Juvenile Drug Court: Enhancing Outcomes by Integrating Evidence-Based Treatments

Scott W. Henggeler, Colleen A. Halliday-Boykins, Phillippe B. Cunningham, Jeff Randall, Steven B. Shapiro, and Jason E. Chapman
Medical University of South Carolina

Evaluated the effectiveness of juvenile drug court for 161 juvenile offenders meeting diagnostic criteria for substance abuse or dependence and determined whether the integration of evidence-based practices enhanced the outcomes of juvenile drug court. Over a 1-year period, a four-condition randomized design evaluated outcomes for family court with usual community services, drug court with usual community services, drug court with multisystemic therapy, and drug court with multisystemic therapy enhanced with contingency management for adolescent substance use, criminal behavior, symptomatology, and days in out-of-home placement. In general, findings supported the view that drug court was more effective than family court services in decreasing rates of adolescent substance use and criminal behavior. Possibly due to the greatly increased surveillance of youths in drug court, however, these relative reductions in antisocial behavior did not translate to corresponding decreases in rearrest or incarceration. In addition, findings supported the view that the use of evidence-based treatments within the drug court context improved youth substance-related outcomes. Clinical and policy implications of these findings are discussed.

Keywords: juvenile drug court, multisystemic therapy, contingency management, delinquency, substance abuse

Drug- and alcohol-abusing and dependent delinquents represent a large and greatly underserved population that is at high risk of presenting significant deleterious outcomes and long-term costs for themselves, their families and communities, and society (Belenko & Dembo, 2003). As described by recent reviewers (Belenko & Logan, 2003; Cooper, 2002), juvenile drug courts began emerging in the 1980s to address these problems, and 268 juvenile drug courts were in operation in December 2003 (Huddleston, Freeman-Wilson, & Boone, 2004). Although juvenile drug courts have continued to proliferate, evaluation of their capacity to reduce offender substance use and criminal activity has lagged. Indeed, only one modest (\(N = 40\)) randomized trial of a juvenile drug court has been completed, and that study is unpublished (Dickie, 2000). The purpose of this article is to describe key 1-year outcomes from a randomized trial of juvenile drug court that included four treatment conditions and addressed two important gaps in the extant literature on juvenile drug courts.

The first gap pertains to the effectiveness of juvenile drug court, per se. Although the effectiveness of juvenile drug courts has received little empirical attention, several factors suggest that such courts might be more effective than traditional justice services at reducing adolescent substance use. First, the related literature on adult drug courts (Belenko, 2001) suggests that close collaboration of criminal justice professionals and alcohol and drug treatment providers under a drug court rubric increases retention in treatment, provides closer and more comprehensive supervision, reduces substance use, and produces short-term cost savings. Second, the treatment services promoted by at least some juvenile drug courts (see, e.g., Parnham & Wright, 1998) are intended to address an array of the correlates of adolescent substance abuse at the individual (e.g., development of drug refusal skills), family (e.g., improving parental discipline), school (e.g., enhancing school performance), and community (e.g., involvement in prosocial activities) levels. Addressing the known determinants of clinical problems comprehensively likely increases the probability of...
attaining favorable outcomes. Third, several of the defining characteristics of drug courts (Belenko, 2001; National Association of Drug Court Professionals, Drug Court Standards Committee, 1997) are consistent with well-documented principles of behavior change. For example, adolescent drug use is monitored closely through frequent urine screens and sets of sanctions, and rewards are applied by the judge consistently and swiftly based on the results of the screens. Such monitoring and consistent application of consequences might decrease juvenile drug use, regardless of any treatment interventions conducted outside the court. This possibility is addressed by including drug court with community services (DC) and usual family court with community services (FC) as two of the four intervention conditions.

The second gap addresses an area that has been largely neglected in the drug court literature—the integration of evidence-based clinical services into the treatment protocols for youths in drug court (Belenko & Logan, 2003). As currently configured, judges and court personnel generally assume that alcohol and drug treatment available in the community is effective. Yet, as noted by the Institute of Medicine (1998) and leading policy analysts (e.g., McLellan, Carise, & Kleber, 2003), evidence-based substance abuse treatments are rarely used in community substance abuse practice. Hence, this study also examined the effects of incorporating a well-validated family- and community-based treatment as the community intervention component of the drug court process. Specifically, drug court with multisystemic therapy (DC/MST; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998) was included as the third treatment condition. MST is one of the few adolescent treatments cited by the National Institute on Drug Abuse (NIDA; 1999) as evidence based and has achieved favorable long-term reductions in drug use and criminal behavior among substance using and abusing juvenile offenders (Henggeler, Clingempeel, Brondino, & Pickrel, 2002; Schaeffer & Borduin, 2005). Thus, the third treatment condition integrated MST into juvenile drug court to determine whether drug court outcomes would be enhanced.

Finally, a third aim of this study was to evaluate whether the integration of contingency management (CM; Petry, 2000) into the more ecologically oriented MST treatment protocol would improve substance use outcomes for MST. Although MST substance-related outcomes with substance abusing juvenile offenders have been generally favorable (Henggeler, Pickrel, & Brondino, 1999), the bulk of MST therapeutic efforts have emphasized change in youths’ family, peer, and school relations that were associated with substance use, rather than focusing on the substance use, per se. Perhaps alcohol and drug outcomes for MST would be enhanced if substance use behavior was a specific and intensive focus of this family intervention model. An examination of the outcome literature in the area of adolescent substance abuse (e.g., Liddle & Dakof, 1995; Waldron, 1997) combined with knowledge gained from the corresponding adult literature (e.g., Institute of Medicine, 1998; NIDA, 1999) suggests that a behavior therapy approach that includes close monitoring of substance use can be reasonably regarded as effective. Budney and Higgins (1998), for example, developed an effective (NIDA, 1999) behavioral treatment protocol for adult drug abusers that includes a voucher system linked with results from frequent urine analyses, functional analysis of drug use, and development of drug refusal skills. A variation of this approach developed by Donohue and Azrin (2001), CM, has produced promising results for adolescents. Drug court with MST enhanced with CM (DC/MST/CM), consequently, represented the fourth treatment condition.

In summary, this study used a randomized design with intent-to-treat analyses to evaluate key 1-year outcomes for substance use, criminal behavior, incarceration, and symptomatology for 161 substance-abusing and dependent juvenile offenders assigned to one of four treatment conditions (FC, DC, DC/MST, or DC/MST/CM). In general, primary aims were to determine whether (a) juvenile drug court improved outcomes in comparison with family court, (b) integrating evidence-based interventions into juvenile drug court improved juvenile drug court outcomes, and (c) integrating CM into MST enhanced standard MST outcomes for substance use.

Method

Design and Procedures

A 4 (treatment type: FC, DC, DC/MST, DC/MST/CM) × 3 (time: pretreatment, 4 months, 12 months) factorial design, with random assignment of youths and families to treatment conditions, was used. Henggeler and Randall (2000) discussed strategies used to gain the collaboration of juvenile justice stakeholders in conducting randomized trials. Assessments were conducted with each youth and his or her caregiver at three points in time: within 72 hours of recruitment into the study (pretreatment; T1); 4 months postrecruitment (T2), corresponding to the average end of MST treatment; and 12 months postrecruitment (T3), corresponding to the average end of drug court. Research assistants administered the assessment battery to families in their homes or in detention facilities, for youths in juvenile justice custody. Families were paid $75 for each completed assessment as compensation for their time.

Participants

Participants were one hundred sixty-one 12- to 17-year-old adolescents recruited from the Department of Juvenile Justice (DJJ) in Charleston County, South Carolina who met Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM–IV; American Psychiatric Association, 1994) diagnostic criteria for alcohol or drug abuse or dependence. Inclusion criteria were (a) age of 12–17 years, (b) diagnosis of psychoactive substance abuse or dependence, (c) formal or informal probationary status, (d) residence in Charleston County, and (e) residence with at least one parent figure. Adolescents were excluded if they were already formally involved in substance abuse treatment or if a family member had already received MST treatment. To enhance the external validity of findings, no youths were excluded based on preexisting mental health, physical health, or intellectual difficulties.

Recruitment and Randomization

All cases entering the DJJ as new referrals or repeat offenders from January 2000 to June 2003 (N = 2,123) were screened by probation staff for possible alcohol or drug abuse. If substance abuse was suspected, and the youth and family met the other inclusion criteria, the Structured Clinical Interview for DSM–IV (First, Spitzer, Gibbon, & Williams, 2001) was administered to both the caregiver and the youth. All inclusion criteria were met by 165 youths and their families. These families were recruited for study participation by a researcher who obtained informed consent and assent and opened a sealed envelope that informed the family of the condition to which they were assigned. One hundred sixty-one families agreed to participate (98% recruitment rate). All forms and consent pro-
cedures were approved by the institutional review board at the Medical University of South Carolina.

**Intervention Conditions**

Please note that all youths were supervised via probation or parole, which included a minimum of approximately 2 hr of juvenile justice contact per month for approximately 1 year. The four intervention conditions were defined as follows.

**FC.** Youths in the FC condition appeared before a family court judge on average once or twice per year. These youths were referred by their DJJ intake representative to receive outpatient alcohol and drug abuse services from the local state-funded alcohol and drug treatment facility. Youths were directed to attend group treatment for 1.5 hours, 4 days a week for 12 weeks. The group focused on risk reduction, peer influence, conflict resolution, and anger management. Youths concurrently received 6 weeks of a group treatment pertaining to drug selling behavior; 12 weeks of individual sessions; and 1.5 hr, 2 days a week, for 12 weeks of family group therapy. The theoretical orientations of these groups were cognitive–behavioral and systems theory. The interventions were not manual driven, and selection of material was left to the therapist’s discretion. Services were office based, with little community outreach. Less intensive services were offered if needed following the completion of the 12-week program.

**DC.** In this condition, the same aforementioned community services were provided under the drug court rubric. Drug court was held once a week, and procedures were typical of those provided in juvenile drug courts nationally. Prior to court, urine drug screens were obtained, and the youth, caregiver, and substance abuse counselor completed forms concerning the youth’s behaviors in four domains: drug use, compliance with rules at home, school behavior, and attendance and participation in community services treatment groups. Youth and caregiver came before the judge and read the forms. If the youth’s drug screen was dirty or if negative behavior was reported in any of the other domains, sanctions could be imposed. Sanctions varied in intensity and ranged from community service to detention. Clean drug screens and positive behavior in the behavioral domains resulted in the judge providing the youth with incentives that also varied in level of intensity (e.g., meal at fast food restaurant to tickets for a sporting event). Drug court consisted of three levels (i.e., weekly, biweekly, and monthly required attendance in court), with graduation from one level to the next dependent on clean drug screens and acceptable behavior in other areas. The standard duration of juvenile drug court was 12 months.

**DC/MST.** In this condition, MST was provided under the drug court rubric. MST is a manualized (e.g., Henggeler et al., 1998) evidence-based treatment that includes several key features. (a) A comprehensive set of identified risk factors (e.g., across individual, family, peer, school, and neighborhood domains) is targeted through individualized interventions. (b) These interventions integrate empirically based clinical techniques (e.g., from the cognitive–behavioral and behavioral therapies), which have historically focused on a limited aspect of the youth’s social ecology (e.g., individual youth, family), into a broad-based ecological framework that addresses relevant factors across family, peer, school, and community contexts. (c) Interventions focus on promoting behavioral changes in the youth’s natural ecology by empowering caregivers with skills and resources to address difficulties that will arise in raising adolescents and empowering youths to cope with family, peer, school, and neighborhood problems. (d) Therapist efforts to achieve desired clinical outcomes are supported through an intensive, sustained, and standardized quality assurance system. (e) Services are delivered via a home-based model, which facilitates high engagement and low dropout rates. In this study, therapists carried low caseloads of four to five families per clinician, which allowed intensive services to be provided to each family (2–15 hours per week, depending upon the clinical need). Clinical services were delivered in home, school, and/or neighborhood settings at times convenient to the family. Therapists were available to respond to clinical problems 24 hours a day, 7 days a week.

**DC/MST/CM.** MST and CM, as used by Budney and Higgins (1998), have several important similarities that support the viability of their integration: a strong commitment to empirical validation, the use of functional analyses to identify the proximal determinants of identified problems and guide initial intervention design, the use of pragmatic and goal-oriented intervention strategies, a broad-based view of interventions that specifically address risk and protective factors in the patient’s social ecology, and programmatic commitment to remove barriers to service access. As specified in a treatment manual (Cunningham et al., 2003), three components of CM were specifically added to MST in this study: a voucher system that rewarded clean substance screens, a detailed functional analysis of drug-use behavior that served as the basis for self-management planning, and protocols for self-management. Throughout treatment, and consistent with MST treatment principles, the youth’s caregivers were closely involved in the functional analyses and subsequent design of interventions as well as in monitoring of the self-management plans and substance outcomes of the youths.

**Therapist Characteristics**

Six full-time master’s level therapists with degrees in social work, psychology, or education provided MST. Three therapists formed a team that worked in the DC/MST condition, and three formed a team that worked in the DC/MST/CM condition. Two of the six therapists had previous MST experience (range = 1–3 years), three were African American, three were European American, and all were female. Therapists ranged in age from 25 to 50 years and had an average of 5 years of postmaster’s degree experience (range = 1–11 years). Only one therapist left the project during the course of the study—during the last quarter of the project.

Community-based treatment in the FC and DC conditions was provided by 10 therapists employed by the local state-funded agency mandated to provide substance abuse services in Charleston County. Eight of the therapists had master’s degrees in social work, psychology, or education, and the other two therapists had bachelor’s degrees. Five of the therapists were African American, five were European American, and six were female. Therapists ranged in age from 28 to 59 years and had an average of 10 years experience in practice.

**Sustaining Treatment Fidelity**

Therapists from both MST conditions received standard MST training and ongoing quality assurance. Included were an initial 5-day orientation, weekly group supervision following a specified protocol (Henggeler & Schoenwald, 1998), individual supervision as needed, and 1.5-day quarterly booster training. In addition to standard MST training, DC/MST/CM therapists also received 1-day specialized training in the CM model. Group supervision was conducted separately for therapists in the DC/MST and DC/MST/CM conditions and occurred for 30–90 min, twice a week. This task- and goal-oriented supervision focused on promoting adherence to MST treatment principles, developing solutions to difficult clinical problems, and designing plans to overcome any barriers to obtaining strong treatment adherence and favorable outcomes. DC/MST/CM therapists were also required to specifically review their implementation of CM components for each youth. Quarterly booster trainings were provided in areas identified by therapists and the MST supervisor as presenting difficulties in adherence or achieving clinical outcomes.

**Evaluating Treatment Fidelity**

Caregiver reports of therapist behavior were gathered through monthly phone interviews. Questionnaire items assessed therapist behavior regarding implementation of MST and CM.
MST. Therapist adherence to MST treatment principles (Henggeler et al., 1998) was assessed with the 26-item Likert-format Therapist Adherence Measure (Henggeler & Borduin, 1992), which has been validated in several studies (e.g., Henggeler, Melton, Brondino, Scherer, & Hanley, 1997; Huey, Henggeler, Brondino, & Pickrel, 2000). More recently, a large and diverse sample of 1,226 families and 255 clinicians allowed a thorough evaluation of the properties of the Therapist Adherence Measure (Schoenwald, Sheidow, Letourneau, & Liao, 2003). Confirmatory factor analyses supported a single-factor solution using 15 reliable items. The factor, labeled Therapist Adherence to MST, reflects the interrelated principles that operationalize MST. Cronbach’s alpha for the scale was .90. Adherence scores were relatively stable over the treatment episode within families (i.e., intraclass correlation coefficient for time of .51). Hence, scores were averaged across time to provide one adherence score per caregiver. The predictive validity of this score has been demonstrated for several youth outcome measures (Schoenwald et al., 2003).

CM. Based on a procedure using expert consensus, nine Likert format items were developed for use in this study. These items were rated as essential for CM, though not necessarily incompatible with MST or standard community services. Items tapped the monitoring of substance use, the provision of consequences based on that monitoring, and the development of problem solving strategies to attenuate future substance use. Items included, for example, “The therapist helped my child make a list of things that might cause him/her to use drugs or alcohol” and “The therapist tested my child for alcohol or drug use by Breathalyzer or drug screen.” Cronbach’s alpha for the scale was .88.

Standard community services. As noted previously and in contrast with the MST conditions, community services focused on providing group treatment for the adolescents and did not follow standardized protocols.

Measures

Key youth outcomes were assessed with a multimethod and multidimensional measurement battery.

Alcohol and drug use. Substance use was measured through self-reports and biological indices. Reported substance use by the adolescent was assessed with the Form 90 (Miller, 1991), which is an interview based on the time line follow-back methodology originally used to quantify specific amounts of alcohol consumed on a daily basis by individuals, but more recently adapted to assess other drug use using similar methods. A calendar of the previous 90 days was first used to highlight important events and then used to record specific quantities and types of substances consumed on each day during the period. The numbers of days were tabulated for alcohol use, heavy alcohol use (i.e., more than four standard drinks), marijuana use, and polydrug use. Urine drug screens for cannabis, cocaine, and amphetamines were collected before each drug court appearance for the youths in the DC, DC/MST, and DC/MST/CM conditions using the 3-Test Integrated Cup supplied by BioTechNostix (Markham, Ohio). The minimum detectable level for cannabis is 50 ng/ml, and the sensitivity is 50%. Following standard protocols for the juvenile drug court, youths with unexcused absences (e.g., runaway, did not show) and youths that missed court because they had been recently placed in detention were counted as having positive urine screens for cannabis. Likewise, youths with excused absences (e.g., a GED class) were counted as having negative (i.e., clean) drug screens. Analyses are based on the percentage of positive screens per youth.

Criminal activity and mental health symptoms. Criminal behavior was assessed through self-reports and arrest records, and mental health symptoms were assessed through youth and caregiver reports. The 47-item Self-Report Delinquency Scale (SRD; Elliott, Ageton, Huizinga, Knowles, & Canter, 1983) is the best validated of the self-report delinquency scales (Henggeler, 1989). The SRD taps a broad range of criminal behavior perpetrated during the past 90 days and includes subscales that pertain to status offenses, general theft, and crimes against the person (e.g., assault). Arrests were tracked through computerized records maintained by the South Carolina DJJ. Because youths as young as 16 years could be charged as adults, adult criminal records were also collected from the South Carolina Law Enforcement Division for youths 16 years of age and older. Externalizing and internalizing symptoms were assessed by adolescent and caregiver ratings on the 113-item Child Behavior Checklist (CBCL; Achenbach, 1990, 1991), one of the best-validated measures of child behavioral functioning. T scores for the total problem scale from 60 to 63 are considered to be in the borderline clinical range, and scores above 63 are in the clinical range.

Services outcomes. Services outcomes pertained to completion of drug court for youths in the drug court conditions (i.e., DC, DC/MST, DC/MST/CM) and out-of-home placements for all study participants. Those youths who formally graduated from drug court were considered to have completed drug court. The primary criteria for graduation from the 12-month drug court program included clean urine screens for at least the past 5 weeks and regular school attendance, employment, or serious efforts to gain employment. Secondary graduation criteria pertained to high rates of keeping curfew and attending treatment sessions. Days in out-of-home placement were documented through criminal justice records in the juvenile justice and adult correctional systems as well as with an abbreviated version of the Service Utilization Survey (Henggeler, Pickrel, Brondino, Ward, & Rowland, 1997). This semistructured phone survey was administered to caregivers monthly. For present purposes, days in foster care, group homes, residential treatment centers, juvenile justice facilities, and mental health or substance abuse inpatient facilities were aggregated from T1 to T3 to index days in out-of-home placements.

Results

Characteristics of Participants

Youths averaged 15.2 years of age (SD = 1.1); 83% were male, and 17% were female. Racial representation reflected that of youths in the juvenile justice system in Charleston, South Carolina, with 67% African American, 31% White, and 2% biracial. Only 15% of the youths lived with both biological or adoptive parents, whereas 21% lived with a biological parent and another adult caregiver, 52% lived with a single biological or adoptive parent, and 12% lived with other relatives. Socioeconomically, median family income was in the $10,000–$15,000 range, 38% of families were receiving financial assistance, and the median educational status of the primary caregivers was 12th grade. The youths averaged 3.6 arrests (SD = 2.5) prior to study entry. Finally, in spite of significant behavioral and substance use problems, only 35% of the youths had received mental health or substance abuse treatment previously.

Regarding the juvenile offenders’ clinical presentations, 19% met diagnostic criteria for alcohol abuse (9%) or dependence (10%), 98% met criteria for cannabis abuse (38%) or dependence (60%), 4% met criteria for cocaine abuse (3%) or dependence (1%), and 21% were abusing or dependent on two or more of these substances. Fifty-seven percent of the youths met diagnostic criteria for at least one co-occurring psychiatric disorder. The most prevalent externalizing disorders were conduct disorder (36%), oppositional defiant disorder (24%), and attention-deficit disorder of any type (9%). The most prevalent internalizing disorders were specific phobias (14%), major depression (6%), and obsessive-compulsive disorder (4%).
Comparability of Groups at Pretreatment

Between-groups comparisons for each of the aforementioned demographic and psychosocial variables were examined using chi-square tests and analyses of variance (ANOVA)s. No between-groups differences emerged for the demographic measures. For the psychosocial measures, significant T1 between-groups differences emerged for reported alcohol use, \( F(3, 157) = 4.26, p = .006 \), and polydrug use, \( F(3, 157) = 3.81, p = .011 \), on the Form 90. Youths in the DC/MST/CM condition reported significantly more alcohol use than did their DC and DC/MST counterparts (ps < .038) as well as more polydrug use than youths in the DC condition (\( p = .035 \)) at pretreatment. Examination of individual records showed that, by chance, the five youths in the project reporting the most frequent use of alcohol at T1 had been randomized to the DC/MST/CM condition.

Follow-Up Rates and Missing Data

Follow-up rates and missing data varied with the nature of the measure. Follow-up was 100% (\( N = 161 \)) for archival measures of arrest and criminal justice placements across all treatment conditions as well as for urine drug screens for youths in the three drug court treatment conditions. Regarding self-report measures, of the original 161 families consenting to participate, 6 (3.7%) did not participate in the T2 assessment, and 24 (14.9%) did not participate in the T3 assessment. One hundred thirty-five families (83.9%) participated in all three assessments. Because families could participate in an assessment without completing all measures, the amount of missing data varies slightly from outcome to outcome. Attrition on these measures was evenly distributed across treatment conditions. For example, 79% of FC, 82% of DC, 76% of DC/MST, and 86% of DC/MST/CM youths completed the Form 90 at all assessment points. The primary reasons for research attrition included a lack of family responsiveness when the youth was in detention and frequent family moves. In no cases were available data excluded from the analyses (described subsequently) because a participant dropped out of treatment, failed to complete a specified number of sessions, or did not otherwise collaborate with the requirements of the treatment condition to which he or she was assigned. As depicted in Figure 1 and detailed in Table 1, the archival and drug screen analyses examined outcomes for all participants, and the analyses of self-report measures used listwise deletion of missing data.

Treatment Fidelity

Caregiver ratings. A mean of 2.8 (SD = 1.4) adherence measures were collected per caregiver, and scores were averaged within caregivers for the following analyses. As anticipated, the MST treatment conditions did not differ from each other on the MST fidelity measure. Likewise, and as expected, FC and DC conditions did not differ from each other on the MST fidelity measure. As also anticipated, the MST conditions differed significantly from the DC, \( t(103) = 6.44, p < .001 \) (one-tailed), \( d = 1.26 \), and FC, \( t(99) = 7.28, p < .001 \) (one-tailed), \( d = 1.45 \), conditions on MST adherence. These findings support the view that therapists in the MST conditions were more likely to be delivering MST than were counterparts in the DC and FC conditions.

The second set of fidelity evaluations pertained to the CM adherence measure, and results showed clear differentiation among the treatment conditions. As expected in light of the drug court emphasis on substance testing and consequences, CM implementation scores were significantly higher for youths in the DC condition in comparison with counterparts in the FC condition, \( t(99) = 3.04, p = .002 \) (one-tailed), \( d = .83 \). Moreover, scores were significantly higher in the MST conditions than in the DC condition, \( t(103) = 5.85, p < .001 \) (one-tailed), \( d = 1.18 \), and CM scores were significantly higher for youths receiving DC/MST/CM than for youths receiving DC/MST, \( t(74) = 2.09, p = .02 \) (one-tailed), \( d = .48 \). These findings support the view that drug court focused significantly greater attention on monitoring and consequenting adolescent drug use than did family court, that MST significantly enhanced the capability of drug court to monitor and provide consequences for drug court, and that the integration of the CM protocol into MST (i.e., DC/MST/CM) further enhanced this capability.

Intensity of treatment services. A review of mean number of contact hours supports the fidelity of services delivered in the MST

---

**Figure 1.** Participant flow diagram.
Youths in the DC/MST and DC/MST/CM conditions averaged 66 hr (SD = 32 hr) and 57 hr (SD = 30 hr), respectively, of direct (i.e., face-to-face meetings with any family member present) or indirect (i.e., phone contacts, school visits without youth or caregiver present) treatment over 4 months. Across the MST conditions, approximately half the hours were with multiple family members exclusively, 13% involved school personnel, 5% focused directly on peer interactions, 14% were with the youth individually, and 19% involved other community resources (e.g., church, neighbors, court personnel). The intensity and systemic emphases of these contacts is consistent with that delivered in other MST clinical trials with juvenile offenders. Additionally, in

<table>
<thead>
<tr>
<th>Assessment</th>
<th>FC</th>
<th>DC</th>
<th>DC/MST</th>
<th>DC/MST/CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form 90a</td>
<td>n = 33</td>
<td>n = 31</td>
<td>n = 29</td>
<td>n = 37</td>
</tr>
<tr>
<td>Alcohol</td>
<td>1.91, 3.27</td>
<td>1.16, 1.59</td>
<td>1.28, 3.34</td>
<td>7.86, 16.30</td>
</tr>
<tr>
<td>T1</td>
<td>1.07, 1.34</td>
<td>0.51, 1.09</td>
<td>0.55, 2.41</td>
<td>4.32, 13.10</td>
</tr>
<tr>
<td>T2</td>
<td>1.21, 4.74</td>
<td>0.58, 2.51</td>
<td>0.24, 0.58</td>
<td>3.00, 0.88</td>
</tr>
<tr>
<td>T3</td>
<td>2.70, 6.56</td>
<td>1.32, 4.50</td>
<td>0.10, 0.41</td>
<td>0.19, 0.57</td>
</tr>
<tr>
<td>Heavy alcohol</td>
<td>6.06, 16.62</td>
<td>1.48, 4.82</td>
<td>1.55, 7.23</td>
<td>0.30, 0.78</td>
</tr>
<tr>
<td>Drug screensb</td>
<td>n = 35, 27</td>
<td>n = 38, 29</td>
<td>n = 42, 38</td>
<td></td>
</tr>
<tr>
<td>T1–T2</td>
<td>69.5, 30.8</td>
<td>28.1, 29.0</td>
<td>18.0, 17.7</td>
<td>40.47, 14.12***</td>
</tr>
<tr>
<td>T2–T3</td>
<td>44.8, 40.8</td>
<td>7.0, 10.2</td>
<td>17.3, 24.7</td>
<td>14.12***</td>
</tr>
<tr>
<td>Self-Report Delinquency Scalec</td>
<td>n = 32</td>
<td>n = 29</td>
<td>n = 29</td>
<td>n = 37</td>
</tr>
<tr>
<td>Status offenses</td>
<td>7.8, 6.3</td>
<td>8.6, 10.6</td>
<td>15.4, 23.2</td>
<td>13.9, 22.6</td>
</tr>
<tr>
<td>General theft</td>
<td>6.9, 11.0</td>
<td>4.4, 7.4</td>
<td>3.5, 4.7</td>
<td>8.2, 19.0</td>
</tr>
<tr>
<td>Crimes against persons</td>
<td>16.8, 38.8</td>
<td>1.4, 2.4</td>
<td>2.6, 5.8</td>
<td>3.5, 6.4</td>
</tr>
<tr>
<td>Arrestse</td>
<td>n = 42</td>
<td>n = 38</td>
<td>n = 38</td>
<td>n = 43</td>
</tr>
<tr>
<td>CBCLf</td>
<td>1.00, 1.15</td>
<td>1.45, 1.35</td>
<td>1.40, 1.52</td>
<td>1.28, 1.44</td>
</tr>
<tr>
<td>T1</td>
<td>59.1, 12.7</td>
<td>57.9, 11.2</td>
<td>57.8, 15.2</td>
<td>61.4, 8.5</td>
</tr>
<tr>
<td>T2</td>
<td>55.7, 13.7</td>
<td>56.1, 14.0</td>
<td>53.4, 13.7</td>
<td>52.4, 11.6</td>
</tr>
<tr>
<td>T3</td>
<td>51.7, 12.0</td>
<td>51.1, 11.2</td>
<td>50.5, 14.9</td>
<td>52.2, 13.3</td>
</tr>
<tr>
<td>Days in placemente</td>
<td>n = 42</td>
<td>n = 38</td>
<td>n = 38</td>
<td>n = 43</td>
</tr>
<tr>
<td>T1–T3</td>
<td>76, 123</td>
<td>95, 114</td>
<td>67, 127</td>
<td>60, 85</td>
</tr>
</tbody>
</table>

Note. Within an assessment session, means with no subscripts and those that share the same subscript do not differ. Means with nonoverlapping subscripts differ at p < .05 or better. Analyses on T2 and T3 have covaried the T1 scores. FC = family court with community services; DC = drug court with community services; DC/MST = drug court with multisystemic therapy; DC/MST/CM = drug court with multisystemic therapy and contingency management; T1 = pretreatment assessment; T2 = 4-month assessment; T3 = 12-month assessment; CBCL = Child Behavior Checklist.

a Days of use during past 90 days. n = 130.
b Percentage of screens positive for cannabis. T1–T2 n = 115 and T2–T3 n = 94. For drug screens subsample sizes, the first value refers to T1–T2, and the second value refers to T2–T3.
c Crimes committed during past 90 days. n = 127.
d Repeated measures analysis of variance F.
e n = 161.
f T score for caregiver reports. n = 120.
* p < .05. ** p < .01. *** p < .001.
support of the 12-month program requirements of the juvenile drug court, the MST therapists averaged approximately 2 hr of family contact per month for the remainder of the time the youth was in drug court. Unfortunately, the unreliability of the record-keeping systems for the community services conditions (FC and DC) did not allow an accurate determination of the number of hours of services received. Our impressions, however, are that (a) youths in the FC condition received fewer hours of service than did their DC counterparts, and (b) youths in the DC condition received fewer hours of service than did counterparts in the MST conditions.

Overview of Outcome Analyses

Treatment effects. The outcome analyses used the intent-to-treat strategy described previously and were guided by the layered strategy used by Waldron, Slesnick, Turner, Brody, and Peterson (2001) in their similarly designed (i.e., 4 treatment conditions, 3 time points) randomized trial of treatment for adolescent substance abuse. First, when multiple related measures were tapped (e.g., Form 90, SRD), a 4 (treatment condition: FC, DC, DC/MST, DC/MST/CM) × 3 (time: pretreatment, 4 months, 12 months) doubly multivariate repeated measures ANOVA (RMANOVA) was conducted. Second, if a significant interaction was observed for the RMANOVA, 4 (treatment condition) × 3 (time) repeated measures ANOVAs were conducted on each measure to examine treatment group differences in both linear and quadratic effects of time. Quadratic effects were examined because other MST studies (Henggeler et al., 2003) and clinical trials in children’s mental health (e.g., Weersing & Weisz, 2002) have found nonlinear changes in symptom trajectories. Third, if a significant interaction effect was observed, simple main effects analyses were conducted to examine the effect of time in each of the four treatment conditions. Fourth, if a simple main effect for time emerged, significant differences between time points were identified by comparing each pair of the estimated marginal means between T1, T2, and T3 follow-up for that treatment condition. Following Waldron et al. (2001), univariate ANOVAs separate from the aforementioned multilayered strategy were conducted for all measures on both T2 and T3 scores, with T1 scores covaried. Significant effects for treatment conditions were identified by examining differences between each pair of estimated marginal means. Results of these analyses are presented in Table 1.

Effect sizes (ESs). Treatment ESs for outcomes measured at T2 and T3 were calculated according to the method described in Morris and DeShon (2002). First, the within-group ES was calculated for each condition as the difference between the T2 (or T3) mean and the T1 mean divided by the T1 standard deviation. The resulting ESs for DC, DC/MST, and DC/MST/CM were then subtracted from the ES for FC to yield time-adjusted treatment ESs. For outcomes defined by change between time points (i.e., arrests, urine drug screens, and days in placement), ESs were computed as the difference between conditions at T2 (or T3) divided by the pooled standard deviation. The ESs are presented in Table 2 and support the following text, which describes the treatment effects.

Alcohol and Drug Use Outcomes

Form 90. As shown in Table 1, the RMANOVA Group × Time interaction effect was significant, \( F(24, 870) = 1.53, p = .049 \), as were each of the subsequent univariate linear interaction effects for alcohol use, heavy alcohol use, marijuana use, and polydrug use, \( F_{(3,126)} = 2.66, p < .051 \). The evaluation of simple main effects and treatment effects within the two follow-up periods revealed an interesting pattern that is discussed by measure.

For alcohol use, significant time simple linear and quadratic effects were observed only for youths in the DC/MST/CM condition. A priori comparisons showed that self-reported alcohol use decreased significantly from T1 to T2 (\( p = .009 \)) and that such decrease was sustained at the 12-month follow-up (i.e., T1–T3; \( p = .038 \)). At T2, controlling for T1 scores, youths in the DC and DC/MST/CM conditions reported significantly less alcohol use than counterparts in the FC condition (\( ps < .035 \)). At T3, controlling for T1 scores, youths in the DC/MST/CM condition continued to report significantly less alcohol use than counterparts in the FC condition (\( p = .013 \)). Together, these findings suggest that DC/MST/CM was relatively effective at
decreasing youth alcohol use, especially when compared with youths who were not enrolled in drug court.

For heavy alcohol use, despite a significant linear treatment effect as noted earlier, none of the groups showed a significant time simple linear or quadratic effect. At T3, however, controlling for T1 scores, youths in the DC/MST and DC/MST/CM conditions reported significantly less heavy alcohol use than did their counterparts in the FC condition.

For marijuana use, significant simple linear time effects were observed for each of the four treatment conditions \((F_s > 6.62, ps < .015)\), and significant simple quadratic time effects were observed for the DC, DC/MST, and DC/MST/CM conditions \((F_s > 10.49, ps < .003)\). In general, the quadratic effects showed that marijuana use decreased rapidly to T2 and then either leveled off or increased slightly to T3. A priori comparisons showed that self-reported marijuana use decreased significantly from T1 to T2 for youths in each treatment condition \((ps < .013)\) and that these decreases were sustained for youths in each treatment condition from T1 to T3 \((ps < .015)\). At T2, controlling for T1 scores, significant between-groups differences did not emerge. At T3, however, controlling for T1 scores, youths in the DC/MST and DC/MST/CM conditions reported less marijuana use than FC counterparts. Together, these results suggest that marijuana use decreased considerably for youths across treatment conditions from T1 to T2 but that use of the evidence-based interventions was more likely to sustain the decrease in marijuana use at T3.

For polydrug use, significant simple quadratic time effects were observed for each of the three interventions involved with juvenile drug court \((F_s > 4.69, ps < .039)\), and a simple linear time effect was observed for youths in the DC/MST/CM condition, \(F(1, 36) = 6.67, p = .014\). The groups did not differ significantly at T2, controlling for T1 scores. At T3, however, controlling for T1 scores, youths in the DC/MST and DC/MST/CM conditions reported significantly less polydrug use than did FC counterparts \((ps < .012)\). Together, these results suggest that drug court was more effective than community services at decreasing offender polydrug use and that the evidence-based practices effectively sustained these changes to T3.

To facilitate representation of the relatively complex findings from the Form 90, Figure 2 presents an aggregate view of the outcomes. Scores for each of the four measures were standardized and then averaged for each of the treatment conditions at each time point. This figure depicts the relative advantage of the drug court conditions over FC as well as the capacity of the evidence-based conditions to enhance drug court outcomes.

Consistent with the between-groups differences in days of substance use described previously, the ESs provided in Table 2 show relatively strong and positive ESs for youths in the drug court conditions.
conditions (i.e., DC, DC/MST, DC/MST/CM) in comparison with FC counterparts, especially at T3. ESs for alcohol, heavy alcohol, and polydrug use at T3, for example, were almost all greater than 1.00. Moreover, the evidence-based conditions showed larger ESs than did the DC condition on each of the substance use measures at T3.

Drug urine screens. A mean of 22.3 drug urine screens \((SD = 13.4)\) were collected for youths across the three drug court conditions (i.e., DC, DC/MST, DC/MST/CM). In light of the low base rate of positive screens for cocaine (e.g., 1.3% of screens were positive from T1 to T3) and amphetamines, analyses of the more than 2,000 drug urine screens focus solely on cannabis use. As shown in Table 1, for the first 4 months of drug court, equivalent to T1–T2, a significant between-groups difference emerged for youths’ percentage of positive drug screens, \(F(2, 112) = 40.47, p = .001\). Post hoc analyses showed that youths in the DC/MST and DC/MST/CM conditions had significantly lower percentages of positive drug screens than did their DC counterparts \((ps < .001); \text{DC} = 69\%, \text{DC/MST} = 28\%, \text{DC/MST/CM} = 18\%\). Similar between-groups differences emerged for youths’ percentage of positive drug screens collected during the time from T2 to T3, \(F(2, 91) = 14.12, p = .001\). Again, post hoc analyses showed that youths in the DC/MST and DC/MST/CM conditions had significantly lower percentages of positive drug screens than did their DC counterparts \((ps < .001); \text{DC} = 45\%, \text{DC/MST} = 7\%, \text{DC/MST/CM} = 17\%\). The ESs provided in Table 2 parallel these between-groups differences. In comparison with DC youths, counterparts in the DC/MST and DC/MST/CM conditions had very large ESs at T2 (1.38 and 2.05, respectively), and these remained large at T3 (1.27 and .82, respectively).

Criminal Behavior and Mental Health Symptom Outcomes

**SRD.** The RMANOVA Group × Time interaction effect was significant, \(F(18, 738) = 1.84, p = .019\), as shown in Table 1. A significant univariate linear interaction effect was observed for status offenses, \(F(3, 123) = 4.35, p = .006\), and a significant univariate quadratic interaction effect was observed for crimes against the person, \(F(3, 123) = 4.12, p = .008\). A significant interaction effect did not emerge for general theft.

For status offenses, significant time simple linear effects emerged for each of the drug court treatments (i.e., DC, DC/MST, DC/MST/CM; \(Fs > 6.98, ps < .012\)), and a significant simple quadratic effect was observed for the DC/MST condition, \(F(1, 28) = 6.68, p = .015\). A priori comparisons showed that self-reported status offenses decreased significantly from T1 to T2 for youths in the DC/MST condition \((p < .009)\) and from T1 to T3 for youths in each of the treatments involving drug court \((ps < .012)\). At T3, controlling for T1 scores, youths in the DC, DC/MST, and DC/MST/CM conditions reported significantly fewer status offenses than did their DC counterparts \((ps < .004)\).

For crimes against the person, significant time simple linear effects emerged for the DC and DC/MST/CM conditions \((Fs > 9.92, ps < .004)\), and a significant time simple quadratic effect was observed for the FC condition, \(F(1, 31) = 6.95, p = .013\). A priori comparisons showed that self-reported crimes against the person decreased significantly from T1 to T3 for youths in the DC and DC/MST/CM conditions \((ps < .004)\). Accounting for the quadratic effect, youths in the FC condition showed a significant decrease from T1 to T2 \((p = .025)\) and then showed a substantial increase in self-reported crime. At T3, controlling for T1 scores, youths in the DC and DC/MST/CM conditions reported significantly fewer crimes against the person than did counterparts in the FC condition \((ps < .029)\).

To facilitate representation of the SRD outcomes, the general delinquency score of the SRD (this is a summary score) is graphed by treatment condition in Figure 3. This figure depicts the relative advantage of the drug court conditions over FC in decreasing reported criminal activity by T3. For example, youths in the FC condition reported an average of about 50 crimes during the past 90 days, whereas youths in the drug court conditions averaged fewer than 20.

ESs shown in Table 2 reflect the between-groups differences described previously for status offenses and crimes against persons. In comparison with counterparts in the FC condition, youths in the drug court conditions had very large ESs for status offenses at T3 (i.e., approximately 2.00) and medium ESs for crimes against persons—averaging approximately .50.

**Arrests.** As shown in Table 1, analyses revealed no between-groups differences in the average number of arrests for youths across the treatment conditions or for the percentage of youths arrested within the conditions from T1 to T3. Across conditions, youths averaged 1.3 arrests \((SD = 1.4)\), and 62% were arrested between T1 and T3. Reflecting the nonsignificantly higher average number of rearrests for youths in the drug court conditions compared with FC youths, the ESs in Table 2 are negative for the youths in the drug court conditions.

**Mental health symptoms.** The analysis focused on the caregiver CBCL reports, as the \(T\) score for youth reports for the total problem scale was almost exactly at the mean for the normative sample. As seen in Table 1, significant effects were not observed for maternal reports on the CBCL total problem scale. At T2, controlling for T1 scores, youths in the DC/MST/CM condition had significantly fewer symptoms than counterparts in the FC and DC conditions \((ps < .032)\), but group means were equivalent at T3. These differences, or lack of differences, are reflected in the near-zero ESs for youths in the DC and MST conditions (see Table 2), whereas DC/MST/CM counterparts had ESs of .79 at T2 and .50 at T3 in comparison with youths in the FC condition.

**Service System Outcomes**

**Drug court completion.** Youths in the MST conditions were more likely to have graduated from drug court than were their DC counterparts (45% vs. 28%), \(\chi^2(1, N = 121) = 3.16, p = .038\).

**Out-of-home placements.** As shown in Table 1, across treatment conditions, youths spent an average of more than 2 months \((i.e., 76\) days) in out-of-home placements, and 64% of these days were in correctional settings. Although the average number of days in placement did not differ significantly for youths across the treatment conditions (see near-zero ESs in Table 2), the percentages of youths placed differed significantly, \(\chi^2(3, N = 161) = 10.33, p = .016\). Youths in the FC condition had the lowest rate of placement (55%), and youths in the DC condition had the highest rate (87%). FC youths were significantly less likely to get placed than their DC, \(\chi^2(1, N = 80) = 7.61, p = .006\), and DC/MST/CM, \(\chi^2(1, N = 85) = 4.45, p = .035\), counterparts. Hence, being in drug court, even while receiving a family based
treatment, was associated with increased use of out-of-home placement. Triggers for out-of-home placement for youths in the drug court conditions included, in order of priority, dirty drug screens, school related behavior problems (e.g., fighting, weapons, truancy), home behavior (e.g., curfew violations, incorrigibility, run-away), and new DJJ charges. In light of the frequent court appearances of youths in the juvenile drug court conditions, judges in the juvenile drug court condition, compared with their family court counterparts, had much greater awareness of the occurrence of youths’ behaviors that triggered placement.

Discussion

The overriding purpose of this study was to examine the effectiveness of juvenile drug court for youths meeting diagnostic criteria for substance abuse or dependence and to determine whether the integration of evidence-based practices enhanced the outcomes of juvenile drug court. In general, but certainly subject to debate, the findings support the view that drug court was more effective than family court services in decreasing rates of adolescent criminal and substance use behavior. Possibly due to the greatly increased surveillance of youths in drug court, however, these relative reductions in antisocial behavior did not translate to corresponding decreases in rearrest or incarceration. A second set of findings pertains to the capacity of the evidence-based practices, MST and MST/CM, to enhance drug court outcomes. Here, the findings support the view that use of evidence-based treatments within the drug court context improved youth substance-related outcomes. When embedded within juvenile drug court, however, the well-documented capacity of MST to reduce rearrest rates and out-of-home placements (Curtis, Ronan, & Borduin, 2004) did not emerge. Findings from the different outcome domains and their corresponding interpretations and implications are discussed next.

Arguably, the number one priority of a juvenile drug court is to reduce adolescent substance use. In this regard, the Form 90 analyses suggest that MST/CM, and to a lesser extent MST, combined with drug court were effective at decreasing youth alcohol, heavy alcohol, marijuana, and polydrug use in comparison with FC. Evidence also emerged that DC was more effective than FC at decreasing youth alcohol and polydrug use. Moreover, although youths in the DC/MST and DC/MST/CM conditions frequently reported better outcomes than did FC counterparts, in no comparison did DC/MST or DC/MST/CM produce outcomes superior to DC for the self-report measures. In consideration of these outcomes and the corresponding ESs, it seems reasonable to contend that DC was more effective than FC at reducing youth substance use, DC/MST was slightly more effective than DC, and

![Figure 3. The general delinquency score of the Self-Report Delinquency Scale as functions of treatment condition and assessment time point. T1 = pretreatment assessment; T2 = 4-month assessment; T3 = 12-month assessment; FC = family court with community services; DC = drug court with community services; DC/MST = drug court with multisystemic therapy; DC/MST/CM = drug court with multisystemic therapy and contingency management.](image-url)
DC/MST/CM was slightly more effective than DC/MST. This view is supported, in part, by the findings from the drug urine screens. Here, the MST conditions were shown to be considerably more effective than DC at decreasing cannabis use during both the early and latter stages of drug court. In addition, though not significant, youths in the DC/MST/CM condition averaged fewer positive screens than did their DC/MST counterparts (18% vs. 28%) during the initial 4 months of drug court when these treatments were being delivered.

Although outcome results for criminal behavior varied by the nature of measurement, we contend that the findings support the capacity of juvenile drug court to decrease the criminal activity of the participants. Self-report measures showed, in general, that youths in the drug court conditions (i.e., DC, DC/MST, DC/MST/CM) engaged in significantly fewer status offenses and crimes against the person during the course of the assessment period than did their FC counterparts (see Figure 3). On the other hand, arrest data showed no between-groups differences. In light of the fact that the SRD is generally regarded as one of the best-validated measures of delinquent behavior (Howell, 2003), and the validity of arrest is apparent, how can these findings be reconciled? Although certainly not definitive, we suggest that the arrest (and placement) rates were inflated for youths in the drug court conditions by the intensive surveillance provided to these youths through frequent judicial review during drug court sessions in which urine screens were collected and youth behavior at home, at school, and in the community was closely tracked. In contrast, youths in the FC condition had rare appearances before a judge as well as much less surveillance and accountability for their behavior. The hypothesis that increased surveillance resulted in an increased probability of being arrested, in spite of the decreased self-reported criminal behavior for youths in the drug court conditions, is supported by the literature on intensive supervision (Altschuler, Armstrong, & MacKenzie, 1999). For example, in a well-controlled study, Land, McCall, and Williams (1990) found that intensive supervision of youths with prior delinquent offenses almost doubled their rate of rearrest. In the present sample, in which youths averaged 3.6 prior arrests and reported an average of 40 criminal acts in the 90 days preceding the pretreatment assessment, the increased surveillance of drug court, therefore, was more likely to detect subsequent criminal behavior even though such behavior was occurring at a lower rate than for FC counterparts.

Youths in the drug court conditions experienced very high rates of out-of-home placement (i.e., 87% for DC, 71% for DC/MST, and 74% for DC/MST/CM vs. 55% for FC), although treatment conditions did not differ for average days in placement. The high rates of out-of-home placement for youths in drug court were most likely the product of two circumstances. First, the intensive and continuous surveillance experienced by drug court participants regarding drug use and any problem behavior in the community (e.g., dirty drug screens, school problems, problems at home, treatment attendance), as suggested previously, likely increased the chance that difficulties would be identified. Second, although drug court personnel emphasized a strength-focused approach, clear sanctions (e.g., placement) for repeated youth problems were readily available to the court. In contrast with FC youths, who might present significant problems over an extended period of time without detection by juvenile justice authorities, youths in drug court had no such grace.

In addition, the high rates of out-of-home placement for youths in the drug court conditions raises the possibility that the favorable results for self-reported substance use and delinquency for these youths in comparison with FC counterparts might have resulted from their removal from the community (i.e., such removal might have acted as an effective punishment). To test this hypothesis, youths in the drug court conditions (DC, DC/MST, DC/MST/CM) were divided into two groups, those that had been sent to placements and those who had not, and t tests were conducted on the self-reported substance use (Form 90) and criminal behavior (SRD) measures at T2 and T3. Five of the 14 comparisons showed significant results opposite of predictions based on the aforementioned possibility (i.e., youths sent to placements reported worse outcomes), and the other comparisons showed no between-groups differences. These results are consistent with the fact that problem behavior is often a precipitant of placement as well as the lack of evidence supporting the effectiveness of placements for juvenile offenders (U.S. Public Health Service, 2001).

The CBCL findings did not reveal treatment effects (i.e., significant Condition × Time interaction effect) and showed that caregiver reported symptomatology decreased to normative levels for youths across the four treatment conditions. Evidence emerged, however, that youths in the DC/MST/CM condition evidenced a more rapid short-term decrease in symptoms than did FC and DC counterparts but that symptom levels were decreased and similar for all groups at T3. This differential trajectory of symptom change is similar to that observed in an MST trial with youths presenting psychiatric crises (Henggeler et al., 2003) and is consistent with the pattern described by Weersing and Weisz (2002) in their study comparing the effectiveness of community psychotherapy for depressed youths with findings from cognitive–behavioral efficacy trials. That is, the evidence-based treatments (i.e., MST and cognitive–behavioral treatment) produced more rapid symptom reduction, but symptom scores converged with comparison and community samples by about 12 months posttreatment.

Clinical and Policy Implications

The findings have several clinical and policy implications. First, the generally favorable outcomes for the DC condition support the viability of the juvenile drug court model. Such support is heartening in light of the considerable resources that federal, state, and local entities have devoted to the development and implementation of juvenile drug courts. Second, the findings support the capacity of evidence-based treatments of adolescent substance abuse to enhance juvenile drug court outcomes pertaining to substance use. A key issue in this regard, however, is whether such enhanced substance-related outcomes are cost-effective—worth the expense of integrating an evidence-based treatment into drug court. An economic evaluation of this project is currently being conducted to address this issue. Third, across published MST outcome studies, the average ESs for reductions in rearrest and incarceration have been greater than .50 (Curtis et al., 2004). Yet, the MST conditions showed no such effects in comparison with FC in the present study. As this was the first controlled MST study to include an intensive juvenile justice surveillance component, the findings suggest that certain types of favorable MST outcomes might not be
realized within such a context, in spite of the best efforts of the MST therapists. Fourth, although not statistically significant, the substance-related findings, along with anecdotal reports from the MST/CM therapists and supervisor, suggest that the integration of CM into the more ecologically oriented MST treatment protocol (DC/MST/CM) was a valuable addition.

Limitations

Several limitations should be noted. First, implementation of the guiding principles for juvenile drug courts likely varies from site to site. Hence, the generalization (external validity) of the favorable juvenile drug court findings to other juvenile drug courts cannot be assumed. Second, the timing of the assessments might have favored certain treatment conditions. For example, the 4-month assessment coincided with the approximate completion of MST. The most favorable intervention effects for the MST conditions, however, emerged at 12 months rather than at 4 months, which argues against the outcomes being unfairly influenced by the timing of the assessments in this case. A third and related concern, however, is that the study did not include a follow-up. The 12-month assessment coincided with the completion of drug court for the youths in the three drug court conditions. Consequently, the better performance on self-reported substance use for these drug court youths in comparison with FC youths might have been due to the fact that with a 12-month duration of drug court, the drug court youths were continuing to be tested regularly for drugs. Hence, the sustainability of the favorable drug court outcomes has not been determined, and the timing of the 12-month assessment might have favored the drug court conditions. Perhaps these outcomes will attenuate as youths are no longer under drug court supervision. It is also possible, however, that the drug court outcomes for rearrest and incarceration will improve after intensive surveillance of the youths has been removed. Fortunately, these outcomes are being examined in a long-term (5-year) follow-up of the youths and families participating in this project. Fourth, the present study was part efficacy trial (e.g., therapists employed by the research center, excellent supervision) and part effectiveness trial (e.g., minimal exclusion criteria, implementation in community settings). As such, one cannot assume that the favorable results for DC/MST and DC/MST/CM will easily transport to other community-based settings (Henggeler, 2004). Fifth, although RMANOVA, followed by a multistep process, provided some control for Type I error, more conservative procedures were not used in light of the early stage of research in this area. Thus, Type I error is likely inflated. Sixth, resources were not available to conduct frequent drug urine screens for youths in the FC condition. Hence, the corresponding outcomes for the FC youths could not be compared with those of the youths in the drug court conditions. The aforementioned 5-year follow-up study, however, is collecting biological indices of substance use for youths across all the treatment conditions.

References


Henggeler, S. W., & Borduin, C. M. (1992). Multisystemic Therapy Adherence Scales. Unpublished instrument, Medical University of South Carolina, Department of Psychiatry and Behavioral Sciences, Charleston.


