

Utah Cost of Crime

Drug Court (Juveniles): Technical Report

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COLLEGE OF SOCIAL WORK
COLLEGE OF SOCIAL & BEHAVIORAL SCIENCES
UTAH COMMISSION ON CRIMINAL AND JUVENILE JUSTICE
S.J. QUINNEY COLLEGE OF LAW

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Drug Court (Juveniles):
Technical Report

Jennifer K. Molloy, M.S.W.
Christian M. Sarver, M.S.W.
Robert P. Butters, Ph.D.

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Utah Criminal Justice Center, University of Utah

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The drug court model emerged to provide an intervention option to address the substance abuse treatment needs of offenders. As of 2009, there were 2,459 operational drug courts in the United States, of which 476 were specifically for juveniles (Huddleson & Marlowe, 2011). In general, drug courts are specialized courts that combine treatment with court supervision, using a non-adversarial model, in order to reduce offenders' substance abuse and criminal behavior (General Accounting Office (GAO), 1997). The main components of a drug court are: the use of a judge to preside over monthly status hearings, mandatory drug testing, court monitoring of individualized drug treatment, and use of immediate sanctions and incentives to ensure compliance with court demands. While eligibility requirements vary across jurisdictions, the majority of programs restrict eligibility to non-violent offenders with an identified substance abuse problem. Offenders typically participate in drug court for one to two years; those who complete court requirements generally have their charges dismissed or reduced, while those who do not complete often receive jail or prison sentences. In the juvenile drug court model the developmental needs of the adolescent, as well as negative peer influences and the family environment are taken into account when planning program requirements (BJA, 2005). In addition, confidentiality and involvement of parents and/or families in the treatment program are considerations when implementing interventions with juvenile offenders.

Prior Research

In keeping with the increased number of drug courts, research examining the impact of drug courts on criminal behavior and substance abuse has proliferated in recent decades. Since 2006, multiple meta-analyses have been conducted on the drug court model (GAO, 2011; Latimer, Bourgon, Chretien, 2006; Lowenkamp, Holsinger, & Latessa, 2005; MacKenzie, 2006; Mitchell, Wilson, Eggers, & MacKenzie, 2012; Wilson, Mitchell, & MacKenzie, 2006). Overall, results support the conclusion that drug court programs are associated with statistically significant reductions in criminal recidivism. Mitchell et al. (2012) extended the meta-analysis to include juvenile drug courts and found them to have a small, but statistically significant, effect on general recidivism (6.5% reduction), but no effect on drug-related recidivism. When looking only at studies with experimental designs, Mitchell et al. (2012) found that the impacts on general recidivism were not statistically significant, raising the possibility that the overall effect size was inflated by the inclusion of lower quality studies.

In a review of 41 studies, Stein, Deberard, and Homan (2013) examined associations between characteristics of adolescent drug court participants and outcomes. Youth who graduated from drug court had substantially lower recidivism rates, both during the program and in the year following, than youth who were terminated from the program prematurely. Overall, slightly more than half of all youth who were initially referred to a drug court graduated from the program. In addition to drug court participant characteristics, drug court structure and implementation are also related to outcomes, although researchers have just begun to explore those associations (Mitchell et al., 2002).

Methods

Inclusion Criteria

A systematic review was conducted, in accordance with the protocol outlined by PRISMA (Moher, Liberati, Tetzlaff, & Altman, 2009), to identify studies for inclusion in this meta-analysis. The study authors identified eligibility criteria for population, intervention, outcome, and methodology (see Methods Report for further explanation of inclusion criteria and search strategies). The search was restricted to studies written in English and conducted between 1987 and 2011. Studies had to meet the following criteria to be eligible:

- a) Both the treatment group and the comparison/control group must consist of adolescent offenders (between the ages of 12 and 21 and/or processed by the juvenile justice system). The intervention must target the criminal behavior of substance abusing offenders.
- b) The study must evaluate a criminal justice intervention. Primary prevention programs and programs serving non-court involved populations were excluded. Drug court was defined as a specialized, non-adversarial court that included the following components: use of judges presiding over monthly status hearings; use of mandatory drug testing; compliance monitoring of individualized drug treatment; and employment of sanctions and incentives to encourage compliance with court demands. Other specialized courts, such as DUI/DWI courts, speedy case processing drug courts, and evaluations of the Breaking the Cycle (BTC) demonstration project were not eligible for inclusion in this study.
- c) The study must include a measure of recidivism—which could be arrest, conviction, or incarceration—as an outcome. The measurement period had to be longer than 6 months following the start of the program. Recidivism data from official sources was preferred, but studies using only self-report recidivism measures were also eligible. Non-criminal outcome measures—such as measures of drug use—were excluded from this analysis. The study must report quantitative results that could be used to calculate an effect size. Given the interest in recidivism, dichotomous data were preferred (e.g., odds ratios). If the study only included continuous measures, effect sizes were calculated and converted into odds ratios (Lipsey & Wilson, 2001) using log odds (see Methods Report).
- d) Both experimental and quasi-experimental evaluations were eligible for inclusion. Quasi-experimental studies had to use matching or statistical methods to demonstrate equivalence between the treatment and comparison group. The comparison group could receive treatment as usual or no treatment (e.g., probation with or without treatment); however, the comparison group could not be made up of offenders receiving intensive drug treatment (treatment-treatment comparisons). Treatment dropouts were not considered an appropriate comparison group; comparison groups consisting of offenders who refused treatment were included only if the authors conducted analyses that demonstrated that the groups were similar.

Retrieving and Screening Studies

The initial literature search identified 1,085 citations, from which researchers pulled 118 studies for further evaluation. Full articles were screened by one researcher, which

resulted in 13 studies that met inclusion criteria. One of the included studies reported results on a duplicate sample and was therefore excluded. Three of the remaining 12 studies included multiple comparison groups, which resulted in 15 effect sizes that were included in the analysis. Twenty-percent (20%) of the full articles (k=25) were double-screened for inclusion by a researcher (see Appendix A for PRISMA chart).

Extracting Data

The authors developed a detailed code sheet and manual, which included variables related to study quality, program characteristics, participant characteristics, and treatment variables (see “Methods” Report for a full description of coding variables). One author coded all of the included studies and entered the data into an Excel spreadsheet. Ten percent (10%) of included studies were double-coded (k=4), by a researcher assistant. To assess study quality, the authors used a modified version of The Maryland Scale of Scientific Rigor (Aos, Phipps, Barnoski, & Lieb 2001; Gottfredson, MacKenzie, Reuter, & Bushway, 1997). Studies that received a rating lower than “3” (unmatched comparison group or no comparison group) on a scale of one to five were excluded. Where studies reported multiple measures of recidivism, researchers selected the broadest measure (e.g., arrest over conviction and conviction over incarceration). Outcome data were collected on general recidivism and drug-related recidivism. The definition of drug-related recidivism varied among studies, but commonly included proxy measures of drug use behavior such as charge, arrest, conviction, or incarceration for a drug-related offense. No direct measures of drug use/relapse, such as self-report or drug testing outcomes, were included in this analysis.

Follow-up period was coded according to the length of time during which participants were tracked and also according to whether the measurement period included time during program participation or after program completion. In-program measurement period was defined as one that begins at the onset of program participation, and may begin at arrest, intake, or program entry. A post-program measurement period is defined as one that begins after drug court graduation or failure. In many studies, the follow-up period included both in-program and post-program time.

Analysis

Data were coded into an Excel spreadsheet, which allowed researchers to calculate descriptive statistics for the full sample. The authors then recoded variables, to condense data into comparable units wherein each study contributed only one effect size, and entered those into *Comprehensive Meta-Analysis* (CMA, version 2). Using CMA, the authors assessed heterogeneity using the *Q* and *I*-squared statistics (see Results section). The *Q* statistic is a test of the null hypothesis: a significant value ($p < .05$) indicates that the variation between studies was greater than one would expect if the difference could be explained entirely by random error (Borenstein, Hedges, Higgins, & Rothstein, 2009). Because the *Q* statistic is not a precise measure of the magnitude of dispersion between studies, the authors conducted additional analyses to quantify the proportion of variance that could be attributed to differences in study characteristics (such as setting, population, and intervention). The *I*-squared statistic (values range from 0% to 100%) provides an estimate of how much of the variation between studies can be explained by random error:

values near 0 indicate that all of the difference can be explained by random error. Values at 25%, 50%, and 75% are, respectively, considered low, moderate, and large heterogeneity (Piquero & Weisburd, 2010). Given the range of study characteristics present in this sample, a random effects model, which assumes heterogeneity between studies is a product of study level differences (Piquero & Weisburd, 2010), was used to generate a summary effect size for each outcome measure. All data was coded and transformed into odds ratios, with values above one (1) indicating a negative intervention effect and values below one (1) indicating a positive intervention effect (i.e., reduced recidivism rates for offenders who participated in the intervention).

Results

Sample Characteristics

All studies evaluated U.S. drug courts. Nine of the reports were unpublished technical reports, conducted by government or private entities, and the remaining 3 articles were published in peer-reviewed journals. Four studies (33%) used 1:1 matching to construct a comparison group. Seven studies (58%) used a convenience sample with statistical controls. One study (8%) was a random control trial and received a “5” (on a scale of one to five) on study quality and the remaining studies (92%) received a score of “3.” The follow-up period ranged from one year to three years. The total sample size ranged from 23 to 219 and the entire sample describes 1,215 offenders in drug court groups and 1,271 offenders in comparison groups (see Appendix B).

Table 1 Characteristics of studies included in meta-analysis (N=12)

Characteristics	Frequency	(%)
Publication type		
Peer-reviewed journal	3	25
Unpublished technical report	9	75
Sample location		
U.S.	12	100
Canada	-	-
Other	1	2
Methodological Quality		
5. Random Control Trial (RCT)	1	8
4. High quality quasi-experimental ¹	-	-
3. Quasi-experimental with testing or matching	11	92
Outcome Measure		
General Recidivism	12	100
Drug Recidivism	2	17
Dropouts enumerated	3	25

¹Employs a quasi-experimental research design with a program and matched comparison group, controlling with instrumental variables or Heckman approach to modeling self-selection. May also include RCT with problems in implementation.

Meta-analysis

General recidivism was examined in 15 comparisons. In 8 of those, results favored the intervention (five (5) were significant at $p < 0.05$). The odds-ratios for general recidivism ranged from 0.42 to 2.26. The random effects mean odds-ratio was 0.81 (95% CI of 0.62 to 1.07, $p = 0.137$), indicating a small treatment effect that favored the intervention but was not statistically significant (see Appendix C). The Q test revealed significant heterogeneity between studies ($Q = 33.22$, $df = 14$, $p < 0.01$, $I^2 = 57.86$), which means that the studies did not share a common effect size. This finding was expected given the range of offenders and interventions included in the meta-analysis. Following the omnibus meta-analysis, studies were grouped by follow-up period and recidivism type for further moderator analysis.

General recidivism by follow-up period. In-program measurement of recidivism was the most common outcome (12 comparisons) and included both time in-program and post-program. The random effects mean odds-ratio was 0.80 (95% CI 0.57 to 1.12, $p = 0.19$) indicating a small but not significant reduction in recidivism for the intervention group. A post-program measurement period was reported in four (4) comparisons. The random effects mean odds-ratio was 0.91 (95% CI 0.61 to 1.36, $p = 0.66$) indicating small but statistically non-significant reduction of post-drug court recidivism. These results partially contradict Mitchell's (2012) analysis, which found a statistically significant reduction in general recidivism as a result of participation in drug court; however, Mitchell notes that the results were not significant when limiting the analysis to higher quality studies. The sample included here is smaller than Mitchell's ($k = 34$), in part because of the exclusion of seven (7) studies due to methodological quality.

Drug-related recidivism. Two comparisons examined drug-related recidivism, of which both showed results that favored treatment (one (1) was significant at $p < 0.05$). The random effects mean odds-ratio was 0.54 (95% CI .22 to 1.35, $p = 0.19$), indicating a small but not significant positive treatment effect on drug related recidivism.

Limitations

The strength of a meta-analysis rests on the comprehensiveness of the search of primary studies. While the authors sought to identify all eligible studies, the possibility exists, nonetheless, that these efforts failed to identify all the extant research on juvenile drug courts. In some cases, the researchers were unable to obtain studies that were identified as evaluations that appeared to meet inclusion criteria. Furthermore, the results of a meta-analysis depend on the quantity and quality of the available primary research. Overall, the included studies contain few randomized studies and a high proportion of weaker study designs.

In several studies, drug court participants were compared to drug offenders who were eligible for participation but declined ("refusers") or were referred to the program but were declined by administrators ("rejects"). While these studies were included only if the study authors conducted analyses to demonstrate group equivalence; using refusers as comparison groups increases the chances that group differences are simply an artifact of pre-existing group differences rather than intervention effects. Finally, the studies included here reflect significant heterogeneity in terms of offenders, settings, dosage, study quality, and outcome measures. While the researchers created narrow inclusion criteria to account

for study-level differences, future research should examine those study characteristics in moderator analyses, to identify specific treatment characteristics that are associated with the biggest treatment effects.

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United States General Accountability Office. (2011). *Adult drug courts: Studies show courts reduce recidivism, but DOJ could enhance future performance measure revision efforts*. Washington, DC: Author.

VanderWaal, C., McBride, D., Terry-McElrath, Y., & VanBuren, H. (2001). *Breaking the juvenile drug-crime cycle: A guide for practitioners and policymakers*. Washington, DC: United States Department of Justice, Office of Justice Programs.

Wilson, D., Mitchell, O., & MacKenzie, D. (2006). A systematic review of drug court effects on recidivism. *Journal of Experimental Criminology*, 2, 459-487.

Included Studies

Note: The studies marked with an asterisk (*) were included in the analyses. The other studies listed are eligible but statistically dependent.

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*Ferguson, A., McCole B., & Raio, J. (2006). *A process and site-specific outcome evaluation of Maine's juvenile drug treatment court programs*. Augusta, ME: Office of Substance Abuse, Department of Health and Human Services.

*Hartmann, D. J., Rhineberger, G.M., Gregory, P., Mullins, M., Tollini, C., & Williams, Y. (2003). *Evaluation of the Kalamazoo County juvenile drug treatment court program: October 1, 2001---September 30, 2002, Year 5*. Kalamazoo, MI: Western Michigan University, Kecher Center for Social Research.

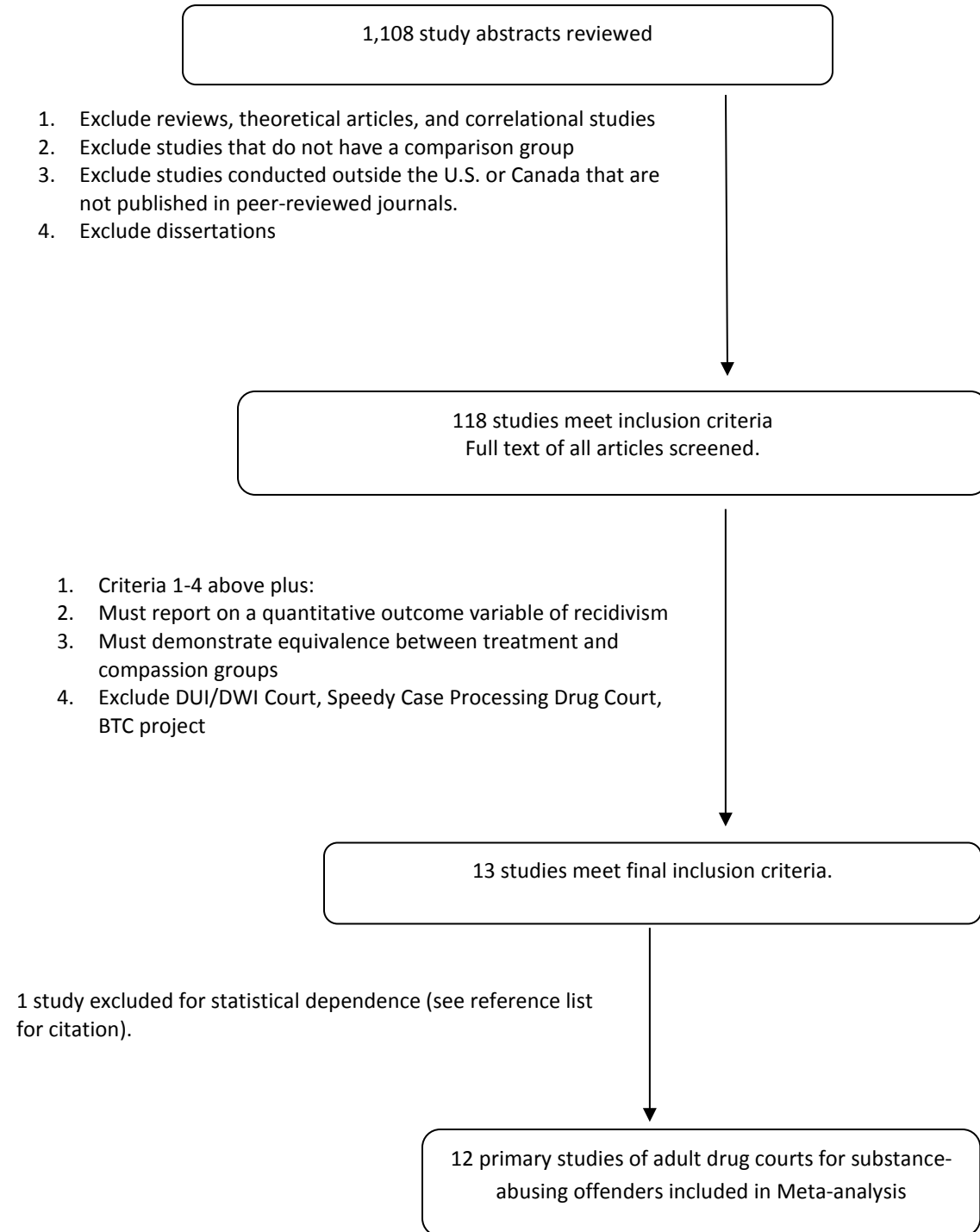
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APPENDIX A: Search Results

Search: Title and Abstract
Search Limiters: Published 1/87
to 12/11; English



APPENDIX B: Included Studies

Author	Date	N in Each Group		Study Design	General Recidivism ¹		Drug-related Recidivism	
		Treatment	Control		Odds-Ratio	95% CI	Odds-Ratio	95% CI
Byrnes & Hickert	2004	76	130	Convenience	0.52	0.28, 0.95	0.31	0.13, 0.76
Carey	2004	23	25	Matched	0.61	0.13, 3.00		
Ferguson & McCole	2006	219	219	Matched	0.96	0.66, 1.40	0.80	0.52, 1.25
Hartmann & Rhineberger	2003	89	39	Convenience	1.70	0.80, 3.64		
Henggeler & Halliday-Boykins	2006	38	38	Random Control Trial	1.07	0.47, 2.41		
Henggeler & Halliday-Boykins	2006	38	43	Random Control Trial	1.25	0.57, 2.75		
Herz & Phelps	2003	39	39	Matched	1.24	0.50, 3.10		
Herz & Phelps	2003	34	34	Matched	1.86	0.69, 4.98		
Herz & Phelps	2003	53	51	Matched	2.26	0.83, 6.16		
Kralstein	2008	133	180	Convenience	1.03	0.73, 1.45		
NPC (a)	2010	142	103	Convenience	0.40	0.23, 0.70		
NPC (b)	2010	69	31	Convenience	0.67	0.28, 1.58		
NPC (c)	2010	124	74	Convenience	0.42	0.22, 0.78		
Pitts	2006	62	61	Matched	0.47	0.23, 0.97		
Rodriguez & Webb	2004	114	204	Convenience	0.44	0.22, 0.90		
Total Sample = 2,486								

¹Includes drug-related recidivism