 2011; Alexander 2012; Mauer 2009), incarceration rates for drug offenses between members of different races differ substantially. As of 2005, Hispanics comprise 20.2 percent of the 253,300 drug offenders incarcerated in state prisons. Whites constitute 28.5 percent of that same population, while African Americans compose 44.8 percent (Mauer 2009). Statistics at the federal level show slightly different trends, such that of the 95,211 incarcerated drug offenders, 23.4 percent are White, 31.8 percent are Hispanic, and 42.9 percent are African American (Mauer 2009). One might assume African Americans would make up a larger percentage of the drug court participant population due to higher rates of incarceration for drug offenses at both the state and federal level compared to

Whites and Hispanics, yet Huddleston and Marlowe's (2011) national review of drug

courts and of the criminal justice system in general discovered this was not the case (see

Table 9 for breakdown of White and racial minority populations in the U.S., drug courts,

and the criminal justice system):

> Importantly, representation of African-Americans in jails and prisons was nearly twice
> that of both Drug Courts and probation, and was also substantially higher among all
> arrestees for drug-related offenses. On one hand, these discrepancies might be explained
> by relevant differences in the populations. For example, minority arrestees might be more
> likely to have the types of prior convictions that could exclude them from eligibility for
> Drug Courts or probation. On the other hand, systemic differences in plea-bargaining,
> charging or sentencing practices might be having the practical effect of denying Drug
> Court and other community-based dispositions to otherwise needy and eligible minority
> citizens. Further research is needed to determine whether racial or ethnic minority
> citizens are being denied the opportunity for Drug Court for reasons that may be
> unrelated to their legitimate clinical needs or legal eligibility (30).

Even though this study was unable to classify race as a significant predictor of program

graduation rates, it cannot account for the possible selection bias in drug court

participation rates as suggested by Huddleston and Marlowe. In line with this suggestion,

Gebelein (2000) states, "[D]rug courts need to be sensitive to class and race bias, real or

apparent. Unless care is taken, diversion courts may tend disproportionately to work with

white and middle-class substance abusers" (5). Future studies should attempt to control

for possible selection bias into drug court programs.

Another limitation of this study is the degree of missing data on 18-month

disposition. With missing data on 216 cases and an additional 235 cases still in drug

court at the time of the 18-month interview, it is difficult to accurately estimate how

missing data affected the findings of this study. A final limitation of this study is perhaps

is its greatest strength when compared to prior drug court research: only 23 adult drug

courts of the approximate 1,400 nationwide were included. Despite the authors' attempts

to select sites based on the variant services provided, populations served, and geographic locations, they nonetheless accounted for less than two percent of all extant adult drug courts.

Nevertheless, this study advanced our understanding of the drug court experience and identified a number of variables predictive of success in drug court other than participant race. One's living situation, prior criminal history, the services provided by drug courts, and how fairly one feels treated while in drug court were all consistent, significant predictors of graduating from drug court. The primary finding of this study – the absence of significant race effect on program completion – suggests that drug courts tend to benefit persons of all races, providing room for optimism and continued improvement of drug court programs nationwide.

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Table 1: Results of Race Effects on Program Completion of Select Studies

Author(s) (Year) (Sample Size)	White Graduation Percentages	Non-White Graduation Percentages	African American/ Black Graduation Percentages	Hispanic/Latino/ Spanish Graduation Percentages	Other Graduation Percentages
Significant Race Effects					
Schiff and Terry (1997) (N = 307)	44.6	32.2	-	-	-
Vito and Tewksbury (1998) (N = 237)	17.1	-	41.5	-	-
Senjo and Leip (2001) (N = 100)	N/A[+]	N/A	-	-	-
Miller and Shutt (2001) (N = 145)	41.4	-	11.7	-	-
Brewster (2001) (N = 184)	N/A[+]	-	N/A	-	-
Hartley and Phillips (2001) (N = 196)	N/A[+]	N/A	-	-	-
Sechrest and Shicor (2001) (N = 102)	72.4	-	10.3	13.8	3.4
Butzin et al. (2002) (N = 116)	85.0	-	43.0	-	-
Wolf et al. (2003) (N = 397)	N/A[+]	-	N/A	N/A	-
Rempel et al. (2003) (N = 2,998)	65.8	-	57.6	50.7	80.1
Gray and Saum (2005) (N = 449)	N/A[+]	N/A	-	-	-
Brown (2011) (N = 137)	N/A	-	N/A[+]	N/A	-
Dannerbeck et al. (2006) (N = 549)	55.0	-	28.0	-	-
McKean and Warren-Gordon (2011) (N = 167)	34.6	29.4	-	-	-
DeVall and Lanier (2012) (N = 526)	40.7	22.3	-	-	-
Non-Significant Race Effects					
Saum et al. (2001) (N = 452)	30.8	-	61.5	7.7*	7.7*
Rempel and DeStefano (2002) (N = 1,163)	N/A	-	N/A	N/A	-
Roll et al. (2005) (N = 99)	59.6	-	30.8	34.6	66.7
Evans et al. (2009) (N = 926)	56.4	-	62.6	61.5	54.5
Hickert et al. (2009) (N = 288)	47.5	35.6	-	-	-

N/A = Not Available
[+] = More likely to graduate (based on regression analyses)
* = Hispanics and participants of races other than White or African American grouped together

Table 2: Descriptive Statistics of Analytic Sample (Weighted by 18-Month Interview Retention Probability)

Variables	Mean/Percentage (Standard Deviation)[1]
18 Month Disposition	
Graduated	60.0 (-)
Dropped Out/Terminated	40.0 (-)
Race	
White	55.5 (-)
Black/African American	31.5 (-)
Hispanic/Latino/Spanish	6.5 (-)
Other (including multiracial)	6.4 (-)
Sex	
Female	28.7 (-)
Male	71.3 (-)
Age	34.5 (1.2)
Marital Status	
Never Married	64.1 (-)
Married	12.7 (-)
Separated/Divorced/Widowed	23.3 (-)
Primary Child Care Responsibilities	
No	81.8 (-)
Yes	18.2 (-)
Level of Education	
Less than HS/GED	37.9 (-)
HS Diploma/GED	35.5 (-)
Some college or higher	26.6 (-)
Job for Pay	
No	59.7 (-)
Yes	40.3 (-)
Annual Income (all sources – dollars)	11,821.2 (1,434.7)
Residence (mostly lived six months prior to baseline)	
Own Residence	39.4 (-)
Someone Else's Residence	47.1 (-)
Halfway House/Motel/Hotel	6.1 (-)
Homeless/Some Other Place	7.5 (-)
Addiction Severity Index (Range = 0-18)	9.0 (0.2)
Depression Severity Index (Range = 0-30)	8.5 (0.4)
Drug of Choice	
Alcohol	14.9 (-)
Marijuana/Hashish	25.1 (-)
Cocaine	11.3 (-)
Crack	24.6 (-)
Amphetamines	7.4 (-)
All Other Drugs	11.4 (-)
Not Using	5.2 (-)
Arrests Before Age 18	
0	57.2 (-)
1-3	28.6 (-)
4 or More	14.2 (-)

Source: Rossman et al. 2011a (N = 599)

[1] Percentages may not add up to 100.0 due to rounding error

Table 2 (cont.): Descriptive Statistics of Analytic Sample (Weighted by 18-Month Interview Retention Probability)

Variables	Mean/Percentage (Standard Deviation)[1]
Prior Violent Crime Convictions	
No	91.4 (-)
Yes	8.6 (-)
Prior Property Crime Convictions	
No	77.1 (-)
Yes	22.9 (-)
Prior Drug Offense Convictions	
No	53.7 (-)
Yes	46.3 (-)
Prior DUI/OWI Convictions	
No	76.0 (-)
Yes	24.0 (-)
Baseline Program Provision Index (Range = 0-18)	11.3 (0.3)
18-Month Program Provision Index (Range = 0-18)	9.6 (0.3)
Baseline Program Fairness Scale (Range = 1-5)	4.1 (0.1)
18-Month Program Fairness Scale (Range = 1-5)	4.0 (0.0)

Source: Rossman et al. 2011a (N = 599)

[1] Percentages may not add up to 100.0 due to rounding error

Table 3: Descriptive Statistics of Baseline Participants (Unweighted)

Variables	Mean/Percentage (Standard Deviation)[1]
18 Month Disposition (N = 931)	
Still in Drug Court	27.8 (-)
Graduated	43.2 (-)
Dropped Out/Terminated	29.0 (-)
Race (N = 931)	
White	58.3 (-)
Black/African American	28.0 (-)
Hispanic/Latino/Spanish	6.3 (-)
Other (including multiracial)	7.3 (-)
Sex (N = 931)	
Female	31.9 (-)
Male	68.1 (-)
Age (N = 931)	33.9 (9.4)
Marital Status (N = 929)	
Never Married	64.5 (-)
Married	11.0 (-)
Separated/Divorced/Widowed	24.5 (-)
Primary Child Care Responsibilities (N = 931)	
No	80.7 (-)
Yes	19.3 (-)
Level of Education (N = 931)	
Less than HS/GED	38.1 (-)
HS Diploma/GED	35.0 (-)
Some college or higher	26.9 (-)
Job for Pay (N = 931)	
No	61.8 (-)
Yes	38.2 (-)
Annual Income (all sources – dollars) (N = 931)	11,894.3 (18,146.6)
Residence (mostly lived six months prior to baseline) (N = 931)	
Own Residence	34.9 (-)
Someone Else's Residence	49.3 (-)
Halfway House/Motel/Hotel	6.8 (-)
Homeless/Some Other Place	9.0 (-)
Addiction Severity Index (Range = 0-18) (N = 931)	9.5 (3.4)
Depression Severity Index (Range = 0-30) (N = 930)	8.5 (5.8)
Drug of Choice (N = 931)	
Alcohol	12.0 (-)
Marijuana/Hashish	22.6 (-)
Cocaine	11.6 (-)
Crack	26.1 (-)
Amphetamines	11.5 (-)
All Other Drugs	9.9 (-)
Not Using	6.3 (-)

Source: Rossman et al. 2011a

[1] Percentages may not add up to 100.0 due to rounding error

Table 3 (cont.): Descriptive Statistics of Baseline Participants (Unweighted)

Variables	Mean/Percentage (Standard Deviation)[1]
Arrests Before Age 18 (N = 918)	
0	58.0 (-)
1-3	28.1 (-)
4 or More	13.9 (-)
Prior Violent Crime Convictions (N = 931)	92.4 (-)
No	7.6 (-)
Yes	
Prior Property Crime Convictions (N = 922)	75.6 (-)
No	24.4 (-)
Yes	
Prior Drug Offense Convictions (N = 931)	54.1 (-)
No	45.9 (-)
Yes	
Prior DUI/OWI Convictions (N = 922)	76.8 (-)
No	23.2 (-)
Yes	

Source: Rossman et al. 2011a

[1] Percentages may not add up to 100.0 due to rounding error

Table 4: Bivariate Analysis of Race and 18-Month Disposition[1]

Race		Terminated	Graduated	Total
		18-Month Disposition		
	White	132 (37.1)	224 (62.9)	356 (100.0)
	Black/African American	70 (42.4)	95 (57.6)	165 (100.0)
	Hispanic/Latino/Spanish	11 (28.2)	28 (71.8)	39 (100.0)
	Other (including multiracial)	17 (43.6)	22 (56.4)	39 (100.0)
Total		230 (38.4)	369 (61.6)	599 (100.0)

Source: Rossman et al. (2011a)

[1] Row percentages for racial categories

Table 5: Logistic Regression Coefficients, Odds Ratios, and Standard Errors – Predictors of 18-Month Drug Court Disposition (Models 1 and 2)[1] [2]

Predictors	Model 1			Model 2		
	b	Odds Ratio	S.E.	b	Odds Ratio	S.E.
Race						
White	-	-	-	-	-	-
Black/African American	-.311	.733	.511	-.067	.935	.443
Hispanic/Latino/Spanish	.420	1.522	.361	.304	1.356	.408
Other (including multiracial)	-.437	.646	.519	-.503	.605	.539
Sex						
Female	-	-	-	-	-	-
Male	-	-	-	-.049	.952	.178
Age	-	-	-	.029*	1.029	.014
Marital Status						
Never Married	-	-	-	-	-	-
Married	-	-	-	-.471	.624	.357
Separated/Divorced/Widowed	-	-	-	-.051	.950	.284
Primary Child Care Responsibilities	-	-	-			
No	-	-	-	-	-	-
Yes	-	-	-	.134	1.145	.285
Level of Education						
Less than HS/GED	-	-	-	-	-	-
HS Diploma/GED	-	-	-	.034	1.034	.154
Some college or higher	-	-	-	-.128	.880	.241
Job for Pay						
No	-	-	-	-	-	-
Yes	-	-	-	.459	1.582	.257
Annual Income (all sources – dollars)	-	-	-	$1.910e^{-5}$	1.000	$4.490e^{-5}$

* significant at $p \leq .05$
** significant at $p \leq .01$
*** significant at $p \leq .001$

Source: Rossman et al. 2011a (N = 599)
[1] "Failed to Graduate" serves as dependent variable reference category
[2] Standard Errors of Coefficients

Table 5 (cont.): Logistic Regression Coefficients, Odds Ratios, and Standard Errors – Predictors of 18-Month Drug Court Disposition (Models 1 and 2)[1][2]

Predictors	Model 1			Model 2		
	b	Odds Ratio	S.E.	b	Odds Ratio	S.E.
Residence (mostly lived six months prior to baseline)						
Own Residence	-	-	-	-	-	-
Someone Else's Residence	-	-	-	-.576**	.562	.189
Halfway House/Motel/Hotel	-	-	-	-.015	.987	.321
Homeless/Some Other Place	-	-	-	-1.386**	.250	.389
Addiction Severity Index (Range = 0-18)	-	-	-	-.027	.973	.031
Depression Severity Index (Range = 0-30)	-	-	-	-.013	.987	.022
Drug of Choice						
Alcohol	-	-	-	-	-	-
Marijuana/Hashish	-	-	-	-.112	.894	.267
Cocaine	-	-	-	.088	1.092	.454
Crack	-	-	-	-.320	.726	.298
Amphetamines	-	-	-	.810	2.248	.441
All Other Drugs	-	-	-	.449	1.568	.457
Not Using	-	-	-	.687	1.988	.610
Arrests Before Age 18						
0	-	-	-	-	-	-
1-3	-	-	-	-.294*	.745	.138
4 or More	-	-	-	-.367	.693	.330
Prior Violent Crime Convictions						
No	-	-	-	-	-	-
Yes	-	-	-	-.883*	.413	.392
Prior Property Crime Convictions						
No	-	-	-	-	-	-
Yes	-	-	-	-.651**	.522	.182

 * significant at *p*≤.05
 ** significant at *p*≤.01
*** significant at *p*≤.001

Source: Rossman et al. 2011a (N = 599)
[1] "Failed to Graduate" serves as dependent variable reference category
[2] Standard Errors of Coefficients

Table 5 (cont.): Logistic Regression Coefficients, Odds Ratios, and Standard Errors – Predictors of 18-Month Drug Court Disposition (Models 1 and 2)[1] [2]

Predictors		Model 1			Model 2	
	b	Odds Ratio	S.E.	b	Odds Ratio	S.E.
Prior Drug Offense Convictions						
No	-	-	-	-	-	-
Yes	-	-	-	-.345	.708	.235
Prior DUI/OWI Convictions						
No	-	-	-	-	-	-
Yes	-	-	-	.082	1.086	.241
Baseline Program Provision Index (Range = 0-18)	-	-	-	-	-	-
Baseline Program Fairness Scale (Range = 1-5)	-	-	-	-	-	-
18-Month Program Provision Index (Range = 0-18)	-	-	-	-	-	-
18-Month Program Fairness Scale (Range = 1-5)	-	-	-	-	-	-
Constant	.507**	1.661	.159	.599	1.821	.694
Log Likelihood			-395.276			-353.080
Pseudo R^2			.0077			.1136

* significant at $p \leq .05$ Source: Rossman et al. 2011a (N = 599)

** significant at $p \leq .01$ [1] "Failed to Graduate" serves as dependent variable reference category

*** significant at $p \leq .001$ [2] Standard Errors of Coefficients

Table 6: Logistic Regression Coefficients, Odds Ratios, and Standard Errors – Predictors of 18-Month Drug Court Disposition (Models 3 and 4)[1][2]

	Model 3			Model 4		
Predictors	b	Odds Ratio	S.E.	b	Odds Ratio	S.E.
Race						
White	-	-	-	-	-	-
Black/African American	-.111	.895	.449	-.427	.653	.499
Hispanic/Latino/Spanish	.223	1.250	.407	.229	1.257	.418
Other (including multiracial)	-.478	.620	.554	-.434	.648	.609
Sex						
Female	-	-	-	-	-	-
Male	-.072	.931	.193	.280	1.324	.269
Age	.030*	1.030	.014	.029	1.029	.015
Marital Status						
Never Married	-	-	-	-	-	-
Married	-.463	.629	.351	-.531	.588	.344
Separated/Divorced/Widowed	-.036	.964	.270	-.159	.853	.312
Primary Child Care Responsibilities						
No	-	-	-	-	-	-
Yes	.146	1.157	.280	.165	1.179	.254
Level of Education						
Less than HS/GED	-	-	-	-	-	-
HS Diploma/GED	.011	1.011	.160	.087	1.091	.153
Some college or higher	-.152	.859	.246	.114	1.121	.269
Job for Pay						
No	-	-	-	-	-	-
Yes	.475	1.608	.238	.314	1.369	.295
Annual Income (all sources)	$2.270e^{-5}$	1.000	$4.160e^{-5}$	$3.810e^{-6}$	1.000	$6.810e^{-5}$

* significant at $p \le .05$
** significant at $p \le .01$
*** significant at $p \le .001$

Source: Rossman et al. 2011a (N = 599)
[1] "Failed to Graduate" serves as dependent variable reference category
[2] Standard Errors of Coefficients

Table 6 (cont.): Logistic Regression Coefficients, Odds Ratios, and Standard Errors – Predictors of 18-Month Drug Court Disposition (Models 3 and 4)[1] [2]

Predictors	Model 3			Model 4		
	b	Odds Ratio	S.E.	b	Odds Ratio	S.E.
Residence (mostly lived six months prior to baseline)						
Own Residence	-	-	-	-	-	-
Someone Else's Residence	-.569**	.566	.194	-.469*	.626	.209
Halfway House/Motel/Hotel	.016	1.016	.334	.457	1.579	.586
Homeless/Some Other Place	-1.334***	.263	.350	-1.414***	.243	.377
Addiction Severity Index (Range = 0-18)	-.024	.977	.030	-.086**	.917	.030
Depression Severity Index (Range = 0-30)	-.018	.982	.024	.017	1.017	.025
Drug of Choice						
Alcohol	-	-	-	-	-	-
Marijuana/Hashish	-.091	.907	.279	.158	1.171	.352
Cocaine	.110	1.116	.454	.212	1.236	.360
Crack	-.292	.747	.314	-.116	.891	.278
Amphetamines	.902*	2.464	.433	.941*	2.563	.427
All Other Drugs	.410	1.506	.462	.818*	2.266	.393
Not Using	.672	1.955	.612	.738	2.081	.564
Arrests Before Age 18						
0	-	-	-	-	-	-
1-3	-.289	.749	.140	-.569*	.566	.215
4 or More	-.356	.700	.354	-.655	.519	.324
Prior Violent Crime Convictions						
No	-	-	-	-	-	-
Yes	-.793	.453	.425	-1.232*	.292	.426
Prior Property Crime Convictions						
No	-	-	-	-	-	-
Yes	-.660**	.517	.187	-.801***	.449	.187

  * significant at *p*≤.05
  ** significant at *p*≤.01
*** significant at *p*≤.001

Source: Rossman et al. 2011a (N = 599)
[1] "Failed to Graduate" serves as dependent variable reference category
[2] Standard Errors of Coefficients

Table 6 (cont.): Logistic Regression Coefficients, Odds Ratios, and Standard Errors – Predictors of 18-Month Drug Court Disposition (Models 3 and 4)[1][2]

Predictors	Model 3			Model 4		
	b	Odds Ratio	S.E.	b	Odds Ratio	S.E.
Prior Drug Offense Convictions						
No	-	-	-	-	-	-
Yes	-.378	.685	.216	-.211	.809	.246
Prior DUI/OWI Convictions						
No	-	-	-	-	-	-
Yes	.085	1.089	.247	.215	1.240	.254
Baseline Program Provision Index (Range = 0-18)	.037	1.037	.042	-	-	-
Baseline Program Fairness Scale (Range = 1-5)	-.240	.786	.166	-	-	-
18-Month Program Provision Index (Range = 0-18)	-	-	-	.175***	1.191	.030
18-Month Program Fairness Scale (Range = 1-5)	-	-	-	1.579***	4.849	.301
Constant	1.154	3.171	1.145	-7.347***	.001	1.510
Log Likelihood			-351.641			-264.978
Pseudo R^2			.1172			.3348

* significant at $p \leq .05$

** significant at $p \leq .01$

*** significant at $p \leq .001$

Source: Rossman et al. 2011a (N = 599)

[1] "Failed to Graduate" serves as dependent variable reference category

[2] Standard Errors of Coefficients

Table 7: Logistic Regression Coefficients, Odds Ratios, and Standard Errors – Predictors of 18-Month Drug Court Disposition (Model 5)[1] [2]

Predictors	Model 5		
	b	Odds Ratio	S.E.
Race			
White	-	-	-
Black/African American	-.492	.612	.507
Hispanic/Latino/Spanish	-.084	.920	.388
Other (including multiracial)	-.340	.718	.647
Sex			
Female	-	-	-
Male	.157	1.170	.283
Age	.036*	1.036	.014
Marital Status			
Never Married	-	-	-
Married	-.499	.607	.379
Separated/Divorced/Widowed	-.200	.819	.282
Primary Child Care Responsibilities			
No	-	-	-
Yes	.241	1.272	.222
Level of Education			
Less than HS/GED	-	-	-
HS Diploma/GED	.005	1.005	.156
Some college or higher	-.071	.931	.268
Job for Pay			
No	-	-	-
Yes	.431	1.539	.268
Annual Income (all sources – dollars)	$2.560e^{-5}$	1.000	$6.730e^{-5}$

 * significant at $p \leq .05$ Source: Rossman et al. 2011a (N = 599)
 ** significant at $p \leq .01$ [1] "Failed to Graduate" serves as dependent variable reference category
 *** significant at $p \leq .001$ [2] Standard Errors of Coefficients

Table 7 (cont.): Logistic Regression Coefficients, Odds Ratios, and Standard Errors – Predictors of 18-Month Drug Court Disposition (Model 5)[1][2]

Predictors	b	Odds Ratio	S.E.
		Model 5	
Residence (mostly lived six months prior to baseline)			
Own Residence	-	-	-
Someone Else's Residence	-.429*	.651	.204
Halfway House/Motel/Hotel	.575	1.777	.630
Homeless/Some Other Place	-1.318**	.268	.382
Addiction Severity Index (Range = 0-18)	-.060	.941	.030
Depression Severity Index (Range = 0-30)	.001	1.001	.025
Drug of Choice			
Alcohol	-	-	-
Marijuana/Hashish	.196	1.217	.368
Cocaine	.322	1.380	.343
Crack	-.053	.949	.310
Amphetamines	1.131*	3.097	.517
All Other Drugs	.778	2.177	.384
Not Using	.898	2.455	.602
Arrests Before Age 18			
0	-	-	-
1-3	-.661**	.543	.209
4 or More	-.783*	.457	.336
Prior Violent Crime Convictions			
No	-	-	-
Yes	-.899	.407	.523
Prior Property Crime Convictions			
No	-	-	-
Yes	-.855***	.425	.160

  * significant at *p*≤.05
 ** significant at *p*≤.01
*** significant at *p*≤.001

Source: Rossman et al. 2011a (N = 599)
[1] "Failed to Graduate" serves as dependent variable reference category
[2] Standard Errors of Coefficients

Table 7 (cont.): Logistic Regression Coefficients, Odds Ratios, and Standard Errors – Predictors of 18-Month Drug Court Disposition (Model 5)[1] [2]

Predictors	b	Odds Ratio	S.E.
		Model 5	
Prior Drug Offense Convictions			
No	-	-	-
Yes	-.247	.781	.238
Prior DUI/OWI Convictions			
No	-	-	-
Yes	.156	1.169	.283
Baseline Program Provision Index (Range = 0-18)	-.058	.944	.048
Baseline Program Fairness Scale (Range = 1-5)	-.967***	.380	.253
18-Month Program Provision Index (Range = 0-18)	.198***	1.219	.027
18-Month Program Fairness Scale (Range = 1-5)	1.826***	6.212	.305
Constant	-4.215*	0.015	1.616
Log Likelihood			-252.933
Pseudo R^2			.3650

* significant at $p \leq .05$ Source: Rossman et al. 2011a (N = 599)
** significant at $p \leq .01$ [1] "Failed to Graduate" serves as dependent variable reference category
*** significant at $p \leq .001$ [2] Standard Errors of Coefficients

Table 8: Logistic Regression Coefficients, Odds Ratios, and Standard Errors – Predictors of 18-Month Drug Court Disposition (Race as Dichotomous Variable)[1] [2]

Predictors	Race as Dichotomous Variable		
	b	Odds Ratio	S.E.
Race			
White	-	-	-
Non-White	-.230	.794	.415
Constant	0.507**	1.661	.159
Log Likelihood			-397.411
Pseudo R^2			.0023

*** significant at $p \leq .05$ Source: Rossman et al. 2011a (N = 599)
*** significant at $p \leq .01$ [1] "Failed to Graduate" serves as dependent variable reference category
*** significant at $p \leq .001$ [2] Standard Errors of Coefficients

Table 9: Minority Representation in Drug Courts Compared to Other Populations

Population	White	Black/African American	Hispanic/Latino/Spanish
Drug Courts	62%	21%	10%
General Population	80%	14%	15%
Arrestees			
Any Offense	69%	28%	N/A
Drug Offense	63%	35%	N/A
Prison Inmates	34%	44%	20%
Jail Inmates	43%	39%	16%
Probationers & Parolees	56%	28%	13%

Source: Adapted from Huddleston and Marlowe's (2011) Table 6

N/A = not available or reported

APPENDIX B: QUESTION WORDING FOR ITEMS INCLUDED IN SCALES AND INDICES

	Baseline and 18-Month Interview Program Provision Index Variables
Variable Label	Question Wording[1]
_VIO2	Is/Was appearing for regularly scheduled monitoring or status hearings a condition of your drug court participation?
_VIO3	Is/Was meeting with case manager a condition of your drug court participation? A case manager is someone who talks with you about issues or needs you have, tries to get you into services or programs, helps you get benefits or assistance and monitors your progress.
_VIO4	Is/Was meeting with a pretrial officer, probation officer or parole officer a condition of your drug court participation?
_VIO5	Is/Was doing community service a condition of your drug court participation?
_VIO6	Is/Was being electronically monitored, on house arrest, or some other way of daily reporting to a supervision officer a condition of your drug court participation?
_VIO9	Is/Was taking regularly scheduled drug tests a condition of your drug court participation?
_VIO10	Is/Was taking unscheduled or random drug tests a condition of your drug court participation?
_VIO11	Is/Was attending drug or alcohol treatment a condition of your drug court participation?
_VIO12	Is/Was attending mental health treatment a condition of your drug court participation?
_VIO13	Is/Was participating in other programs such as batterer intervention, life skills, anger management, or parenting skills program a condition of your drug court participation?
_VIO14	Is/Was showing up on time to any required court hearings, appointments, or treatment programs a condition of your drug court participation?
_VIO17	Is/Was paying court ordered payments, including fees for drug tests, other fees, fines, and restitution a condition of your drug court participation?
_VIO18	Is/Was not carrying a weapon a condition of your drug court participation?
_VIO19	Is/Was not frequenting places where drugs or alcohol are sold a condition of your drug court participation?
_VIO20	Is/Was not associating with the victim of your crime a condition of your drug court participation?
_VIO21	Is/Was not associating with gang members a condition of your drug court participation?
_VIO22	Is/Was not associating with people with felony convictions a condition of your drug court participation?
_VIO23	Is/Was having a good attitude a condition of your drug court participation?

Source: Rossman et al. 2011e   [1] Question response options (No/Yes)

Baseline and 18-Month Interview Program Fairness Scale Variables

Variable Label	Question Wording[1]
_FAIR1	Your {supervision officer} is knowledgeable about your case.
_FAIR2	Your {supervision officer} knows you by name. Do you…?
_FAIR3	Your {supervision officer} helps you to succeed.
_FAIR4	Your {supervision officer} emphasizes the importance of drug and alcohol treatment.
_FAIR5	Your {supervision officer} gives you a chance to tell your side of your story.
_FAIR6	Your {supervision officer} can be trusted to treat you fairly.
_FAIR7	Your {supervision officer} treats you with respect.
_FAIR8	The judge is knowledgeable about your case.
_FAIR9	The judge knows you by name.
_FAIR10	The judge helps you succeed.
_FAIR11	The judge emphasizes the importance of drug and alcohol treatment.
_FAIR12	The judge is intimidating or unapproachable.
_FAIR13	The judge remembers your situations and needs from hearing to hearing.
_FAIR14	The judge gives you a chance to tell your side of your story.
_FAIR15	The judge can be trusted to treat you fairly.
_FAIR16	The judge treats you with respect.

Source: Rossman et al. 2011e

[1] Question response options (Strongly disagree, Disagree, Neither disagree nor agree, Agree, Strongly agree)