2013 Outcome Evaluation of Salt Lake County's Felony Drug Court Program

THE UNIVERSITY OF UTAH

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Executive Summary

Background

Salt Lake County's Adult Felony Drug Court (FDC) program began in 1996. Three previous evaluations of the efficacy of the Salt Lake County FDC were conducted in 2000, 2001, and 2005. These studies generally showed a positive effect of drug court participation with lower recidivism rates for drug court participants compared to other offenders (Harrison & Parsons, 2000; Utah Commission on Criminal and Juvenile Justice (CCJJ), 2001). However, the 2005 study (Van Vleet, Hickert, & Becker) indicated that the lower recidivism rates associated with drug court participation were not significant when other covariates were included. Pre-intervention arrests were the only significant predictor of rearrest.

Purpose

The purpose of the present study is to provide a current outcome evaluation of the Salt Lake County FDC program. FDC participants who exited in the years 2009-2011 (referred to as participants for the remainder of the report) were selected in order to allow for a sufficient post-exit follow-up period (approximately two years) for the majority of the cohort. Because the identification of a comparison group was outside the scope of this study, the analyses focus on pre- to post-exit changes in recidivism (new charges and convictions), examining the influence of length of program participation, exit status (positive, negative, neutral) and demographic factors.

Participant Characteristics

The 2009-2011 cohort of participants was primarily White (85%) and male (59%), with an average age of 30 years. The graduation rate for this group was 82% (positive exits; compared to 5% neutral exits and 13% negative exits). Average length of participation was 18-21 months (Mn = 84 weeks; Md = 71 weeks).

Recidivism

Regardless of exit status, participants had fewer new charge arrests, including drug and property crime charges, in the 18 months after program completion when compared to the 18 months before. This decline cannot be confidently attributed to FDC participation, however, because successful program completion and program duration were not associated with significant reductions in recidivism for any crime except person crimes (though other marginally significant results were found). When comparing pre- and post-program recidivism for person offenses, participants who spent comparatively more time in drug court had fewer new charge arrests in the 18-month post-program follow-up period. Similarly, participants with positive and neutral exits showed significant pre-post decline in person offenses, and participants with negative exits did not.

Regardless of exit status, participants had fewer new convictions for any crime, including drug crimes, in the 24 months after program completion when compared to the 24 months before. Longer time in the program was a marginally significant predictor of reductions in convictions for any crime from pre- to post-program.

Client Factors Related to Outcomes

After controlling for pre-program convictions, there were no differences between males and females or whites and minorities in terms of the number of post-program convictions for either drugs or any crime. When compared to younger clients, clients who were older at the time of intake had less post-program recidivism. An increase in client age of one year was associated with a 1% decrease in the likelihood of post-program convictions. Similarly, neither sex nor minority status was a significant predictor of

successful program exit (graduating), but age was. Each one-year increase in age increased the likelihood of successful program completion by 1%.

Discussion

The most consistent finding of this report is the considerable reduction in criminal recidivism for all FDC groups (positive, neutral or negative exit statuses) from pre- to post-program. It is important to note that pre-program new charge arrests and convictions include the episode that led to their placement in the FDC program if the timing of the offense(s) fell within the time window (e.g., 12 months, 18 months).

Longer program duration was occasionally (though often only marginally) associated with less recidivism. This outcome suggests that the FDC program, with respect to some criminal behavior, may (with respect to some criminal behavior) reduce recidivism as a function of exposure to the program and its procedures (e.g., treatment, continual monitoring). Regardless of exit status, the program may have some positive benefits on participants simply as a result of their length of program participation (i.e., whether the participant graduates or not). This interpretation should be regarded with caution, however, as the finding was not robust across all variables and timeframes, and program duration was not associated with lower drug related recidivism (which one might assume would be the area most affected by the FDC program and its procedures).

Although all recidivism variables showed remarkable pre to post-program reductions, results should be interpreted with caution until a comparison group can be included in a research design. If a statistically matched comparison group were included in a future analysis (even with retrospective data), and the FDC group showed greater reductions in recidivism compared to the comparison group, it could be more confidently asserted that the FDC program was the cause of the differential improvement.

Introduction and Research Support

A 2007 Justice Policy Institute report (Beatty, Petteruti, & Ziedenberg, 2007) indicated that one in every four U.S. inmates are imprisoned or jailed for drug related offenses. This number does not include those incarcerated for drug trade related activities. The drug offense related incarceration rate in the U.S. is 25 times greater than that of the European Union, and has been steadily increasing since 1983 (Beatty, Petteruti, & Ziedenberg, 2007). Despite the fact that the majority of individuals incarcerated for drug related offenses have no history of violent crime, their incarceration is a heavy burden on the U.S. penal system, costing $67.55 per person per day in 2005 dollars, and 8 billion dollars per year (American Correctional Association, 2006).

Despite a high incarceration rate, research does not support the idea that incarceration deters substance abusers from other criminal behaviors or reduces future abuse rates. Schiraldi, Holman, and Beatty (2000), for example, found that states with higher incarceration rates still had higher drug use rates. Bhati et al. (2008) indicated that 9.9 million non-drug related crimes could be averted annually if offenders with substance addictions were treated rather than merely incarcerated. As a result of the burden on the U.S. criminal justice system, and the relative ineffectiveness of traditional incarceration for individuals with substance abuse dependency, the alternative of drug courts proliferated from an initial court in one Florida jurisdiction in 1989 to nearly 2,500 drug courts in 2009 (Huddleston & Marlow, 2011).

Drug courts are a form of problem-solving courts that represent a specialized docket within the court system. Problem-solving courts, such as drug courts, operate under the philosophy that individuals who commit crimes often do so because of underlying, treatable psychosocial disorders that predispose them to criminal behavior (Brown, 2010; Huddleston & Marlow, 2011). Rather than merely incarcerating individuals, or even implementing traditional forms of supervision, drug courts are a non-adversarial approach to reform and aim to improve the mental and physical health issues that are the immediate antecedents of criminal behavior through both treatment and judicial oversight (Brown, 2010; U.S. General Accounting Office, 2011). The drug court judge serves as the cornerstone of a team of professionals that includes attorneys, treatment providers, probation officers and law enforcement representatives who seek to rehabilitate the offender and provide him or her with the tools needed to avoid future addiction and concomitant criminal behavior. Drug court models can be pre-plea (diversion), post-plea (post-adjudication), or both.

Though eligibility requirements for drug courts vary from one jurisdiction to another, drug courts generally share some common factors: (1) participants are generally non-violent offenders who have committed felony or misdemeanor property crimes; (2) participants are alcohol or drug dependent, and other, non-drug related offenses with which they are charged are determined to be related to their addiction; (3) most programs are 12 to 18 months in length (assuming the offender can meet criteria in this timeframe) and require that the offender empirically demonstrate a period of abstinence from substance use in order to successfully graduate; and (4) non-compliance with treatment plans results in a sanction and, if the non-compliance persists, may result in a return to the traditional court system with jail or prison sentences.

Research Support for Drug Courts

Research on the impact of drug courts is now entering its third decade, and has proven generally supportive of the drug court model. While the authors questioned the rigor of some recidivism based drug court studies, Mitchell, Wilson, Eggers, and MacKenzie (2012) reported a meta-analytic based average effect of drug court as a 24% reduction in recidivism. However, they raised the caveat that more rigorously conducted studies in their review indicated a smaller overall effect. Other meta-analytic reviews have been more unequivocally supportive of the drug court model. In direct contrast to the

Mitchel et al. work, Downey and Roman (2010), for example, conducted a meta-analytic review using Bayesian approaches and concluded: "It is virtually certain that the average drug court effect is a reduction in recidivism. This finding holds for studies of all levels of rigor" (pg. 35). These authors further concluded that the best implemented drug courts can reduce recidivism by 23%, while the most poorly implemented can expect reductions of only 3%. Across several meta-analytic studies, recidivism rates among drug court participants are generally 8 to 26% lower than other criminal justice approaches (Latimer, Bourgon, & Chretien, 2006; Lowenkamp, Holsinger, & Latessa, 2005; MacKenzie, 2006; Molloy, Sarver, & Butters, 2012), and reached as high as 45% lower (Huddleston & Marlowe, 2011). Similar variation is observed in cost-benefit analyses, but such evaluations have generally revealed a cost savings associated with drug courts of anywhere from $2 to $27 saved for every $1 invested (2011).

Though research is supportive of the drug court model in general, great variability exists in observed reductions in recidivism that can be attributed to drug court participation. Much of this variability can be ascribed to the extent that jurisdictional drug courts follow evidence-based practice in their drug court models. In 1997, the National Association of Drug Court Professionals (NADCP) published a paper outlining the 10 key operational characteristics drug courts should implement in order to be maximally effective. These criteria specify that drug courts should integrate alcohol and drug treatment with case processing, offer a continuum of services based on the intensity of treatment needed, monitor substance use through frequent testing, have ongoing judicial interaction, and have clear, progressive (i.e., graduated) and decisive consequences/sanctions for non-compliance (among several other recommendations). Subsequent research and continued improvements have expanded upon, further refined, and operationalized the abstract principles, turning them into quantifiable standards of practice (Marlowe, 2010; NADCP, 2013). For example, the new standards have clarified ambiguous terms such as "frequent testing," providing qualitative and quantitative metrics. It is important to note that the variability in drug court program success as reported in meta-analytic reviews can largely be attributed to failure to adhere to these operational standards (Carey, Finigan, & Pukstas, 2008). In the section titled "From Principles to Standards," the NADCP (2013) states:

> Until Drug Courts define appropriate standards of practice, they will be held accountable, fairly or unfairly, for the worst practices in the field. Scientists will continue to analyze the effects of weak Drug Courts alongside those of exceptional Drug Courts, thus diluting the benefits of Drug Courts. Critics will continue to tarnish the reputation of Drug Courts by attributing to them the most noxious practices of the feeblest programs. (pg. 1)

The Salt Lake County Drug Court

Salt Lake County's Adult Felony Drug Court (FDC) program began in 1996. It follows a post-plea (adjudication) model consisting of four phases: pre-plea (approximately two weeks in duration), treatment (16 weeks), personal enhancement (16 weeks), and aftercare and community reentry (non-specific duration) over 52 weeks (Van Vleet, Hickert, & Becker, 2005). Eligible participants must:

1. Reside in Salt Lake County and be a legal US resident[1]
2. Have a DSM-V diagnosis of current drug dependence as determined by a clinical assessment, and must have a prior drug conviction, prior drug related arrests, or a history of prolonged drug use.
3. Have a felony drug charge related to drug use and must plead to a felony
4. Demonstrate high risk/high needs as determined by a standardized risk/need assessment (the Risk and Needs Triage (RANT) assessment)
5. Be assessed as needing at least outpatient treatment according to ASAM, and be assessed as medium to high in ASAM dimension 5-relapse criteria

[1] Unless eligible under exemptions to the policy

6. Not be on parole
7. Be willing and able to terminate use of lawfully prescribed controlled substances, prescriptions, and over-the-counter medications that affect the integrity and accuracy of drug screening
8. Pass final approval by the District Attorney's office

Specific exclusion criteria also exist, but exceptions can be made if both the Drug Court Team and the District Attorney's Office agree after a review. Generally, the program does not accept individuals with prior or currently pending sex, weapon or violence offenses, non-felony drug charges or a history of DUIs or child abuse.

Development of the Salt Lake County FDC was based directly on the NADCP's key operational characteristics (NADCP, 1997). Salt Lake County's program uses a non-adversarial approach in a coordinated effort between prosecution and defense counsel to both promote public safety and protect the client's rights. It requires clients to attend court and treatment regularly and as outlined in their individualized treatment plans, as well as submit to regular, random drug testing throughout the course of the program. Policies govern the frequency of drug testing based on the phase of the program to which the client has currently progressed. Drug tests can be conducted as often as four times a week for non-compliant clients, or as infrequently as a twice a week for those in later phases of the program.

The program also has a coordinated strategy for addressing non-compliance and program violations. Graduated sanctions, including jail time, are imposed for program non-compliance. Individuals are most often removed from the program if caught tampering with a urinary analysis (UA), or if charged with a drug, DUI or violent crime, or any other crime that, if convicted, would lead to exclusion/ineligibility. Arrests for criminal activity in general are subject to a case-by-case discretionary review by the drug court committee, and may result in sanctions or removal from the program. Incentives for satisfactory progress are also offered, including recognition of accomplishments and tangible awards (e.g., gift certificates or UA waivers).

Although the program is 52 weeks, circumstances can and most often do increase the total length of time in the program. For example, periods in which a client is taking prescription controlled substances or are otherwise unable to participate in the program because of health issues or emergencies, do not typically count toward the 52 weeks[2]. Extensions to program length and eligibility can be granted as dictated by drug court staff, and can help a client avoid outright removal from the program. After three years in the program, clients are evaluated at each hearing for extensions. Because decisions to grant extensions are at the discretion of the drug court team, there is no theoretical upper limit to the possible length of participation in the program.

Three previous evaluations of the efficacy of the Salt Lake County FDC were conducted in 2000, 2001, and 2005. In 2000, Harrison and Parsons' study revealed significantly lower recidivism among drug court graduates (20.2%) relative to a comparison group (60.0%) with varying length of follow-up from 90 to 365 days. Results from a 2001 study by the Utah Commission on Criminal and Juvenile Justice (CCJJ) similarly revealed lower drug court group recidivism (39.2%) relative to a comparison group (78.0%) at 18-month follow-up. In 2005, Van Vleet and colleagues concluded a three-year evaluation of the Salt Lake County FDC and indicated lower recidivism rates were associated with drug court participation, but the reductions were not significant when the researchers controlled for other covariates, including the number of arrests pre-intervention (which was the only significant predictor of re-arrest). However, the researchers noted methodological concerns (including a small sample size[3] and small follow-up window

[2] Exceptions to the prescription controlled substance can be approved by the drug court team, allowing time on the medication to count toward the required duration of the program.

[3] Though a power analysis was not provided, only 71 drug court graduates were followed, representing a smaller sample than is typical in drug court studies.

(only 12-months post exit), both due to grant requirements) that could have resulted in the null results. They also noted that the inclusion of an appropriate comparison group is problematic in Salt Lake County because all individuals who meet criteria for inclusion are included in the Salt Lake County FDC program. A comparison sample of untreated individuals, therefore, naturally differs in the criminogenic factors that led to their non-participation. In the Van Vleet et al. (2005) study, for example, the comparison group had significantly fewer arrests in the 12-month period pre-program.

The Present Study

The purpose of the present study is to provide a more current outcome evaluation of the Salt Lake County FDC program. Since the last evaluation of the Salt Lake County FDC was conducted (Van Vleet et al., 2005), it is believed that the program has undergone changes in the population served and the duration of the program. As such, a decision was made to re-examine post-program success with a more recent cohort. FDC participants who exited in the years 2009-2011 were selected in order to allow for a sufficient post-exit follow-up period (approximately two years) for the majority of the cohort. Because the identification of a comparison group was outside the scope of this study, the analyses focus on pre- to post-exit changes in recidivism (new charges and convictions), examining the influence of length of participation and exit status (positive, negative, neutral), as well as some demographic factors.

Methods

Data for the project were obtained from three sources. Criminal history and post-exit recidivism (new charge and conviction) data were collected from the Offender Management System (OMS) at the Salt Lake County Jail and the Bureau of Criminal Identification (BCI), respectively. Theoretically, the two systems should contain similar information, but both data sources were included to account for small differences in the type and depth of information both systems collect. OMS data is not statewide, and can, therefore, miss charges in other jurisdictions, but it is a more detail specific database. While the BCI data is less specific about the nature of new charges (e.g., warrants can be confused with true new charges), it is statewide, and, therefore, captures more crimes; accordingly, it was used as the primary source of information regarding convictions (for which it is more accurate because warrants on previous charges can be more easily removed). Criminal Justice Service's (CJS) C-Track system was used to extract demographics, FDC intake and exit dates, and information about client's primary substances of use. Cases were matched across the systems using a combination of methods including state identifier (SID), sheriff's office (SO) number, offense tracking number (OTN), name, and date of birth.

Results

Descriptives

Data for the study included a population level database of 788 clients entering the FDC program from March of 2004 to June 2011 (exits between January 2009 and December 2011). A minimum follow-up period (i.e., post-exit) of 18 months was available for jail data, and just short of 24 months for BCI data[4]. Thirty one (31) participants were removed from the analyses for several (non-mutually exclusive) reasons: 1) reported program intake date was after the reported exit date, 2) no intake date was found (equivocating the issue of actual FDC participation), 3) program exit dates for graduates indicated program durations that were less than the required minimum, and/or 4) no recidivism data were available (i.e., no data were found in either the BCI or OMS system).

[4] BCI data were extracted later than jail data, hence the longer follow-up availability.

Table 1 shows the demographic composition and exit status of the remaining clients. The majority of FDC clients were identified as White on a blended race/ethnicity variable, while less than 10% were Hispanic. No other racial or ethnic group represented more than 3.3% of the population. The majority of clients were also male (59%).

At the request of FDC staff, six previously negative exits were recategorized as neutral because their stay in the program was too brief to be considered as having failed due to violations (e.g., new offenses) after FDC intake; it was thought, instead, that they exited due to events that occurred before FDC intake (e.g., previously pending cases). Table 1 illustrates an overall FDC program success rate of 82%.

Table 1: Client Demographics and Exit Statuses

Variable	N	Percent
Race/Ethnicity		
White	667	84.6
Hispanic	70	8.9
African American	26	3.3
Asian	8	1.0
Pacific Islander	7	0.9
Native American/Alaskan	6	0.8
Unknown/Missing	4	0.6
Sex		
Male	465	59.0
Female	323	41.0
Exit Status*		
Positive	646	82.0
Neutral	41	5.2
Negative	101	12.8

* Positive exits include only graduation; neutral include terminated, moved from county or medical/mental health issues; negative exits include bench warrants and being sentenced out.

Table 2 shows the breakdown of race (categorized as White or Minority) and sex by each exit status category. Minorities were slightly more likely to exit the FDC program negatively than they were to exit positively, but, as discussed later in this document, the difference was not significantly different from White participants. Males were slightly more likely to exit negatively than positively, while females were slightly more likely to exit positively than negatively, but, as discussed later in this document, the difference between the sexes was not significant.

Table 2: Client Demographics by Exit Statuses

Variable		N	Percent
Race/Ethnicity			
Positive	White	553	85.9
	Minority	93	14.1
Neutral	White	32	78.0
	Minority	9	22.0
Negative	White	82	81.2
	Minority	19	18.8
Sex			
Positive	Male	380	58.8
	Female	266	41.2
Neutral	Male	21	51.2
	Female	20	48.8
Negative	Male	64	63.4
	Female	37	36.6

Table 3 shows the mean, median and standard deviations for age and program duration (number of weeks in the program) by each exit status category. Those who successfully completed the program were slightly (2.2 years) older than neutral exits and negative exits (3.4 years older). Interestingly, those who had a negative exit status were likely to be in the program the longest, notably longer than either positive or neutral exits.

Table 3: Client Age and Program Duration in Weeks by Exit Status

Variable	Mean	Median	Std. Dev.
Age			
Positive	31.9	29.4	9.91
Neutral	30.9	27.2	11.09
Negative	29.0	26.0	9.31
Program length (weeks)			
Positive	83.5	70.8	35.12
Neutral	46.2	24.0	55.26
Negative	104.8	91.0	56.59

Table 4 shows duration of the FDC program (weeks) by client demographics. There are no notable differences in terms of program duration for males relative to females, and, although Whites are in the program longer than Minorities on average, the median length of time in the program is nearly identical for the two groups. The finding of little median difference when the means revealed a larger discrepancy indicates that a few Whites are staying in the program an exceptionally long time compared to Minorities.

Table 4: Program Duration in Weeks by Client Demographics

Variable	Mean	Median	Std. Dev.
Sex			
Male	84.5	71.0	40.97
Female	83.9	71.1	41.74
Race/Ethnicity			
White	84.8	71.0	41.16
Minority	81.2	71.3	41.88

Table 5 provides information about the substances most often used by FDC participants prior to intake as a function of exit status. These data are limited in utility because so few clients' information was updated in the period immediately preceding intake into the FDC program. The mean pre-intake update was 11 months pre-intake with a maximum of four years pre-intake. Nevertheless, these data provide some idea of who the program serves, and who most often succeeds by substances used. Only the most commonly used substances are presented in the table (those that exceed at least 5% use on average). The data is not limited to primary substance of use relative to more peripheral use because the variable indicating primary, secondary or tertiary was missing 38.4% of the time.

Interestingly, substance use patterns were more similar for negative and positive exits status groups, with neutral exit clients showing a pattern of use tending toward more dangerous and illicit substances. Neutral exit clients were more likely than either other group to use opiates, methamphetamines or cocaine. They were relatively less likely to use alcohol or marijuana. Positive and negative exit groups were relatively similar, but the positive exit group was more likely to use marijuana and cocaine, and particularly methamphetamine, while the negative exit group was slightly more likely to use alcohol and opiates. The pattern suggests that individuals using the illicit substances (as opposed to prescription opiates or alcohol) complete the program at a slightly higher rate (compared to negative, but not neutral, exits).

Table 5: Percentage of Clients Using Substance and Substance Rank by Exit Status

Exit Status/ Substance	Negative		Neutral		Positive	
	%	rank	%	rank	%	rank
Alcohol	21.6	1	17.7	3	20.8	1
Opiates	18.8	2	24.1	1	18.1	2
Meth	13.6	4	20.3	2	17.7	3
Cocaine	15.0	3	16.5	4	16.0	4
Marijuana	14.6	5	12.7	5	15.9	5

OMS New Charge Recidivism

Table 6 on page 9, shows the means and percentage (percentage reflects percent with at least one count of the charge type) for the summed count of the total number of pre, during and post-program charges by

exit status for the categories person, property, DUI, drugs and any. The "any" category represents the summed count of charges of any type; the category is thus partially redundant with the subcategories, but also contains other types of charges such as public order or obstruction charges. As one examines the table, it is important to note that many means are below one because, oftentimes, clients had no counts of the given charge type during the timeframe.

Data in Table 6 represents data on new charge arrests into the Salt Lake County Adult Detention Center (OMS data) and are limited to a follow-up period of 18 months post program exit (6-month outcomes are also provided). Regardless of when a client exited the program, variables below represent the number of charges acquired in the immediate 18 months or 6 months following program exit. For equivalent comparison, the number of charges in the pre-program start period is also provided. While the number of charges during the program is also provided, it is important to consider that program duration was not fixed, and varied widely by participant. Thus, the total number of charges during FDC participation within any category is presented for informational purposes only.

Significance tests were conducted to examine whether the positive, negative, and neutral FDC exit status groups differed from one another, and to examine whether, within a group, there was a significant difference pre- relative to post-program. A significant result indicates that the difference has a 1-in-20 likelihood of being spurious. A marginally significant result indicates that the difference has a 1-in-10 likelihood of being spurious; marginal results should be interpreted as meaningful with caution as they are below the typical standards of significance testing. Because the data are counts of the number of charges (and are, therefore, not normally distributed as required by parametric statistical tests), significance tests were conducted using binomial-negative regression under the generalized estimating equation (GEE) family of significance tests. All tests compare equivalent time periods. For example, 18 months pre-program is only compared with 18 months post-program, and 6 months pre-program is only compared with 6 months post-program. For all between groups' tests, the reference group was positive exit from the FDC program; negative and neutral exit status groups are thus compared to this reference group.

All significance tests included program duration as a covariate. Consideration of the impact of program duration is important in order to examine whether any pre- to post-program differences were a function of successful FDC completion or merely length of exposure to the program regardless of whether one completed successfully. It is possible, for example, that negative exit group participants, who were in the program for a longer duration, received many of the benefits of the program, but simply did not graduate successfully. Accordingly, all significance tests below examine whether the FDC program exit status had an impact after removing variance accounted for by length of program exposure, and, conversely, all significance tests below examine whether program duration had an impact after removing variance accounted for by exit status. Significance tests also implicitly control for pre-existing differences in the number of crimes committed pre-program; thus, if one group committed more crimes pre-program (and therefore had more room to improve due to a higher baseline), that difference is controlled for by the nature of the statistical tests.

A superscripted "1" next to the negative or neutral groups in Table 6 on page 9 indicates the group (neutral or negative) differed significantly from the positive exit group at 18 months after controlling for program duration; a superscripted "2" indicates the group (neutral or negative) differed significantly from the positive exit group at 6 months after controlling for program duration. A superscripted "a" next to the variable name (i.e., person, property, DUI, drugs, or any) indicates a significant effect for program duration, indicating that, after controlling for exit status, length of time in the program alone was a significant predictor of pre- to post-program differences at 18 months. A superscripted "b" denotes this same outcome for 6 month outcomes. A superscripted "*" indicates that, within the group, a significant pre- to post-program difference was found at 18 months, and a superscripted "^" indicates that, within the

group, a significant pre- to post-program difference was found at 6 months. Marginally significant results are noted in text, but not noted in the table.

The direction of significance tests, and subsequent interpretations, are provided in the explanatory text that follows, but one can also see the difference within the table's values. The "%" columns were not utilized for significance testing, but are provided to give the reader a sense of what percentage of clients within an exit category had at least one charge in the respective timeframes. During program values, likewise, were not involved in significance testing.

OMS Person Charges

After controlling for program duration and pre-program person crimes, neither the negative exit group nor the neutral exit group differed from the positive exit group in terms of decline in the count of person charges over time. As denoted by the superscripted "a", however, program duration was a significant predictor of reductions in person charges for the period 18 months post-program relative to 18 months pre-program (but not for the 6-month time period). Longer time in the program equated lower counts of post-program recidivism. Also, as denoted by the "*", the positive and neutral groups showed reduced criminal activity 18 months post-program, and the positive exit group also showed reduced activity in the 6 months post-program (denoted by "^"). The overall interpretation of these results is that the positive exit group did not recidivate at a lower rate post-program compared to the other groups, largely because all groups showed some decline in recidivism post-program regardless of whether they completed. The strongest predictor of lower post-program recidivism was program duration, with longer program duration predicting less post-program recidivism irrespective of exit group category.

OMS Property Charges

After controlling for program duration and pre-program property crimes, neither the negative exit group nor the neutral exit group differed from the positive exit group in terms of decline in the count of charges over time. At first glance, it appears the negative exit group showed the greatest improvement, and it did in an absolute sense, but once controlling for its higher rate of pre-program property crimes, the larger decline in crime counts was not significantly different from the positive group's relatively smaller improvement. Program duration was a marginally significant predictor of reductions in property charges for the period 6 months post-program relative to 6 months pre-program (but not for the 18-month time period). Longer time in the program equated marginally lower post-program recidivism. Within groups, post-program crime counts were significantly lower than pre-program property crime charges for all three groups at both 6 and 18 months post-program. The cause of the declines is not immediately apparent, as neither successful completion nor program duration predict the outcomes. The declines may be due to exposure to the FDC program, or they may be due to other, extraneous variables impacting this population. It is impossible to elucidate potential causation without a comparison group.

OMS DUI Charges

After controlling for program duration and pre-program DUI charges, neither the negative exit group nor the neutral exit group differed from the positive exit group in terms of decline in the count of DUI charges over time. Program duration was not a significant predictor of decreased recidivism related to DUIs. Within groups, post-program DUI counts were significantly lower than pre-program DUI charge counts only for the positive exit status group and only at 6 months post-program. Though the positive exit status group declined significantly at 6 months post-program in terms of DUIs, it is important to keep in mind that all groups declined, and did not differ in the rate of decline across groups. It is also the case that change on this variable would be difficult to observe due to the relatively small number of DUIs in general.

OMS Drug Charges

After controlling for program duration and pre-program drug crimes, neither the negative exit group nor the neutral exit group differed from the positive exit group in terms of decline in the count of drug charges over time. Program duration was not a significant predictor of decreased drug charge-related recidivism. Within groups, post-program drug charges were significantly lower than pre-program crime counts for all three groups at both 6 and 18 months post-program. As before, the cause of the declines is not immediately apparent, as neither successful completion nor program duration predict the outcomes.

OMS Any Charges

After controlling for program duration and pre-program crimes of any kind, neither the negative exit group nor the neutral exit group differed from the positive exit group in terms of decline in the count of any type of charges combined over time. Program duration was not a significant predictor of decreased charge-related recidivism. Within groups, post-program any charge counts were significantly lower than pre-program counts for all three groups at both 6 and 18-months post-program. As before, the cause of the declines is not immediately apparent.

Table 6: Pre, During and Post-Program Mean Total and Frequency in Category Charges by Exit Status

Variable/	18 months				6 months				During	During
	pre		post		pre		post			
Exit Status	mean	%	mean	%	mean	%	mean	%	mean	%
Person [a]										
Positive [*,^]	.07	6.8	.02	2.0	.04	3.9	.00	0.3	.01	1.1
Neutral [*]	.07	7.3	.00	0.0	.00	0.0	.00	0.0	.02	2.4
Negative	.07	6.9	.04	3.0	.03	3.0	.00	0.0	.07	6.0
Property										
Positive [*,^]	.44	32.7	.10	7.1	.21	18.4	.02	2.2	.03	2.9
Neutral [*,^]	.63	46.3	.07	8.9	.32	29.3	.02	2.4	.02	2.4
Negative [*,^]	.98	52.5	.11	7.3	.42	31.7	.07	6.9	.22	17.8
DUI										
Positive [^]	.06	5.3	.04	3.6	.03	2.9	.01	1.2	.07	0.8
Neutral	.02	2.4	.02	2.4	.00	0.0	.02	2.4	.00	0.0
Negative	.05	5.0	.02	2.0	.02	2.0	.01	1.0	.05	5.0
Drugs										
Positive [*,^]	.93	73.8	.15	11.1	.55	49.2	.03	3.1	.05	4.8
Neutral [*,^]	.83	63.4	.07	7.3	.46	41.5	.02	2.4	.00	0.0
Negative [*,^]	1.19	72.3	.12	10.9	.63	51.5	.06	5.9	.33	28.7
Any										
Positive [*,^]	1.94	83.9	.33	16.7	.71	58.7	.07	5.7	.11	9.0
Neutral [*,^]	1.37	82.9	.20	17.1	.59	51.2	.07	4.9	.07	7.3
Negative [*,^]	1.28	88.1	.26	24.8	.94	64.4	.13	11.1	.70	49.5

A superscripted "1" (18 months) or "2" (6 months) indicates the group differed significantly from the positive exit group. A superscripted "a" (18 months) or "b" (6 months) next to the variable name (i.e., person, property, DUI, drugs, or any) indicates a significant effect for program duration. A superscripted "*" (18 months) or "^" (6 months) indicates that, within the group, a significant pre- to post-program difference was found.

BCI New Conviction Recidivism

Table 7 shows the means and percentage (percentage reflects percent with at least one count of the conviction type) for the summed count of the total number of pre, during and post-program new convictions by exit status for the categories drugs and any conviction. The "any" category represents the

summed count of convictions of any type; the category is thus partially redundant with the drug subcategory, but also contains other types of dispositions such as person, property, public order, obstruction or other convictions.

In contrast to data presented above from the OMS database, these data represent convictions, not new charge arrests, and also capture outcomes statewide rather than only in the Salt Lake County jurisdiction. Because new convictions were rare for most specific BCI crimes categories (and because other categories revealed little difference in the similar OMS data), only the "any" conviction category and the drug category (the category most relevant to FDC) are included in the analyses that follow.

Data in Table 7 are presented for two time periods: 12 months and 24 months pre- and post-program. As previously mentioned, the timeframe for BCI data was slightly longer than for OMS because BCI data was extracted and provided at a later date. Follow-up data for 24 months post-program were available for 93.5% of the clients; hence, the number of clients in the 24 month analyses are slightly smaller than for the period 12 month pre- and post-program (which includes the full dataset). The number of convictions during the program is also provided, but it is important to consider that program duration was not fixed, and varied widely by participant. Thus, the total number of convictions during FDC participation within any category is presented for informational purposes only.

Significance tests were conducted in the same manner as described under OMS analyses, but involved convictions rather than charges as the dependent (outcome) variable. All tests compared equivalent time periods (i.e., 24 months pre-program to 24 months post-program and 12 months pre-program to 12 months post-program). For all between groups' tests, the reference group was positive exit from the FDC program; negative and neutral exit status groups are thus compared to this reference group.

As with OMS data, all significance tests in this section included program duration as a covariate to examine whether the FDC program exit status had an impact after removing variance accounted for by length of program exposure, and, conversely, to examine whether program duration had an impact after removing variance accounted for by exit status. Significance tests also implicitly control for pre-existing differences in the number of crimes committed pre-program; thus, if one group committed more crimes pre-program (and therefore had more room to improve due to a higher baseline), that difference is controlled for by the nature of the statistical tests.

A superscripted "1" next to the negative or neutral groups in Table 7 on page 11 indicates the group (negative or neutral) differed significantly from the positive exit group at 24 months after controlling for program duration; a superscripted "2" indicates the group (negative or neutral) differed significantly from the positive exit group at 12 months after controlling for program duration. A superscripted "a" next to the variable name (i.e., drugs or any) indicates a significant effect for program duration, indicating that, after controlling for exit status, length of time in the program alone was a significant predictor of pre- to post-program differences at 24 months. A superscripted "b" denotes this same outcome for 12 month outcomes. A superscripted "*" indicates that, within the group, a significant pre- to post-program difference was found at 24 months, and a superscripted "^" indicates that, within the group, a significant pre- to post-program difference was found at 12 months. Marginally significant results are noted in text, but not in the table.

The direction of significance tests, and subsequent interpretations, are provided in the explanatory text that follows, but one can also see the difference within the table's values. The "%" columns were not utilized for significance testing, but are provided to give the reader a sense of what percentage of clients within each exit category had at least one conviction in the respective timeframes. During program values, likewise, were not involved in significance testing.

A notable contrast exists when comparing BCI data to the previously presented OMS data; specifically, one will notice the mean count of convictions reveals higher values in general. For example, 12-month drug conviction counts are higher in the BCI data than in the 18-month OMS data for the period pre-program. This outcome is likely the result of the fact that BCI data is statewide, and therefore captures offenses and dispositions in jurisdictions outside of Salt Lake County.

BCI Drug Convictions

After controlling for program duration and pre-program drug convictions, neither the negative exit group nor the neutral exit group differed from the positive exit group in terms of decline in the count of drug related convictions over time. Program duration was not a significant predictor of decreased drug-related recidivism. Within groups, post-program drug conviction counts were significantly lower than pre-program counts for all three groups at both 12 and 24 months post-program.

BCI Any Convictions

After controlling for program duration and pre-program convictions of any type, neither the negative exit group nor the neutral exit group differed from the positive exit group in terms of decline in convictions for any crime over time. Program duration was a marginally significant predictor of reductions in any crime convictions for both the periods 12 and 24 months post-program relative to 12 and 24 months pre-program. Longer time in the program equated marginally lower post-program recidivism. Within groups, post-program conviction counts were significantly lower than pre-program counts for all three groups at both 12 and 24 months post-program.

Table 7: Pre, During and Post-Program Mean Total and Frequency in Category Convictions by Exit Status

Variable/ Exit Status	24 months				12 months				During	During
	pre		post		pre		post			
	mean	%	mean	%	mean	%	mean	%	mean	%
Drugs										
Positive *,^	1.84	81.3	.26	16.1	1.56	80.3	.14	11.1	.13	11.0
Neutral *,^	1.61	78.0	.24	19.5	1.10	65.9	.07	7.3	.07	4.9
Negative *,^	2.70	89.1	.29	20.8	2.05	79.2	.15	11.9	.75	46.5
Any										
Positive *,^	1.26	58.8	.53	28.6	.85	48.8	.35	18.1	.23	15.9
Neutral *,^	2.39	82.9	.73	31.7	1.49	75.6	.34	19.5	.27	17.1
Negative *,^	3.76	91.1	.85	48.5	2.49	87.1	.25	25.7	1.42	65.3

A superscripted "1" (24 months) or "2" (12 months) indicates the group differed significantly from the positive exit group. A superscripted "a" (24 months) or "b" (12 months) next to the variable name (i.e., person, property, DUI, drugs, or any) indicates a significant effect for program duration. A superscripted "*" (24 months) or "^" (12 months) indicates that, within the group, a significant pre- to post-program difference was found.

Client Factors as Predictors of Recidivism and Exit Status

Using the same analytic procedures as previous analyses, age, sex and minority status (White or minority) were entered as predictors of counts for post-program drug convictions and any convictions at 24 months. After controlling for pre-program convictions, results indicated no differences between males and females or Whites and Minorities in terms of the number of 24 month post-program convictions for either drugs or any conviction. Age, however, revealed a significant effect indicating that clients who were older when they entered the program had less post-program recidivism than younger clients. An increase in client age of one year was associated with a 1.02% decrease in the likelihood of post-program convictions.

An ordinal logistic regression analyzed the same three client factors as predictors of successful FDC completion. Again, neither sex nor minority status was a significant predictor of success, but age was. Each increase in age of one year increased the likelihood of successful program completion by 1.03%.

Time out of Community

A final analysis examined, by exit status, the number of days FDC clients were out of the community (incarcerated) post-program to determine whether the groups differed in their opportunity to reoffend. Because data were presented for different time periods in the analyses above, Table 8 shows the average number of days incarcerated at the jail (from OMS) for 6, 12, 18 and 24 months post-program. The mean column indicates the mean number of days during the time period that were spent incarcerated. The % column indicates the percentage of days in the time period that were spent incarcerated, on average, per group. For example, if an exit status group spent (on average) 30 days incarcerated during the 6 months (180 days) post-program, he or she would have a "% incarc." value of 16.4% for 6-month post-program incarceration (30 days/182.5 days).

Examining Table 8, it is immediately clear that clients with a positive FDC exit status were in the community for considerably longer than either negative or neutral exit status individuals in the periods immediately following program exit. In the period 18 months post-program, negative exits were almost five times more likely to be incarcerated than positive exit status clients. Because of this, positive exit status individuals had more post-program exposure time; that is, they had more days in the community during which they could reoffend. The meaning of this finding is somewhat equivocal due to the reciprocal nature of committing crimes and subsequent incarceration. If one commits a crime, the act can cause incarceration. If one is incarcerated, that fact can reduce criminal conduct in the community. Time incarcerated, therefore, cannot be used as an unequivocal covariate in analyses because it violates the temporality assumptions of the significance tests used above. That is, it cannot be used to predict recidivism because it is also a causal effect of recidivating.

Table 8: Mean Number of Days and Percentage of Post-Program Time Incarcerated by Exit Status

Exit Status/ Time Frame	Negative		Neutral		Positive	
	mean	% incarc.	mean	% incarc.	mean	% incarc.
6 months post-program	47.4	26.0	46.9	25.7	6.9	3.8
12 months post-program	82.5	22.6	57.4	15.7	19.1	5.2
18 months post-program	107.7	29.5	94.1	17.2	35.1	6.4
24 months post-program	131.9	18.1	113.1	15.7	46.0	6.4

Note: Denominators for percentages are the average length of total program duration from Table 3 (with length converted to days from weeks), 182.5 days for 6 months, 365 days for 12 months, 547.5 days for 18 months, and 730 for 24 months

Discussion

The project began with a principal goal of better understanding the post-program impact of the FDC on recidivism, as well as to consider client factors (i.e., substance of use, age, sex and minority status) and environmental circumstance factors (i.e., FDC judge, exit status and duration of program) as determinants of reduced post-program recidivism. However, the project was limited in some respects in that data for substance of use was not deemed sufficiently reliable to use for predictive analyses aimed at determining whether FDC participation resulted in better outcomes for users of particular substances. The database of substances of choice was updated too infrequently prior to intake, and often contained missing data. Analyses did examine several person factors, but neither sex nor minority status predicted either increased recidivism or successful program graduation. Age, however, was a significant predictor of both, and being older at FDC intake was associated with fewer post-program convictions and increased odds of graduating.

The environmental circumstance variable (which is also clearly a person driven factor) of program duration was either a significant or marginally significant predictor of recidivism for 18-month person crimes (OMS), 6-month property crimes (OMS), and both 12- and 24-month convictions for any crime (BCI). Longer program duration was associated with either marginally or significantly less recidivism. This outcome suggests that the FDC program, with respect to some criminal behavior, may reduce recidivism as a function of exposure to the program and its procedures (e.g., continual monitoring), and that, regardless of exit status, the program may have some positive benefits simply as a result of participation (i.e., whether successful or not). This interpretation should be regarded with caution, however, as the finding was not robust across all variables and timeframes, and program duration was not a significant predictor of lower drug related recidivism (which one might assume would be the area most affected by the FDC program and its procedures).

The most consistent finding of the significance tests conducted on time (pre- and post-program) and program exit status was a pattern of considerable reduction in criminal recidivism for all FDC groups (positive, neutral or negative exit statuses) from pre- to post-program. None of the variables relating to recidivism in either OMS or the BCI showed a significant effect for successful program exit leading to greater reduction in recidivism than neutral or negative exits. Some outcomes showed a pattern favoring greater reductions in crime for negative exits in the post-program periods, but that pattern was non-significant when the level of pre-program crime was included as a covariate (which controls for the fact that negative exits had higher pre-program crime levels, and thus more room for post-program improvement).

The reasons that all exit status groups showed a decline in post-program arrests and convictions could be driven by different causal factors. It may be the case that, given their extended time in the community relative to negative exits, positive exits showed a program specific decline in criminal behavior post-program, and perhaps declines in criminal behavior post-program among negatively exiting clients were driven by the fact that they were quickly and frequently incarcerated and, therefore, were unable to commit crimes at a higher rate. The procedures of the FDC program itself may be partially responsible for the ambiguity in that failing drug court is related to re-incarceration, thereby making recidivism more difficult for negatively exiting clients.

The interpretation that perhaps differential patterns of causation drive similar reductions in recidivism across exit statuses is merely speculative because of the inability to disentangle causation between new crimes, exit status, and time incarcerated post-program. Elucidation of this complicated and multi-directional causal relationship could be examined in future studies using a more comprehensive analytic technique known as structural equation modeling, which allows for variables to be modeled as both causes and effects of each other and other variables.

Despite several equivocal results, all recidivism variables showed remarkable pre to post-program reductions, suggesting a possible significant impact of the FDC program. However, as with other results, this interpretation of results should be regarded with caution until a comparison group can be included in a research design. If a statistically matched comparison group were included in a future analysis (even with retrospective data), and the FDC group showed greater reductions in recidivism compared to the comparison group, it could be more confidently asserted that the FDC program was the cause of the differential improvement. Favorably, results at present do not rule out the possibility that the FDC program is related to significant reductions in recidivism either directly (e.g., positive exits are less likely to recidivate) or indirectly (e.g., negative exits are incarcerated and less able to recidivate).

If future research on the FDC program is conducted, two recommendations to improve the interpretation of the results as they relate to causation are: 1) the scope of the project should allow for a more complex structural equation model, and 2) a matched comparison group should be included in such a model. The

inclusion of a comparison group is not novel to Salt Lake's research on its FDC program, but the inclusion of a comparison group in a model allowing reciprocal effects would represent a new and valuable area of future research.

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