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DRUG COURTS AND RECIDIVISM: THE RESULTS OF AN EVALUATION USING TWO COMPARISON GROUPS AND MULTIPLE INDICATORS OF RECIDIVISM

CASSIA SPOHN, R.K. PIPER, TOM MARTIN, ERIKA DAVIS FRENZEL

Increases in the number of drug offenders appearing in state and federal courts, coupled with mounting evidence of both the linkages between drug use and crime and the efficacy of drug treatment programs, led many jurisdictions to implement drug treatment courts. Although these courts vary on a number of dimensions, most are designed to reduce drug use and criminal behavior among drug-involved offenders. This study evaluates the effectiveness of one drug court—the Douglas County (Omaha), Nebraska Drug Court—in reducing offender recidivism. We use a variety of analytical techniques to compare drug court participants and offenders in two matched comparison groups on a number of measures of recidivism. Our results reveal that drug court participants have substantially lower rates of recidivism than traditionally adjudicated felony drug offenders, and that the differences in recidivism rates between drug court participants and drug offenders who participated in a diversion program prior to the implementation of the drug court disappeared once we controlled for the offender's assessed level of risk, as indicated by his/her LSI score.

The past two decades have witnessed dramatic growth in the United States prison population. There were nearly 1.3 million persons incarcerated in state and federal prisons as of midyear 1999, compared to less than a quarter million in 1975

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(Bureau of Justice Statistics, 1999). Most commentators attribute this fivefold increase to increasingly severe sentencing practices for drug offenses (Mauer, 1999; Skolnick, 1997; Tonry, 1995). Mauer (1999, p. 32), for example, notes that the risk of receiving a prison sentence for a drug offense increased by 447 percent between 1980 and 1992. Statistics concerning the offenses for which state and federal prisoners are incarcerated support this conclusion. The percentage of state prisoners incarcerated for a drug offense nearly quadrupled from 1980 (6%) to 1996 (23%). Similarly, the percentage of federal prisoners serving time for a drug offense increased from 25 percent in 1980 to 60 percent in 1996. In fact, the increase in drug offenders accounted for nearly three-quarters of the total increase in federal inmates and one-third of the total increase in state inmates during this 16-year period (Bureau of Justice Statistics).

These statistics reflect a crime control policy premised on a theory of deterrence that Skolnick (1997, p. 411) characterizes as “superficially persuasive.” The assumption is that sentencing drug offenders to prison for long periods of time will deter current and prospective offenders, leading eventually to a reduction in drug abuse and drug-related crime. As numerous commentators have observed, however, this assumption rests on the false premise that altering criminal penalties will alter behavior (Irwin & Austin, 1997; Paternoster, 1987, 1991; Tonry, 1995). In fact, scholarly research generally concludes that increasing the severity of penalties will have little, if any, effect on crime (see Caulkins, Rydell, Schwabe, & Chiesa, 1997 and Speckart, Anglin, & Deschenes, 1989 for research that assesses the deterrent effects of punishment for drug offenders). As Cohen and her colleagues (1998, p. 1260) recently noted, “Observers of the criminal justice system who in general agree on little else have joined in arguing that increased penalties for drug use and distribution at best have had a modest impact on the operation of illicit drug markets, on the price and availability of illicit drugs, and on consumption of illicit drugs.”

Critics of the crime control approach, who maintain that the War on Drugs has failed and that “public safety has not improved as a result of the imprisonment binge” (Irwin & Austin, 1997, p. 140), have called for a new approach that balances public safety and public health interests. While acknowledging that imprisonment may be an appropriate penalty for some offenders, those who advocate a public health approach argue for expansion in the use of a variety of alternatives to incarceration. Skolnick (1997), for example, suggests that two-thirds of the \$13 billion the United States spends annually to wage the War on Drugs be allocated to treatment and prevention. Belenko (1990, p. 70) similarly argues that the challenge to the criminal justice system is to simultaneously “absorb drug cases while improving the identification and diversion of those offenders who may benefit from

treatment or other community supervision, and who do not represent an undue threat to public safety.”

These calls for expansion of drug treatment programs are premised on the notion that treatment, in contrast to incarceration, “works.”¹ In fact, there is substantial evidence in support of the efficacy of treatment. There is now a sizeable literature (see Anglin & Hser, 1990 for a summary) that documents the ability of drug abuse treatment programs to reduce drug use and drug-related crime. Positive results have been noted for both community-based treatment (Benedict, Huff-Corzine, & Corzine, 1998; McCorkel, Harrison, & Inciardi, 1998; Smith & Akers, 1993) and for treatment within a correctional institution (Field, 1984; Inciardi, Lockwood, & Hooper, 1994; Mullen, 1996; Tunis, Austin, Morris, Hardyman, & Bolyard, 1996; Wexler, Falkin, & Lipton, 1990).

Demands for expanding drug treatment programs also are fueled by research documenting a strong relationship between drug use and crime. Evidence of this comes from the National Institute of Justice’s Arrestee Drug Abuse Monitoring (ADAM) program (formerly the Drug Use Forecasting (DUF) program). Results from the ADAM program, which has been testing arrestees for a variety of drugs since 1987, indicate that the percentage of arrestees testing positive for any drug has rarely fallen below 50 percent in any of the 23 sites and has been as high as 85 percent in some (National Institute of Justice, 1997). In 1996, for example, more than 60 percent of adult males and at least 50 percent of adult females tested positive for any drug in all but three sites; the median rate for all sites was 68 percent. These figures are consistent with the results of self-report studies of substance-abusing offenders. State prison inmates surveyed in 1991, for example, reported high rates of drug use: 80 percent reported that they had used illegal drugs at least once, about half stated that they had been using drugs in the month before the offense for which they were incarcerated, and 31 percent indicated that they were under the influence of drugs at the time of the crime (Bureau of Justice Statistics, 1993). Self-report studies also indicate that substance-abusing offenders are responsible for a disproportionate amount of crime. One study (Chaiken, 1986), in fact, found that violent offenders who used heroin committed 15 times more robberies, 20 times more burglaries, and 10 times more thefts than offenders who did not use drugs.

Increases in the number of drug offenders appearing in state and federal courts, coupled with mounting evidence of both the linkages between drug use and crime and the efficacy of drug treatment programs, led a number of jurisdictions “to rethink their approach to handling defendants charged with drug and drug-related offenses” (Drug Court Clearinghouse and Technical Assistance Project, 1999, p. 3). Some jurisdictions, such as Cook County (Chicago), Illinois, established specialized dockets designed to manage the drug caseload more efficiently and to

alleviate stress on the felony court system (Inciardi, McBride, & Rivers, 1996). Other jurisdictions, such as Dade County (Miami), Florida, created “drug treatment courts” that incorporated intensive judicial supervision of drug offenders, mandatory drug treatment, and a rehabilitation program providing vocational, education, family, and medical services. The drug treatment court concept spread rapidly during the 1990s. As of June of 1999, 377 drug courts were operating and an additional 217 drug courts were in the planning stages in 49 of the 50 states, the District of Columbia, Puerto Rico, Guam, several Native American Tribal Courts, and two federal district courts (Drug Court Clearinghouse and Technical Assistance Project, 1999, p. 1).

Although drug courts vary on a number of dimensions, most are designed to achieve two primary goals—a reduction in drug use and a reduction in criminal behavior among drug-involved offenders. The purpose of this study is to evaluate the effectiveness of the Douglas County (Omaha), Nebraska Drug Court in reducing recidivism. We use a variety of analytical techniques to compare drug court participants and offenders in two matched comparison groups on a number of measures of recidivism.

PREVIOUS RESEARCH ON DRUG COURTS

Drug courts have gained widespread acceptance during the past decade as an alternative to traditional adjudication and sentencing of offenders with underlying drug problems. Early evaluations of these courts were concerned primarily with assessing their effectiveness in handling large increases in drug caseloads. For example, studies by Smith et al. (1991) and Belenko et al. (1992) found that drug courts in New York, Chicago, Philadelphia, and Milwaukee resulted in substantially lower mean case processing times.

More recent evaluations of drug courts have focused on assessing their effectiveness in reducing offender recidivism and preventing drug relapse. A report by the U.S. General Accounting Office (GAO) summarized the results of 20 evaluations of 16 drug courts that had been completed by early 1997 (GAO, 1997). The GAO report indicated that these early evaluations generally concluded that drug courts were effective in reducing drug use and criminal behavior. The report also indicated that these evaluations suffered from a number of limitations and that their conclusions should therefore be considered tentative. The GAO noted that most of the evaluations did not include a comparison group, did not examine post-program drug use or criminal behavior, and followed drug court participants for a relatively short period of time.

A later review by Belenko (1998) summarized the results of 30 evaluations of 24 drug courts that had been completed by May of 1998. His review included updated

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versions of six of the 20 studies included in the GAO report as well as 11 evaluations that were not included in the earlier review. A number of the evaluations included in the review examined the effect of drug court participation on recidivism while offenders were enrolled in the program. Belenko observed that most of these evaluations “find that criminal behavior was substantially reduced during participation in the program.” For example, an evaluation of a Ventura County (California) drug court, which tracked recidivism over an eight-month time period, found that only 12 percent of the drug court participants were rearrested, compared to 32 percent of those in a comparison group. A Jackson County (Missouri) evaluation similarly revealed six-month rearrest rates of 4 percent for program participants and 13 percent for nonparticipants.

Belenko’s (1998) review also included studies that assessed the impact of drug court participation on post-program recidivism. Eight of the nine evaluations reported lower recidivism rates for the drug court group as compared to a comparison group of similarly situated offenders who did not participate in the drug court program. An evaluation of the Multnomah County (Oregon) drug court, for example, found statistically significant differences between drug court participants (0.59 new arrests) and drug court-eligible nonparticipants (1.53 new arrests) over a 24-month tracking period.

Belenko (1998, pp. 17-18) concluded that “Although the evaluations vary considerably in scope, methodology and quality, the results are consistent in finding that . . . drug courts provide more comprehensive and closer supervision of the drug-using offender than other forms of community supervision, drug use and criminal behavior are substantially reduced while clients are participating in drug court, [and] criminal behavior is lower after program participation . . .” Like the GAO, however, Belenko (1998, p. 18) also concluded that there were “gaps in our knowledge about drug courts that future research should address.” He noted, for example, that most studies used relatively short follow-up periods and did not assess effectiveness using outcomes other than rearrest. He also suggested that researchers use comparison groups matched as closely as possible to drug court participants and called for research designed to identify the factors that affect treatment outcomes.

THE DOUGLAS COUNTY (NEBRASKA) DRUG COURT

The Douglas County Drug Court was established in April of 1997 in an attempt to implement a more effective and less costly alternative to traditional adjudication and sentencing of drug-involved felony offenders. The drug court consists of three components: (1) judicial monitoring of participants, with a specialized court docket presided over by a dedicated district court judge; (2) case management provided by

Diversion Services, Inc., a nonprofit corporation that administers various community corrections programs in Douglas County; and (3) drug treatment provided by Behavioral Health Administration (BHA) Region 6 and its network of alcohol and drug treatment providers. Pending felony charges against the offender are dismissed following completion of all drug court requirements.

To be considered for drug court, defendants must meet all of the following eligibility criteria: no more than one prior non-violent felony conviction; demonstrated need for substance abuse treatment; and medium or high Level of Service Inventory (LSI) risk/need level. Defendants with any of the following characteristics are ineligible for drug court: prior felony conviction for a crime of violence; prior offense involving the use or possession of a dangerous weapon; prior or current offense resulted in death or bodily injury; known gang involvement; unable to attend drug court sessions; unwilling to submit to random drug testing; and multiple misdemeanor convictions for crimes against persons.

Offenders assigned to the drug court are required to attend bi-weekly or monthly drug court hearings and regularly scheduled treatment sessions; they also must submit to random urinalysis. Although most offenders are monitored for 12 months, some are supervised for up to 18 months. Treatment options include intensive residential treatment, short-term residential treatment, assignment to a half-way house, day treatment, intensive outpatient treatment, and outpatient treatment; offenders who complete the prescribed course of treatment can be assigned to an aftercare or relapse prevention program. Treatment referrals are made on the basis of a comprehensive assessment for substance abuse, recidivism risk, and criminogenic needs. Most drug court participants are assigned either to intensive outpatient (39.7%) or outpatient (40.3%) treatment.

Graduation from drug court is contingent upon satisfactory completion of substance abuse treatment, attendance at drug court hearings, full-time continuous employment for at least six months (unless waived), no positive or diluted drug tests for at least six months, and no felony or serious misdemeanor charges while participating in drug court. As of December 31, 1998, 396 drug-involved offenders had been accepted into the drug court and 41 offenders had graduated from the program.

RESEARCH DESIGN AND METHODOLOGY

DATA AND DATA COLLECTION PROCEDURES

Three groups of similar offenders are included in this study: (1) Douglas County Drug Court participants; (2) felony drug offenders assigned to the Douglas County Attorney's Diversion Program prior to 1997; and (3) individuals arrested for felony drug offenses between January of 1997 and March of 1998 and who subsequently

had charges filed in Douglas County District Court (the traditionally adjudicated offenders). Although we initially planned to include as our comparison group only the traditionally adjudicated felony drug offenders, we decided to add the pre-1997 diversion program participants on the grounds that this group would have included drug offenders who would have been eligible for the drug court after April of 1997.

Data on all drug court participants, including those who were terminated from the program, and on pre-1997 diversion cases were provided by Diversion Services, which administered both the diversion program and the drug court during the time period covered by the evaluation. Data on individuals arrested for felonies in Douglas County were provided by Douglas County Information Services. The data obtained from these sources included offender characteristics (age, race/ethnicity, and gender), the date of arrest, the most serious offense at arrest, and, for a majority of the cases, a unique identifier (the data number) that could be used to search for information regarding the offender's prior criminal record and subsequent arrests and convictions.

Offenders in the two comparison groups were matched as closely as possible to drug court participants on the basis of the most serious offense and the offender's gender, race/ethnicity, and age. Because information regarding the offender's prior criminal history was not included in the data file provided by Douglas County Information Services (felony drug offenders) and was not consistently included in the data file provided by Diversion Services (drug court participants and diversion cases), we were unable to match offenders on prior record.

In the context of this study and its findings, it is important to understand that the Douglas County Drug Court constitutes a much different program than the County Attorney's Pre-Trial Diversion Program, from which one of our comparison groups was drawn. There are differences in both the eligibility criteria for the programs and in the level of supervision of program participants. Whereas, as noted above, drug court participants are allowed unlimited prior misdemeanors (but only one prior misdemeanor involving a crime against a person) and one prior non-violent felony conviction, diversion program participants may have no more than two prior misdemeanor convictions and no prior felony convictions. Moreover, the drug court program is designed for medium and high risk offenders (as determined by the Level of Service Inventory (LSI) and other measures of risk), while only low-risk offenders are eligible for the diversion program. Based on prior criminal history and assessed level of risk, in other words, diversion program participants represent, on average, lower-risk offenders than drug court participants.²

The diversion program and drug court also constitute different interventions. Unlike offenders assigned to the drug court, those assigned to the diversion program receive neither judicial monitoring nor probation supervision; their monitoring

consists solely of monthly contacts with counselors at Diversion Services. The duration of the two program may vary as well. Diversion program participation is limited to 12 months, whereas drug court participation may extend to 18 months.

There are fewer differences between the drug court participants and the traditionally adjudicated felony offenders. As noted above, each offender in the drug court sample was matched to an offender who was arrested for a felony drug offense on the basis of the most serious charge at arrest and the offender's age, race, and gender. Although we were not able to match offenders on prior criminal record, most offenders in these two groups had no more than one prior felony conviction and very few had previously been convicted of a violent felony. Only 3.5% of the drug court participants and 17.6% of the traditionally adjudicated offenders had more than one prior felony conviction; only 6.0% of the drug court participants and 8.2% of the felony drug offenders had a prior violent felony conviction. Moreover, unlike the diversion program participants, who typically were categorized as "low risk" based on the LSI, a substantial proportion of the drug court participants were categorized as either "medium/high risk" or "high risk" offenders.³

The original data file included all drug court participants (N=392), 301 drug offenders assigned to the diversion program, and 326 felony drug offenders. Data collectors used the offender's data number and other identifying information (name, date of arrest, charge(s) at arrest) to locate the offender's criminal history file in the Douglas County District Court's information system and to collect data on the offender's prior criminal history and on a variety of measures of recidivism. Unfortunately, many of the drug court and diversion cases did not have data numbers. This made it difficult or, in some cases, impossible to locate the offender and to identify the arrest which resulted in his/her inclusion in the drug court or diversion sample. Data collectors were unable to obtain criminal history or recidivism data on 107 of the 392 drug court participants and 69 of the diversion cases. These cases were eliminated from the analyses. We also eliminated felony arrests that did not result in the filing of charges by the Douglas County Attorney's Office (N=98), as well as 34 felony offenders who also appeared in either the drug court or diversion samples. These procedures produced a data file composed of 285 drug court participants, 232 diversion cases, and 194 felony arrestees.

The background characteristics and prior criminal history of offenders included in each of the three groups are reported in Table 1. The race/ethnicity, gender, and age of the drug court participants and the two comparison groups are very similar. Somewhat larger proportions of the offenders in the drug court sample than in the felony arrestee sample are white (22.8% versus 16.5%) or Hispanic females (1.8% versus 1.0%) and slightly larger proportions of the offenders in the felony arrestee sample are black (24.2% versus 20.7%) or Hispanic (7.7% versus 4.2%) males. However, the proportions of black females and white males are

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identical. The drug court and diversion samples also are very similar—there is a larger percentage of white females in the diversion group than the drug court group (29.7% versus 22.8%) and a larger percentage of black males in the drug court group than the diversion group (20.7% versus 13.4%)—but the other groups are roughly comparable.

TABLE 1
OFFENDER CHARACTERISTICS: DRUG COURT PARTICIPANTS, TRADITIONALLY ADJUDICATED DRUG OFFENDERS, AND DIVERSION PROGRAM PARTICIPANTS

	Drug Court Participants		Traditionally Adjudicated		Diversion Clients	
	N	%	N	%	N	%
<u>Race and Gender</u>						
White Female	65	22.8	32	16.5	69	29.7
Black Female	25	8.8	17	8.8	23	9.9
Hispanic Female	5	1.8	2	1.0	3	1.3
White Male	119	41.8	81	41.8	100	43.1
Black Male	59	20.7	47	24.2	31	13.4
Hispanic Male	12	4.2	15	7.7	6	2.0
Age (mean)		30.7		30.8		29.6
<u>Prior Record</u>						
No. of prior felony arrests (mean)		0.89		1.87		0.11
No. of felony arrests in 12 months prior to current arrest (mean)		0.12		0.40		0.03
No. of arrests in 12 months prior to current arrest (mean)		0.99		1.46		0.31
Prior felony conviction (% yes)	35	12.3	68	35.1	5	2.2
Prior violent felony conviction (% yes)	17	6.0	16	8.2	1	0.4
No. of Cases	285		194		232	

As shown in Table 1, the traditionally adjudicated offenders have more serious prior criminal records than the drug court participants, who have more serious criminal records than the offenders in the diversion sample. The mean number of prior felony arrests for the traditionally adjudicated offenders is 1.87, compared to 0.89 for the drug court participants and 0.31 for the diversion cases. Similar patterns are observed for the two measures of prior record reflecting arrests within the 12 months subsequent to the offender's arrest for the current offense (i.e., the offense that resulted in the offender's inclusion in the sample). Traditionally adjudicated offenders also were more likely to have a prior felony conviction, but very few offenders in any of the three groups had a prior conviction for a violent felony. Although these differences are not surprising, given the fact that prior criminal history is one of the criteria taken into consideration in determining eligibility for both drug court and the diversion program, they do suggest the need to control for prior criminal record when comparing recidivism among the three groups of offenders.

INDICATORS OF RECIDIVISM

We collected data on 12 indicators of recidivism. These data reflect arrests and convictions for misdemeanors and felonies during a 12-month follow-up period.⁴ We include several dichotomous variables that measure whether the offender was arrested or convicted, as well as several interval-level variables that measure the number of times the offender was arrested or convicted. We also include two variables that measure the number of months until the first arrest. These variables are displayed in Table 2, which also presents each variable's description and coding scheme.

DATA ANALYSIS

We used a two-stage analytic procedure to compare recidivism among the three groups of offenders. The first stage involved simple bivariate comparisons and tests for differences in means. We compared drug court participants to traditionally adjudicated offenders and diversion cases on each of the 12 measures of recidivism. We used a t-test to determine if the differences in recidivism between drug court participants and offenders in the two comparison groups were statistically significant.

Although, as noted above, we attempted to match offenders in the two comparison groups to offenders in the drug court on the basis of age, race/ethnicity, and gender, the resulting groups were not identical. Moreover, we were not able to match offenders on prior criminal history; as shown in Table 1, traditionally adjudicated offenders had more serious prior criminal records and diversion

TABLE 2
MEASURES OF RECIDIVISM

Variable Name	Variable Description	Coding of Variable
ARREST	Arrested for a misdemeanor or felony during the 12-month follow-up period	1 = yes 0 = no
CONVICT	Convicted of a misdemeanor or felony during the 12-month follow-up period	1 = yes 0 = no
FARREST	Arrested for a felony during the 12-month follow-up period	1 = yes 0 = no
FCONVICT	Convicted of a felony during the 12-month follow-up period	1 = yes 0 = no
FDRUGARR	Arrested for a felony drug offense during the 12-month follow-up period	1 = yes 0 = no
FDRUGCON	Convicted of a felony drug offense during the 12-month follow-up period	1 = yes 0 = no
NARREST	Total number of misdemeanor or felony arrests during the 12-month follow-up period	interval, 0 to 99
NFARREST	Total number of felony arrests during the 12-month follow-up period	interval, 0 to 99
NCONVICT	Total number of misdemeanor or felony convictions during the 12-month follow-up period	interval, 0 to 99
NFCONVICT	Total number of felony convictions during the 12-month follow-up period	interval, 0 to 99
TIMEFAIL1	Number of months to first new arrest	interval, 1 to 12 not arrested = missing
TIMEFAIL2	Number of months to first new felony arrest	interval, 1 to 12 not arrested = missing

offenders had less serious prior criminal records than drug court participants. These between-group differences in offender characteristics are problematic, given the fact that the offender characteristics may themselves be related to the likelihood of recidivism. Differences in recidivism rates between drug court participants and offenders in the two comparison groups, in other words, might be due to differences in offender characteristics rather than participation in the drug court program. To address this possibility, we used statistical techniques that allowed us to compare recidivism rates while controlling for a number of offender characteristics (prior criminal history, age, race/ethnicity, and gender). We use logistic regression to

analyze the dichotomous dependent variables, ordinary least squares regression to analyze the ordinal dependent variables, and survival analysis to analyze time to failure.

FINDINGS

RESULTS OF THE BIVARIATE ANALYSIS

The results of the bivariate analysis, which are presented in Table 3, reveal that drug court participants were less likely than felony arrestees, but more likely than diversion participants, to be arrested or convicted during the 12-month follow-up period. Drug court participants also had fewer total arrests and convictions than felony offenders, but more total arrests and convictions than diversion participants. Some of these differences are both statistically significant and nontrivial. For example, 42.1% of the drug court participants were arrested for a misdemeanor or felony, compared to 60.8% of the traditionally adjudicated offenders and 28.9% of the diversion participants.⁵ There are similarly large differences in the proportions of offenders with a new felony arrest: 19.3% of the drug offenders, 34.5% of the felony arrestees, and 9.5% of the diversion participants. Drug court participants also had substantially fewer total arrests than the traditionally adjudicated offenders (means of 1.09 and 1.88, respectively) but over twice as many total arrests as diversion participants.

These differences suggest, but do not prove, that offenders assigned to the drug court had substantially lower odds of recidivism than felony offenders adjudicated in Douglas County District Court but substantially higher odds of recidivism than pre-1997 participants in the Douglas County Attorney's Diversion Program. We noted earlier that observed differences in recidivism rates might reflect differences in the characteristics of the three types of offenders. More to the point, the higher recidivism rates for traditionally adjudicated offenders might be due to their more serious prior criminal records or to the fact that a somewhat larger proportion of the offenders in the felony arrestee sample were males, who might be expected to have higher levels of recidivism than females. These differences must be taken into consideration before definitive conclusions about the effectiveness of the drug court in preventing or reducing recidivism can be reached.

RESULTS OF THE MULTIVARIATE ANALYSIS

We used multivariate statistical techniques that allowed us to isolate the effect of one variable (type of program) while controlling for other variables that affect the likelihood of recidivism. We used logistic regression to analyze two dichotomous measures of recidivism: whether the offender had been arrested for a misdemeanor or felony during the follow-up period and whether the offender had been arrested for

TABLE 3
RECIDIVISM RATES: DRUG COURT PARTICIPANTS, FELONY ARRESTEES AND DIVERSION PARTICIPANTS

DIVERSION RATES	DRUG COURT PARTICIPANTS		TRADITIONAL ADJUDICATION		DIVERSION PARTICIPANTS	
	N	%	N	%	N	%
Arrested (misd. or felony)						
Yes	120	42.1	118	60.8*	67	29.8*
No	165	57.9	76	39.2	165	71.10
Convicted (misd. or felony)						
Yes	59	20.7	56	28.9*	24	10.3*
No	226	79.3	138	71.1	208	89.70
Arrested (felony)						
Yes	55	19.3	67	34.5*	22	9.5*
No	230	80.7	127	65.5	210	90.50
Convicted (felony)						
Yes	9	3.2	11	5.7	6	2.60
No	276	96.8	182	94.3	226	97.40
Arrested (drug felony)						
Yes	23	8.1	34	17.5*	5	2.2*
No	261	91.9	160	82.5	227	97.80
Convicted (drug felony)						
Yes	4	1.4	5	2.6	1	0.40
No	280	98.6	189	97.4	231	99.60
No. of Arrests (mean)		1.09		1.88*		0.52*
No. of Felony Arrests		0.30		0.47*		0.10*
No. of Convictions		0.30		0.48*		0.15*
No. of Felony Convictions		0.06		0.06		0.03
No. of Months to 1st Arrest		3.33		3.12		4.31*
No. of Months to 1st Felony Arrest		3.91		4.05		5.18

*T-test ($p \leq .05$) for difference between drug court participants and felony arrestees and between drug court participants and diversion participants.

a felony during the follow-up period. We used ordinary least squares regression (OLS) to analyze two interval-level indicators of recidivism: the number of times the offender had been arrested for a misdemeanor or felony during the follow-up period and the number of times the offender had been arrested for a felony during the follow-up period.⁶ In all of the analyses we controlled for the type of program (drug court, traditional adjudication, diversion), and the offender's age, race/ethnicity, gender, and prior criminal record (total number of arrests in the 12 months prior to the current arrest). To test for the effect of the type of program, we created three dummy variables measuring whether the offender was a drug court participant (coded 1; all other offenders coded 0), a traditionally adjudicated offender (coded 1; all other offenders coded 0), or a diversion program participant (coded 1; all other offenders coded 0). We then ran the analysis with drug court participants as the reference category; doing so allowed us to compare recidivism rates for drug court participants and traditionally adjudicated offenders and for drug court participants and diversion participants, holding constant the offender's age, race/ethnicity, gender, and prior criminal record.

The results of the logistic regression analyses, which are presented in Table 4, reveal that drug court participants are significantly less likely than traditionally adjudicated offenders to be arrested during the follow-up period, even after the offender's age, gender, race/ethnicity, and prior criminal record are taken into consideration. Conversely, drug court participants are significantly more likely than diversion participants to be arrested during the follow-up period. As illustrated by the odds ratios, the odds of rearrest for traditionally adjudicated offenders are two times those of drug court participants. These odds yield a difference in the probability of rearrest (for both measures of rearrest) between drug court participants and traditionally adjudicated offenders of just over 17%.⁷ In contrast, the odds ratios for diversion participants indicate that offenders in the diversion program face lower odds of rearrest than offenders in the drug court program; the differences in the probability of rearrest between drug court participants and diversion participants are 8.5% (misdemeanor or felony) and 16.2% (felony).

The data reported in Table 4 also indicate that the likelihood of recidivism is affected by the offender's age, gender, and prior criminal record. Older offenders are less likely than younger offenders to be rearrested for either a misdemeanor or a felony, whereas males are more likely than females to be rearrested. There also is a strong positive relationship between the number of times the offender was arrested in the 12 months prior to the current arrest and the likelihood that the offender would be arrested at least once during the follow-up period. The race/ethnicity of the offender, on the other hand, had no effect on either measure of recidivism.

TABLE 4
MULTIVARIATE ANALYSIS OF ARREST AND FELONY ARREST: THE EFFECT OF TYPE OF PROGRAM

A. ANALYSIS OF NEW ARREST FOR MISDEMEANOR OR FELONY

	B	SE	Odds Ratio	Probability Difference
Type of Case (Drug Court is Reference Category)				
Traditionally Adjudicated Offender	.72*	.20	2.06	[+17.3%]
Diversion Program Participant	-.33*	.20	0.71	[-8.5%]
Offender Age	-.02*	.009	0.98	[-0.5%]
Offender Gender (Male = 1)	.57*	.18	1.77	[+13.9%]
Offender Race (whites are the reference category)				
Black	.19	.18	1.21	Not Significant
Hispanic	-.44	.36	0.64	Not Significant
No. of arrests in 12 months prior to current arrest	.36*	.07	1.44	[+9.0%]

B. ANALYSIS OF NEW ARREST FOR FELONY

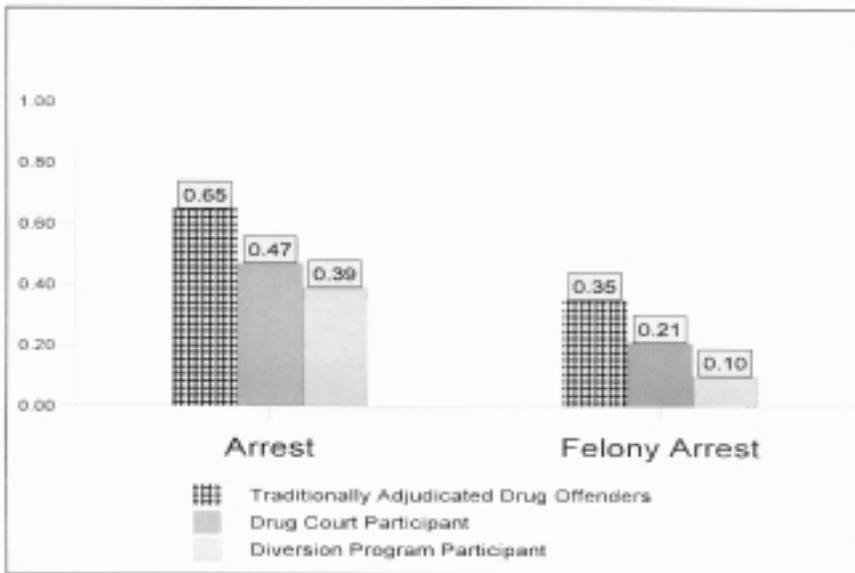
	B	SE	Odds Ratio	Probability Difference
Type of Case (Drug Court is Reference Category)				
Traditionally Adjudicated Offender	.72*	.22	2.05	[+17.2%]
Diversion Program Participant	-.68*	.28	0.51	[-16.2%]
Offender Age	-.007	.01	0.99	Not Significant
Offender Gender (Male = 1)	.36	.22	1.43	Not Significant
Offender Race (whites are the reference category)				
Black	-.14	.23	0.87	Not Significant
Hispanic	-.02	.40	0.98	Not Significant
No. of arrests in 12 months prior to current arrest	.17	.05	1.18	[+4.1%]

The results of the logistic regression analysis were used to calculate the probability of rearrest for a “typical” offender in each type of program.⁸ For example, the probability of rearrest for a misdemeanor or felony was calculated for drug court participants, felony arrestees, and diversion participants who had the following characteristics:

- 30 years old
- male
- white
- one arrest during the 12 months prior to the current arrest

The probabilities of rearrest, shown in Figure 1, illustrate more clearly the differences among the three groups of offenders. Consistent with the results of the regression analyses, 47% of the drug court participants, 65% of the felony arrestees, and 39% of the diversion participants had at least one new arrest for a misdemeanor or felony in the 12 month follow-up period. Although the probabilities are much lower, a similar pattern is found for felony arrest: 21% of the drug court participants

FIGURE 1
PROBABILITY OF ARREST, FELONY ARREST FOR A “TYPICAL” OFFENDER



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were arrested for a felony during the follow-up period, compared to 35% of the traditionally adjudicated offenders and 10% of the diversion participants.

We used OLS regression to examine the effect of type of program on the total number of new arrests and the total number of new felony arrests, controlling for the offender's age, race/ethnicity, gender, and prior criminal record. The results of these analyses are reported in Table 5. Consistent with the results discussed above for the dichotomous dependent variables, traditionally adjudicated offenders have significantly more new arrests than drug court participants and diversion participants have significantly fewer new arrests. There also is a positive relationship between the offender's prior criminal record and these two measures of recidivism. Offenders who had been arrested more frequently in the 12 months prior to the current arrest were arrested more frequently in the follow-up period.

TABLE 5

MULTIVARIATE ANALYSIS OF TOTAL NUMBER OF NEW ARRESTS AND TOTAL NUMBER OF NEW FELONY ARRESTS: THE EFFECT OF TYPE OF PROGRAM

A. ANALYSIS OF TOTAL NUMBER OF NEW ARRESTS FOR MISDEMEANOR OR FELONY

	B	Beta	T-value
Type of Case (Drug Court is reference Category)			
Traditionally Adjudicated Offender	.67	.18	3.78*
Diversion Program Participant	-.41	-.09	2.40*
Offender Age	-.02	-.07	2.04*
Offender Gender (Male = 1)	.23	.05	1.52
Offender Race (whites are the reference category)			
Black	-.06	-.01	0.37
Hispanic	-.45	-.05	1.43
No. of arrests in 12 months prior to current arrest	.26	.23	6.26*

B. ANALYSIS OF TOTAL NUMBER OF NEW ARRESTS FOR A FELONY

	B	Beta	T-value
Type of Case (Drug Court is Reference Category)			
Traditionally Adjudicated Offender	.14	.10	2.43*
Diversion Program Participant	-.16	-.11	2.68*
Offender Age	-.002	-.02	0.68
Offender Gender (Male = 1)	.08	.06	1.61
Offender Race (whites are the reference category)			
Black	-.08	-.04	1.26
Hispanic	-.07	-.02	0.66
No. of arrests in 12 months prior to current arrest	.06	.16	4.35*

The results of the multivariate analysis, then, confirm the results of the bivariate analysis. Holding constant the offender's age, gender, race/ethnicity, and prior criminal record, offenders in the drug court program have significantly lower rates of recidivism than traditionally adjudicated offenders. Drug court participants are significantly less likely than traditionally adjudicated offenders to be rearrested; they also have fewer total arrests than the latter offenders. In contrast, offenders in the drug court program have somewhat higher rates of recidivism than drug offenders who participated in the diversion program prior to 1997.

RESULTS OF THE SURVIVAL ANALYSIS

The outcome measures discussed thus far focus on whether the offender was rearrested or not and, if so, the number of new arrests. Another way to operationalize recidivism is to examine the length of time until the first new arrest (or first new felony arrest). Measuring the timing of recidivism allows the researcher to examine desistance from criminal behavior (as indicated by survival to the end of the follow-up period without a new arrest) and to explore differences between immediate and delayed return to criminal behavior. As Dejong (1997, p. 561) notes, "This is important because after experiencing a sanction, an offender may never return to criminal behavior (desist), return after a brief period of nonoffending (short-term deterrence), or return after an extended period (long-term deterrence).

We used survival analysis to compare the timing of recidivism for drug court participants and offenders in the two comparison groups. The dependent variables reflect survival times for each offender—i.e., the number of months until a new arrest for a misdemeanor or a felony and the number of months until a new arrest for a felony. Each dependent variable is a censored variable, in the sense that survival times are not observed for all offenders since some offenders were not rearrested by the end of the follow-up period. In fact, 57.1% of the offenders were not rearrested during the 12-month follow-up period; 79.7% were not arrested for a felony during the follow-up period. As Schmidt and Witte (1988, p. 34) observe, "For these individuals, we have no way of knowing when or if they ultimately will fail. All we know is that their survival time is at least as long as the length of their follow-up period."

To analyze the timing of recidivism, we used Cox Regression, which is a method for modeling time-to-event data in the presence of censored cases. Unlike other types of survival analysis, such as Life Tables and Kaplan-Meier techniques, Cox Regression allows the inclusion of covariates in the model. Consistent with the logistic regression and OLS regression analyses discussed above, we included several covariates to control for differences among the groups in offender age,

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gender, race/ethnicity, and prior criminal record. We also included the dummy variables indicating whether the offender was a diversion program participant or a traditionally adjudicated offender; drug court participants are the reference category.

The results of the analyses are presented in Table 6. A positive coefficient indicates that an offender with higher values on the variable fails (i.e., is rearrested) more quickly than an offender with lower values on the variable. For example, the

TABLE 6
SURVIVAL ANALYSIS OF TIME-TO-FAILURE: THE EFFECT OF TYPE OF PROGRAM

A. ANALYSIS OF NUMBER OF MONTHS TO FIRST ARREST FOR A MISDEMEANOR OR FELONY

	B	SE
Type of Case (Drug Court is reference category)		
Traditionally Adjudicated Offender	.38*	.13
Diversion Program Participant	-.41*	.15
Offender Age	-.01*	.006
Offender Gender (Male = 1)	.42*	.13
Offender Race (whites are the reference category)		
Black	.12	.13
Hispanic	-.24	.26
No. of arrests in 12 months prior to current arrest	.12*	.02

B. ANALYSIS OF NUMBER OF MONTHS TO NEW ARREST FOR A FELONY

	B	SE
Type of Case (Drug Court is Reference Category)		
Traditionally Adjudicated Offender	.57*	.19
Diversion Program Participant	-.70*	.25
Offender Age	-.006	.009
Offender Gender (Male = 1)	.33	.20
Offender Race (whites are the reference category)		
Black	-.08	.33
Hispanic	.06	.34
No. of arrests in 12 months prior to current arrest	.09*	.03

positive coefficient for prior arrests indicates that offenders with more arrests in the 12 months preceding the arrest for the current offense fail more quickly—that is, they are arrested sooner—than offenders with fewer prior arrests.

Consistent with the results discussed previously, traditionally adjudicated offenders are arrested sooner than drug court participants, who are arrested sooner than diversion program participants. This pattern holds both for rearrest for a misdemeanor or felony and rearrest for a felony. The timing of recidivism also is affected by the offender's prior record (both variables) and by the offender's age and gender (rearrest for a misdemeanor or felony). Offenders with more prior arrests recidivate more quickly than those with fewer prior arrests, younger offenders recidivate more quickly than older offenders, and men fail more quickly than women. Figures 2 and 3, which present the cumulative proportions of offenders who had not yet recidivated at each month during the follow-up period, illustrate these differences more clearly. There are relatively modest differences between drug court participants and offenders in the two comparison groups at the beginning of the tracking period, but these differences increase over time.

ADDITIONAL TESTS FOR INTER-GROUP DIFFERENCES

As noted above, offenders in the two comparison groups are similar, but not identical, to participants in the drug court program: offenders in the diversion group are lower risk offenders than those in the drug court group, who are somewhat lower risk offenders than those in the traditionally adjudicated group. As a result, it is possible that the differences in recidivism reported thus far can be attributed to these differences in offender risk rather than to the interventions (diversion and drug court) examined.

To test this possibility, we performed two additional sets of analysis. Because we had LSI scores on most of the offenders in the diversion and drug court samples but none of the offenders in the felony adjudication sample, we were not able to include these scores as a control in the multivariate analyses testing for differences in recidivism among offenders in all three groups. To test the possibility that the differences between diversion program participants and drug court participants were due to the fact that the diversion group was composed of lower-risk offenders than the drug court group, we re-ran the analyses using only these two types of offenders and including a control for the offender's LSI score.

In contrast to the results discussed earlier, which revealed that diversion offenders had significantly lower recidivism rates than drug court participants, the results of these analyses indicated that there were no significant differences between diversion and drug court participants on any of the measures of recidivism examined. The parameters for the dummy variable distinguishing between

FIGURE 2
SURVIVAL DISTRIBUTION OF TIME TO FIRST NEW ARREST

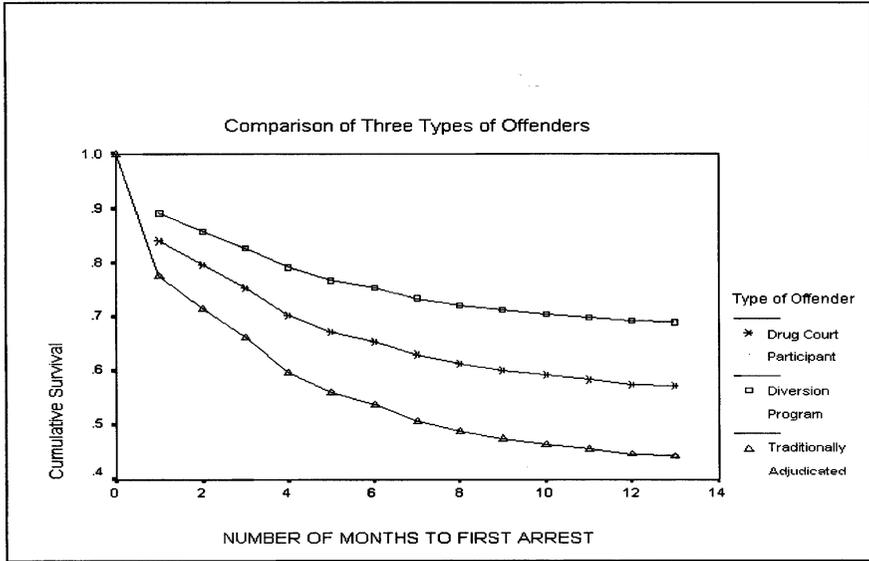
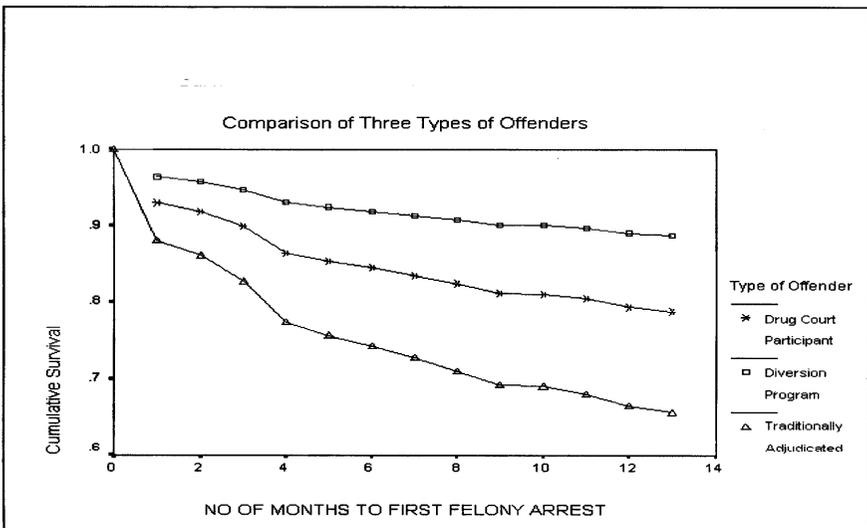


FIGURE 3
SURVIVAL DISTRIBUTION OF TIME TO FIRST FELONY ARREST



diversion and drug court offenders were: new arrest for a misdemeanor or felony ($b = 0.03$; $SE = .26$); new arrest for a felony ($b = 0.13$; $SE = .35$); number of new arrests for misdemeanors or felonies ($b = 0.14$; $Beta = .04$; $t = 0.85$); number of new arrests for felonies ($b = 0.06$; $Beta = .05$; $t = 0.97$); time to first new arrest for a felony or misdemeanor ($b = -0.14$; $SE = .20$); and time to first new arrest for a felony ($b = -0.19$; $SE = .31$). In contrast, the LSI score was a statistically significant predictor of recidivism in each of the models. These results confirm that the differences in recidivism between drug court participants and diversion participants were a reflection of the types of offenders eligible for each program. Once we controlled for the offender's assessed level of risk, the differences in recidivism disappeared.

As indicated above, we did not have LSI scores on the traditionally adjudicated felony drug offenders. To test the possibility that the lower recidivism rates for drug court participants than for felony offenders could be attributed to differences in each group's risk of reoffending, we ran the analyses using only offenders who had no prior felony convictions. (There were 249 drug court participants and 126 traditionally adjudicated offenders with no prior felony convictions.) We reasoned that the felony drug offenders included in this group would have met most of the eligibility requirements for drug court and, therefore, would be more comparable to the drug court participants. We found that the significant differences in recidivism rates did not disappear when we restricted the analysis to offenders with no prior felony convictions. Consistent with the results discussed earlier, drug court participants were less likely than traditionally adjudicated drug offenders to be arrested for a misdemeanor or felony ($b = .85$; $SE = .24$) or to be arrested for a felony ($b = .73$; $SE = .26$). Drug court participants also had fewer total arrests ($b = .66$; $Beta = .19$; $t = 3.38$) and a longer time to failure ($b = .48$; $SE = .15$) than traditionally adjudicated felony offenders.

SUMMARY AND DISCUSSION

The purpose of this study was to determine if the Douglas County Drug Court was effective in reducing offender recidivism. The drug court can be deemed effective with respect to recidivism if the offenders referred to the program exhibit lower levels of recidivism than similarly situated non-drug court participants. We evaluated the effectiveness of the drug court by comparing drug court participants to felony drug offenders processed through Douglas County District Court and to felony drug offenders assigned to the County Attorney's Pre-Trial Diversion Program prior to 1997. We used 12 separate indicators of recidivism, and we analyzed the data using both bivariate and multivariate statistical techniques. We also modeled time to failure using survival analysis.

Our initial comparison of recidivism rates and of time to failure yielded mixed results. Drug court participants had substantially lower levels of recidivism than traditionally adjudicated offenders but somewhat higher levels of recidivism than felony offenders assigned to the diversion program. This pattern of results was found for 10 of the 12 indicators of recidivism in the bivariate analysis, for each of the four recidivism variables analyzed using multivariate techniques, and for both of the time-to-failure variables modeled using Cox Regression survival analysis.

We conducted additional analyses designed to test the possibility that these results were a reflection of differences in the risk of recidivism among offenders in the three groups. The results of these analyses revealed that the differences between drug court and diversion program participants disappeared when we controlled for the offender's assessed level of risk (LSI score), but that the differences between drug court participants and traditionally adjudicated drug offenders remained when we restricted the analysis to offenders with no prior felony convictions.

These results suggest that the drug court is an effective intervention. Net of controls for the offender's assessed level of risk, prior criminal record, and background characteristics, there are no differences in recidivism rates for offenders assigned to the diversion program and for offenders accepted by the Douglas County Drug Court. This is particularly interesting given the heightened level of scrutiny to which drug court participants are subjected. Because they are required to meet frequently with drug court personnel and treatment providers and because their progress is closely monitored through urinalysis, we might have expected drug court clients to be arrested more frequently than diversion program participants for failure to appear, possession of drugs, or other criminal offenses. The fact that drug court and diversion offenders with comparable LSI scores had similar recidivism rates suggests that the substance abuse treatment and intensive judicial supervision offered through the drug court is effective in preventing or delaying a return to substance abuse and criminal behavior.

The validity of this conclusion is strengthened by our finding that drug court participants had significantly lower levels of recidivism than felony drug offenders subject to traditional adjudication and sentencing. Unlike the diversion program participants, who were eligible for the program only if they were determined to be low risk offenders, drug court clients were either medium or high risk offenders; they also had a demonstrated need for substance abuse treatment. The fact that these higher risk offenders had substantially lower recidivism rates than traditionally adjudicated drug offenders, many of whom undoubtedly also had a need for substance abuse treatment, attests to the effectiveness of the drug court. Further evidence is provided by our finding that even the lower risk drug court clients (i.e.,

those with no prior felony convictions) had significantly lower recidivism rates than their traditionally adjudicated counterparts.

Our study does warrant some caveats. Although we matched offenders in the drug court sample with traditionally adjudicated drug offenders and with diversion program participants on the basis of gender, race/ethnicity, age, and prior criminal record, the three resulting groups of offenders are not identical. The diversion clients are lower risk offenders than either the drug court clients or the felony drug offenders and the felony drug offenders have somewhat more serious prior criminal records than the drug court clients. We attempted to address these between-group differences by controlling for the offender's background characteristics and prior criminal record in the multivariate analyses, by including a control for the offender's LSI score in a separate comparison of recidivism rates for diversion and drug court clients, and by separately analyzing recidivism rates for offenders with no prior felony convictions. The fact that the differences between diversion and drug court participants disappeared when we controlled for the LSI score highlights the importance of including this variable, or some other measure of offender risk, in the analysis.

Another limitation of this study is the short follow-up period. Because the Douglas County Drug Court did not begin operation until April of 1997, the number of offenders who had participated in the program for more than twelve months by March of 1999 (the end of our tracking period) was very small. Consequently, we were only able to follow offenders for twelve months. The effects we uncovered obviously reflect short-term differences in recidivism rates; they may decay or disappear over time. To address this possibility, we currently are extending the recidivism analysis to capture new drug court clients, to measure recidivism during a 24-month period, and to identify the type of offense(s) for which the offender was re-arrested.

These limitations notwithstanding, the results of our study are consistent with previous research on drug courts. A recent summary of the results of drug court evaluations that tracked rearrests for all drug court participants and that included a comparison group noted that eight of the nine studies reported lower recidivism rates for drug court clients. According to the author of this report, "Although the evaluations vary considerably in scope, methodology, and quality, the results are consistent in finding that . . . criminal behavior is lower after program participation . . ." (Belenko, 1998, pp. 17-18).

NOTES

- ¹ For an alternative view, see Martinson (1974, p. 34), who concluded that “rehabilitative efforts that have been reported so far have no appreciable effect on recidivism.”
- ² The differences in offender risk level are particularly important for interpreting the findings of this study because we selected our sample of diversion program offenders on the basis of limited available data, including the nature of the presenting offense, gender, age, and race/ethnicity. We did not have detailed criminal history data or any data on assessed risk level with which to screen candidate offenders for all of our three study groups.
- ³ Of the 235 drug court participants for whom we had LSI scores, 10.6% were classified as low risk, 43.4% as low/medium risk, 34.9% as medium/high risk, and 11.1% as high risk. In contrast, 91.7% of the diversion offenders were categorized as low or low/medium risk.
- ⁴ The follow-up period for each offender was based on the date of his/her arrest for the offense that resulted in his/her inclusion in the sample. For example, the follow-up period for an offender arrested in June of 1997 would extend until June of 1998.
- ⁵ These figures are higher than those reported in other studies of recidivism. This is due to the fact that misdemeanor arrests for failure to appear are included.
- ⁶ We use the variables that measure arrests rather than those that measure convictions because of the small number of offenders (particularly those in the diversion group) who were convicted of new offenses during the 12-month follow-up period.
- ⁷ The formula for calculating probabilities from odds ratios is $(\text{odds}/\text{odds} + 1) - .50$ (Hanushek and Jackson 1997).
- ⁸ The formula used to calculate the probabilities was:
$$P_1 = \exp(Z_1) / 1 + \exp(Z_1) \text{ where}$$

$$Z_1 = \sum_k B_k X_{1k}$$

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