

CRITICAL COMPONENTS OF ADOLESCENT SUBSTANCE USE TREATMENT PROGRAMS— THE IMPACT OF *JUVENILE DRUG COURT: STRATEGIES IN PRACTICE* AND ELEMENTS OF RECLAIMING FUTURES

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Many youth with substance use problems receive substance use treatment via intensive outpatient programs and juvenile drug courts. These programs strive to provide effective treatment for substance use and related problems, such as criminal behavior. This study analyzed data from the National Cross-Site Evaluation of Juvenile Drug Courts and Reclaiming Futures to identify critical components of adolescent substance use treatment programs—that is, program characteristics or components particularly related to a program’s effectiveness at improving client outcomes. Results indicate consensus in the field on critical components of adolescent substance use treatment programs, as evidenced by the overlap between program characteristics of Juvenile Drug Court: Strategies in Practice (JDC:SIP) and Reclaiming Futures (RF) and those of adolescent intensive outpatient substance use treatment programs. Results also identify multiple JDC:SIP and RF program characteristics that are related to positive client substance use and criminal activity outcomes, particularly among clients with greater substance use and criminal activity at program intake. Implications for practice in adolescent substance use treatment programs and juvenile drug courts are discussed.

MANY ADOLESCENTS with substance use disorders (SUD) receive substance use treatment as a result of their involvement in the juvenile justice system (Dennis, White, & Ives, 2009; Ives, Chan, Modiset, & Dennis, 2010), which often occurs because of their spe-

cific involvement in juvenile drug courts (JDCs). Current practice in many JDCs is to implement comprehensive, higher-level models—such as the Juvenile Drug Court: Strategies In Practice (JDC:SIP; National Drug Court Institute [NDCI] & National Council of Juvenile and Family Court Judges [NCJFCJ], 2003; NCJFCJ, 2014) and Reclaiming Futures (RF; reclaimingfutures.org)—to increase effectiveness and produce better outcomes for the youth they serve (see Dennis, Baumer, & Stevens, 2016 [this volume]).

The JDC:SIP and RF models share a number of program characteristics that they promote as important for client success (Table 1). However, regardless of this substantial overlap, recent research suggests that these models differ in their impact on JDC clients. A recent study (Moritz, Ives, & Dennis, 2013) compared JDCs that provided substance use treatment but did not implement RF to JDCs that implemented RF. Results showed that although both were effective in reducing substance use, crime, and emotional problems, JDCs that implemented RF performed better in terms of increasing the days of alcohol and drug abstinence at one year follow-up and reducing the number of crimes, but worse in terms of reducing emotional problems. This research highlights some of the benefits of JDCs and the advantages of using RF for reducing substance use and crime-related behavior in youth. While this research represents a significant advancement for the field, one of its primary limitations is that it does not examine the impact of specific JDC:SIP and RF program characteristics (e.g., utilization of gender-appropriate treatment) on client outcomes. Consequently, this research does not identify which of the JDC:SIP and RF program characteristics are critical to client success.

Adolescents also receive substance use treatment from outpatient substance use treatment programs that are not affiliated with JDCs. Data from the National Survey of Substance Abuse Treatment Services indicate that 78,156 adolescents presented to publicly funded substance use treatment facilities in 2013 (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). Like the originators of JDC:SIP and RF, administrators of adolescent outpatient programs strive to follow best practices based on current practice, experience, and research related to adolescent substance use treatment. Conse-

quently, JDC:SIP and RF program characteristics are also common to adolescent substance use programs that are not associated with JDCs. Research has shown that adolescent outpatient substance use programs result in reduced substance use (Garnick et al., 2012) and greater reductions in substance use compared to minimal treatment programs (Waldron & Turner, 2008). When compared to JDCs that provided substance use treatment, at six months postprogram intake, adolescent outpatient programs were found to be less effective at reducing days of substance use problems and emotional problems (Ives et al., 2010).

PROGRAM CHARACTERISTICS CONTRIBUTING TO SUCCESS OF JDCS AND ADOLESCENT SUBSTANCE USE PROGRAMS

Beyond knowing the overall effectiveness of JDC/RF, JDC-only (JDCs not implementing RF), and adolescent outpatient substance use treatment programs, it is important to identify the specific characteristics of these programs that contribute to client success or are the critical components of these programs. Emerging research has provided some evidence that specific JDC:SIP and RF program characteristics contribute to JDC and adolescent substance use treatment success. For example, effective screening and assessment is noted as providing the foundation for individually tailored treatment (Riggs, 2003) and enhanced outcomes (Henggeler, 2007). Furthermore, research suggests that the assessment process can engage the adolescent in treatment by helping him or her to recognize substance use and related problems (Drug Strategies, 2003). This engagement might then encourage treatment completion, which is the strongest predictor of continued sobriety and achieving better outcomes in youth with SUDs (Williams & Chang, 2000).

Emerging research suggests the importance of targeted treatment. It is critical that treatment approaches be tailored to the developmental stage and age of each youth (SAMHSA, 2013). Clinicians have come to the understanding that family involvement plays a significant role in treatment engagement and outcomes for both adolescent substance use treatment (Drug Strategies, 2003; Fradella, Fischer, Kleinpeter, &

Koob, 2009) and JDCs (Dakof et al., 2015; Stein, Deberard, & Homan, 2013). In addition, gender-specific treatment programs and services are effective in addressing specific needs of girls with substance use problems (Chesney-Lind, Morash, & Stevens, 2008; National Center on Addiction and Substance Abuse at Columbia University [CASA], 2003), and might reduce recidivism in delinquent girls (Office of Program Policy Analysis & Government Accountability, 2005). Culturally appropriate services might play a role in reducing racial and ethnic disparities in treatment program completion and in achievement of positive outcomes in minority youth (Alegria, Carson, Goncalves, & Keefe, 2011). Thus, emerging research has begun to identify the specific program characteristics that contribute to the success of JDCs, whether or not they implement RF, and other adolescent substance use treatment programs. However, more research is needed to clarify the mechanisms underlying this success.

STUDY PURPOSE AND HYPOTHESES

Utilizing data from the National Cross-Site Evaluation of Juvenile Drug Courts and Reclaiming Futures (JDC/RF National Evaluation; see Dennis, Baumer, & Stevens, 2016), this study aimed to identify critical components of adolescent substance use programs—specifically, characteristics that contribute to the success of program clients. To do so, this study first assessed the prevalence of the JDC:SIP and RF program characteristics, listed in Table 1, among adolescent substance use treatment programs. High prevalence would suggest that these program characteristics have been identified as critical components of adolescent substance use treatment programs by practitioners and scholars. Second, this study assessed the extent to which each JDC:SIP and RF program characteristic is related to improved substance use and criminal activity outcomes among clients of adolescent substance use treatment programs and, thus, the extent to which each program characteristic is critical to client success.

To identify critical components of adolescent substance use programs, this study examined the program characteristics and client outcomes of three types of adolescent substance use treatment programs:

TABLE 1 **PROGRAM CHARACTERISTICS BY TYPE OF PROGRAM**

Program Characteristic: JDC Strategy in Practice and/or RF Element	Mean				F (2,20)	p
	Total (N=23)	JDC/RF (n=8)	JDC-only (n=8)	IOP (n=7)		
Extent of engagement in each of the following						
All stakeholders were engaged in creating an interdisciplinary, coordinated, and systematic approach to working with youth and their families	4.04	4.00	4.13	4.00	0.12	.889
Frequent reviews of treatment plans were scheduled	4.47	4.38	4.72	4.29	0.91	.419
Interventions were tailored to the complex and varied needs of youth and their families	4.52	4.00	4.88 ^a	4.71 ^a	7.98	.003
A nonadversarial approach was used to address youth needs	4.69	4.50	4.75	4.84	1.11	.348
Treatment was appropriate to the developmental needs of adolescents	4.57	4.38	4.63	4.71	0.66	.528
Treatment was designed to address the unique needs of each gender	4.00	3.50	4.38	4.14	1.95	.168
The program focused on the strengths of youth and their families during program planning and in every interaction between treatment personnel and those they serve	4.39	4.13	4.50	4.57	1.35	.282
Family was recognized and engaged as a valued partner in all components of the program	4.12	3.75	4.30	4.36	1.41	.267
Program staff coordinated with the school system to make sure the youth enrolled in an appropriate educational program	4.04	4.00	4.38	3.71	0.78	.474
Policies and procedures were responsive to cultural differences	4.10	3.55	4.50	4.29	1.80	.191
Youth compliance was responded to with incentives designed to reinforce this behavior	4.13	3.75	4.63	4.00	1.38	.274

TABLE 1 | **PROGRAM CHARACTERISTICS BY TYPE OF PROGRAM (cont.)**

Program Characteristic: JDC Strategy in Practice and/or RF Element	Mean				<i>F</i> (2,20)	<i>p</i>
	Total (N=23)	JDC/RF (n=8)	JDC-only (n=8)	IOP (n=7)		
Extent of engagement in each of the following (cont.)						
Youth noncompliance was responded to with sanctions designed to modify this behavior	3.96	4.13	4.75	2.86 ^b	4.70	.021
Drug testing was frequent, random, and observed	4.45	4.75	4.88	3.62 ^b	4.42	.026
Extent to which each of the following was an important program objective						
Building partnerships with community organizations to expand the range of opportunities available to youth clients and their families	3.48	3.00	3.88 ^a	3.57	6.86	.005
Training personnel to be culturally competent	3.35	2.88	3.75 ^a	3.43	3.87	.038
Having confidentiality policy and procedures to guard the privacy of the youth while allowing treatment-related personnel to access key information	3.74	3.38	4.00 ^a	3.86 ^a	6.23	.008
Defining a target population and eligibility criteria that aligned with the program's goals and objectives	3.57	3.63	3.88	3.14 ^b	3.65	.045
Assuring that all clients received at least one service contact within 14 days of initial assessment	3.51	3.25	3.70	3.57	1.00	.386
Assuring that all clients received at least 3 treatment sessions within 30 days of initial assessment	3.36	3.00	3.63 ^a	3.48	3.49	.050
Assuring that all clients completed treatment	3.39	3.38	3.50	3.29	0.33	.723
Establishing a system of program monitoring and evaluation	3.61	3.25	3.88	3.71	2.89	.079
Having written drug testing procedures and policies	3.33	3.38	3.75	2.81	3.22	.062

TABLE 1 PROGRAM CHARACTERISTICS BY TYPE OF PROGRAM (cont.)

Program Characteristic: JDC Strategy in Practice and/or RF Element	Mean				<i>F</i> (2,20)	<i>p</i>
	Total (N=23)	JDC/RF (n=8)	JDC-only (n=8)	IOP (n=7)		
Extent to which each of the following was an important program objective (cont.)						
Having a group that met regularly to do staffings, to coordinate services, and/or to do treatment planning ^c						
Screening program clients for need using a reputable screening tool(s) ^c						
If the initial screening suggested possible substance abuse or mental health problems, fully assessing the youth for clinical need using a reputable assessment tool(s) ^c						
Having a clear definition of completion of the program ^c						

Note: Statistically significant results are in bold font. JDC/RF = Juvenile drug courts implementing *Juvenile Drug Court. Strategies in Practice* and Reclaiming Futures; JDC-only = Juvenile drug courts not implementing Reclaiming Futures; IOPs = Intensive outpatient programs.

^aDiffers statistically significantly from JDC/RF group. ^bDiffers statistically significantly from JDC-only group. ^cVirtually no variation across program; all or all but one of the sampled programs had each of these program characteristics, therefore, difference by type of program was not tested.

(1) JDC:SIP and RF (JDC/RF) programs, (2) JDCs implementing JDC:SIP and providing substance use treatment but not implementing RF (JDC-only programs), and (3) adolescent intensive outpatient substance use treatment programs (IOPs). IOPs—outpatient programs requiring nine or more hours of participation by the client per week—were selected for comparison to the JDCs because they require more time in a supervised environment than standard outpatient programs, making them somewhat more similar to JDCs.

We expected that the JDC:SIP and RF program characteristics would be prevalent in all adolescent substance use treatment programs. Because all of these programs were based on current practice,

experience, and research related to adolescent substance use treatment, we expected them all to be similar in their implementation of many of the JDC:SIP and RF program characteristics. Furthermore, because JDC:SIP and RF were additionally based on current practice, experience, and research related to JDCs, we expected that JDC/RF and JDC-only programs would be, overall, more similar to each other than to IOPs.

To examine the impact of JDC:SIP and RF program characteristics on substance use and criminal activity outcomes, we first examined whether outcomes improved as a result of participation in a substance use treatment program regardless of the type of program (JDC/RF, JDC-only, or IOP) and program characteristics (e.g., gender-appropriate treatment). Based on prior research, we expected that substance use and criminal behavior outcomes would improve from program intake (pre-program) to six months post-intake.

We next examined whether the JDC:SIP and RF program characteristics were associated with improved client substance use and criminal activity outcomes that were not already accounted for by differences across programs in the characteristics and behaviors of the clients they serve. When examining the program characteristics that impact client substance use and criminal activity outcomes, we considered characteristics and behaviors unique to the individual being treated that have an impact on whether a particular youth successfully completes substance use treatment and/or JDC: gender and ethnicity (Stein et al., 2013), co-occurring mental health problems (Blood & Cornwall, 1994; Vourakis, 2005; White et al., 2004), and environmental risk (Friedman, Glickman, & Morrissey, 1986; White et al., 2004). We expected analyses would identify those program characteristics particularly associated with improved substance use and criminal behavior outcomes that, consequently, are critical components of adolescent substance use treatment programs. Specifically, based on previous research findings, we expected that targeted treatment (e.g., treatment appropriate to the client's gender, culture, and stage of development), screening, and clinical assessment would be identified as critical components of adolescent substance use treatment programs.

METHODS

Participants

Twenty-three adolescent substance use treatment programs (eight JDC/RF programs, eight JDC-only programs, and seven IOPs) participated in this study. Across these programs, 28% of clients were female, 68% were of racial minority status, and 47% were of ethnic minority status (Table 2).

<div>TABLE 2</div> <div>CLIENT CHARACTERISTICS AND BEHAVIORS AT INTAKE BY TYPE OF PROGRAM</div>						
Client Characteristic or Behavior at Program Intake	Percentage or Mean				<i>F</i> (2,1754)	<i>p</i>
	All	JDC/RF	JDC-only	IOP		
Demographic						
Male	72%	75%	67% ^a	75% ^b	5.62	.004
Age	15.66	15.90	15.62 ^a	15.50 ^{a,b}	15.71	<.001
Racial minority	68%	62%	66%	74% ^{a,b}	9.52	<.001
Ethnic minority: Hispanic	47%	39%	48% ^a	53% ^a	9.87	<.001
Mental health problems	0.96	1.00	0.91	0.99	2.30	.101
Environmental risk	36.68	36.12	36.91	36.90	1.44	.236
Substance use and related problems						
Substance problems	2.90	2.84	2.52	3.41 ^a	9.48	<.001
Days using drugs or alcohol	34.58	32.66	33.86	37.13 ^a	3.09	.046
Criminal activity						
Illegal activity	11.63	11.37	11.96	11.47	0.41	.666
Number of crimes	33.70	38.72	32.94	30.22	1.55	.212

Note: Statistically significant results are in bold font. JDC/RF = Juvenile drug courts implementing the Juvenile Drug Court: Strategies in Practice and Reclaiming Futures; JDC-only = Juvenile drug courts not implementing Reclaiming Futures; IOPs = Intensive outpatient programs.

^aDiffers statistically significantly from JDC/RF group. ^bDiffers statistically significantly from JDC-only group.

Measures

Client Characteristics and Outcomes

Youth characteristics and outcomes were measured based on self-report interviews using the Global Appraisal of Individual Needs (GAIN; Dennis, Titus, White, Unsicker, & Hodgkins, 2003). The GAIN has been used in over 300 published studies and has normative data available for more than 43,000 adolescents entering substance use treatment throughout the United States (see Dennis et al., 2016). Due to its widespread use by SAMHSA, Center for Substance Abuse Treatment (CSAT), grantees, the same standardized GAIN client-level data were available from each of the 23 programs included in this study.

We selected four GAIN variables to represent outcomes highlighted in the drug court literature. Two typify substance use: self-reported number of the past 90 days clients used drugs or alcohol (days of substance use), and the GAIN Substance Problems Scale, which reflects how many (0–16) substance problems clients have experienced during the past 30 days. To represent criminal activity, we used the total number of property, drug, and violent/interpersonal crimes committed during the past 90 days (number of crimes) and the GAIN Illegal Activity Scale, which reflects recency and frequency of illegal activity on a scale of 0 to 100.

Client characteristics of gender, age, race, and ethnicity were assessed with single items. The measure of mental health problems indicates whether clients reported symptoms sufficient for a diagnosis of any of four internalizing disorders (e.g., mood disorder) and/or any of two externalizing disorders (e.g., conduct disorder). Clients were coded to reflect the number of different types of mental health problems they have: none (0), either internalizing or externalizing disorder (1), or both internalizing and externalizing disorders (2). Environmental risk was computed based on responses to 13 items assessing environmental risk from alcohol/drug use in the home, fighting, and/or victimization. Environmental risk scores can range from 0 to 100, with larger values reflecting greater risk.

Program Characteristics

To assess the extent to which the sample JDC/RF programs, JDC-only programs, and IOPs implemented JDC:SIP and RF program characteristics (Table 1), we used data collected through a survey created for the JDC/RF National Evaluation. This survey queried the extent to which the programs implemented each of 26 different JDC:SIP and RF program characteristics. As indicated in Table 1, survey respondents were asked to report the extent of engagement in each program characteristic (never [1] to always [5]) or the extent to which each program characteristic was an important objective of the program (not important [1] to essential [4]). Respondents were encouraged to refer to existing data sources and to speak with other staff employed during the grant-funded program period to provide the most accurate responses.

Procedure

This study analyzed data from the JDC/RF National Evaluation (see Dennis et al., 2016), which used existing GAIN data on client characteristics and behaviors. Per grant requirements and common practice, many OJJDP- and/or SAMHSA-funded JDC/RF programs, JDC-only programs, and IOPs have collected GAIN data from program clients, at least at program intake and six months post-intake.

The national evaluation research team selected a sample of eight of the JDC-only programs and eight of the IOPs for which GAIN data had been collected to be compared to the eight JDC/RF programs involved in the evaluation. This sample was randomly selected from SAMHSA-funded JDC-only programs and Assertive Adolescent and Family Treatment IOPs that ended no earlier than 2008 for which data were available in the combined 2012 GAIN Summary Analytic data sets.

A key program representative (e.g., program director) at each JDC/RF program, selected JDC-only program, and selected IOP was surveyed. To encourage participation, an honorarium of \$250 was offered to the JDC-only programs and IOPs. The JDC/RF sites otherwise benefited from participating in the national evaluation (e.g.,

were provided site-specific findings reports). Multiple follow-up contacts were made to encourage study participation. Surveys from 23 programs—8 from JDC/RF programs, 8 from JDC-only programs, and 7 from IOPs—were returned. With approval from the 23 programs, the research team obtained access to their client-level GAIN data from the data repository maintained by Chestnut Health Systems' GAIN Coordinating Center. Across all 23 programs, GAIN data were available for 2,610 clients, of which complete data (baseline and six-month follow-up) were available for 1,755 clients (67%).

Analysis

Analyses that examined the associations between JDC:SIP and RF program characteristics and improved client outcomes involved program-level data (i.e., program characteristics) and client-level data (e.g., client outcomes). Due to the multilevel nature of these data, we used hierarchical linear modeling (Raudenbush & Bryk, 2002) and HLM 7.01 software for these analyses.

To examine the effect of JDC:SIP and RF program characteristics on substance use and criminal activity outcomes at six months post-intake, we conducted a two-step analytical procedure. The first step was to conduct analyses that separately estimated the impact of each program characteristic on each outcome at six months post-intake, controlling statistically for the outcome (e.g., substance use) at program intake, which controls for the effect of prior behavior (e.g., substance use at intake) on later behavior (e.g., substance use six months later). Results of these analyses indicate the effect of a given program characteristic on the outcome that is not accounted for by differences across programs in clients' engagement in substance use or criminal behavior at intake.

The second step—conducted for only those program characteristics that had a statistically significant effect on the outcome at six months post-intake, as determined in the first step—was to repeat the analysis with additional statistical controls of numerous client characteristics at intake. For all the outcomes we examined, these client characteristics included gender, ethnicity, having a co-occurring mental health disorder, and environmental risk. For the criminal activity

outcomes, we additionally controlled statistically for substance problems at intake, as substance problems have been previously linked to higher levels of criminal activity (SAMHSA, 2011, 2013). Results of these analyses indicate the effect of a given program characteristic on the outcome that is not accounted for by differences across programs in clients' engagement in the outcome at intake or in these other client characteristics.

RESULTS

Program Client Characteristics and Behaviors

Statistics describing the characteristics and behaviors of clients of JDC/RF programs, JDC-only programs, and IOPs are displayed in Table 2. As indicated, the majority of youth served by all three types of programs were male (72%) and of racial minority status (68%). A substantial percentage (47%) was of ethnic minority status (Hispanic). On average, the youth served by these programs were 15 to 17 years old ($M = 15.66$). In comparison to the JDC/RF programs and IOPs, JDC-only programs served the most female youth (33%). On average, the JDC/RF programs served older youth ($M = 15.90$), more than did the JDC-only programs ($M = 15.62$) and IOPs ($M = 15.50$). IOPs served the most racial minority (74%) and ethnic minority (53%) youth.

Overall, the youth served by all three program types reported symptoms consistent with having one category of mental health problem (externalizing or internalizing), but not both, at program intake. In addition, on average, the youth served by these programs were experiencing high environmental risk at program intake ($M = 36.68$). These findings did not vary by type of program.

Based on normative scores (Garner, Godley, & Funk, 2008), the youth served by all three types of programs had intense substance problems ($M = 2.90$) at program intake. In addition, on average, these youth reported using drugs or alcohol during 34.58 of the 90 days prior to program intake. In comparison to clients of JDC/RF programs ($M = 2.84$) and JDC-only programs ($M = 2.52$), clients of IOPs reported the most substance problems at program intake ($M = 3.41$). In addition, the IOPs served, on average, youth with more recent days

using drugs or alcohol ($M = 37.13$) at program intake than JDC/RF programs ($M = 32.66$).

Overall, clients of all three program types reported frequent and recent engagement in criminal activity. Based on normative scores (White, 2005), they reported frequent and recent illegal activity ($M = 11.63$) and committing an average of 33.70 crimes during the year prior to intake; this also did not vary by type of program.

Prevalence of JDC:SIP and RF Program Characteristics in Adolescent Substance Use Treatment Programs

Results indicated that all the JDC:SIP and RF program characteristics were prevalent across all three types of adolescent substance use treatment programs and that this prevalence often did not vary by program type (Table 1). All the means were above the midpoint—with many on the high end—of the scales used to assess the extent of the implementation of these characteristics. In addition, 4 of the 26 program characteristics (15.4%) were implemented at nearly all of the programs, and 14 of the 26 (53.8%) program characteristics that varied by individual program did not vary by program type.

Only 8 (30.8%) of the 26 JDC:SIP and RF program characteristics varied by program type (Table 1). JDC/RF programs reported less frequently tailoring interventions to the needs of youth and families, and they placed less importance on confidentiality policies that protect the client's privacy than JDC-only programs and IOPs. The JDC/RF programs also placed less importance on building partnerships with community organizations, on training personnel to be culturally competent, and on assuring that all clients received at least three treatment sessions within 30 days of initial assessment compared to JDC-only programs. Compared to JDC-only programs, IOPs reported less frequently responding to youth noncompliance with sanctions designed to modify this behavior and less frequently utilizing drug testing that was frequent, random, and observed. IOPs also placed less importance on having a defined target population and eligibility criteria that aligned with program goals and objectives compared to JDC-only programs.

Overall Impact of Substance Use Program on Substance Use and Criminal Activity

On average, at six months post-intake compared to at intake, all clients had reduced substance problems and had committed fewer crimes ($B = 0.17$, $t[22] = 7.79$, $p < .001$ and $B = 0.03$, $t[22] = 3.38$, $p = .003$, respectively). However, clients who had relatively greater substance problems and criminality at intake experienced greater reductions than clients who had relatively less of these problems at intake. On average, clients who had 2 substance problems at intake were predicted to have 1.48 substance problems at six months post-intake, whereas clients who had 16 substance problems at intake were predicted to have 3.86 substance problems at six months post-intake. Similarly, on average, clients who had recently (within the past 90 days) committed 10 crimes at intake were predicted to have recently committed 2.37 crimes at six months post-intake, whereas clients who had recently committed 50 crimes at intake were predicted to have recently committed 3.57 crimes at six months post-intake.

In contrast, the pattern of the relationships between days of substance use and illegal activity at intake and the corresponding outcomes at six months post-intake was such that, on average, only the clients who engaged in relatively more of these behaviors at intake experienced reductions in these behaviors (substance use: $B = 0.20$, $t[22] = 5.94$, $p < .001$; illegal activity: $B = 0.24$, $t[22] = 6.73$, $p < .001$). On average, clients who had used substances during 3 of the 90 days prior to program intake were predicted to engage in 9.03 days of use within the 90 days prior to six months post-intake, whereas clients who had used substances during 90 of the 90 days prior to intake were predicted to engage in 26.43 days of use at six months post-intake. Likewise, on average, clients who had an illegal activity score (transformed to address the skewed distribution¹) of 1 at intake were predicted to have an illegal activity score of 2.35 at six months post-intake, whereas clients who had an illegal activity

¹ Because the distribution of illegal activity scores was somewhat skewed, a square root transformation was used to normalize the distribution for this and all other hierarchical linear modeling.

score of 10 at intake were predicted to have an illegal activity score of 4.51 at six months post-intake.

Impact of JDC:SIP and RF Program Characteristics on Substance Use and Criminal Activity

The impact of 4 of the 26 JDC:SIP and RF program characteristics on client outcomes could not be tested (Table 1). Because these characteristics lacked variation across the adolescent substance use treatment programs included in the sample, it is impossible to examine whether these characteristics affect client outcomes.

A number of the JDC:SIP and RF program characteristics that were examined were not found to have any impact on client outcomes, even when controlling statistically for the outcome at intake only (Table 3). Furthermore, four additional JDC:SIP and RF program characteristics examined were found to have an overall impact on client outcomes. However, final analyses indicated that these effects were no longer statistically significant when client characteristics and behaviors were controlled for statistically (e.g., gender; Table 3).

Nine JDC:SIP and RF program characteristics were found to impact client substance use and criminal activity even after controlling statistically for client characteristics and behavior.²

Substance Use Outcomes

Six JDC:SIP and RF program characteristics were statistically significantly related to improved substance use outcomes even when controlling for client-level characteristics and behaviors. Test statistics of statistically significant effects are shown in Table 4.

Defined target population and eligibility criteria—Results indicated that the effect of having defined target population and eligibility criteria on days of substance use at six months post-intake depended on client substance use at intake. This interaction effect indicated that

² Results on the effects of the client characteristics and behavior statistically controlled for in the analyses are available upon request.

TABLE 3	PROGRAM CHARACTERISTICS NOT FOUND TO HAVE AN IMPACT ON CLIENT SUBSTANCE USE AND CRIMINAL ACTIVITY OUTCOMES
Indication of Impact	Program Characteristic
No Detectable Impact When Controlling Statistically for Outcome at Intake Only	<ul style="list-style-type: none"> • Interventions were tailored to the complex and varied needs of youth and their families • Treatment was appropriate to the developmental needs of adolescents • The program focused on the strengths of youth and their families during program planning and in every interaction between treatment personnel and those they serve • Family was recognized and engaged as a valued partner in all components of the program • Youth compliance was responded to with incentives designed to reinforce this behavior • Effort was made to build partnerships with community organizations to expand the range of opportunities available to youth clients and their families • Confidentiality policy and procedures were in place to guard the privacy of the youth while allowing treatment-related personnel (case managers, therapists) to access key information • Program assured that all clients received at least one service contact within 14 days of initial assessment • A system of program monitoring and evaluation was established
Detectable Impact Accounted for by Client Characteristics and Behavior at Intake	<ul style="list-style-type: none"> • All stakeholders were engaged in creating an interdisciplinary, coordinated, and systematic approach to working with youth and their families • Program assured that all clients received at least 3 treatment sessions within 30 days of initial assessment • Program assured that all clients completed treatment • Written drug testing procedures and policies were in place

TABLE 4		STATISTICALLY SIGNIFICANT EFFECTS OF PROGRAM CHARACTERISTICS ON SUBSTANCE USE OUTCOMES					
Predictor: JDC Strategy in Practice and/or RF Element Program Characteristic		Substance Use Outcomes					
		Days of Substance Use			Substance Problems		
		<i>B</i>	<i>t</i>	<i>p</i>	<i>B</i>	<i>t</i>	<i>p</i>
Defining a target population and eligibility criteria moderated by days of substance use/substance problems at intake (interaction effect)		−0.11	−2.87	.009			
Youth noncompliance was responded to with sanctions designed to modify this behavior moderated by days of substance use/substance problems at intake (interaction effect)		−0.02	−2.13	.045			
Drug testing was frequent, random, and observed (main effect)		−1.66	−2.23	.037			
Drug testing was frequent, random, and observed moderated by days of substance use/substance problems at intake (interaction effect)		−0.04	−2.48	.022			
Training personnel to be culturally competent moderated by days of substance use/substance problems at intake (interaction effect)					−0.06	−2.26	.034
Treatment was designed to address the unique needs of each gender (main effect)		−3.32	−2.06	.052	−0.34	−2.22	.037
Policies and procedures were responsive to cultural differences (main effect)					−0.27	−2.32	.031

Note: Only statistically significant results are shown. Statistically insignificant results and results on the effects of client characteristics and behavior statistically controlled for in the analyses are available upon request.

the adolescent substance use treatment programs that placed more importance on having defined target population and eligibility criteria were particularly effective at impacting days of substance use at six months post-intake of clients who were more frequent substance users at intake (compared to clients who were less frequent substance users). This pattern of effect is illustrated in Figure 1.

As shown, clients who had used substances on 3 of the past 90 days when they enrolled were predicted to engage in similar days of use at six months post-intake regardless of whether defined target population and eligibility criteria was essential or not important to the program ($M = 2.21$ and 7.41 , respectively). However, clients who had used substances all 90 of the past 90 days at intake were predicted to engage in more days of substance use at six months post-intake when their program did not think that having defined target population and eligibility criteria was important ($M = 47.25$) compared to when their program considered it essential ($M = 12.83$). Thus, all programs were effective at reducing days of substance use for heavy substance users, but the programs that considered having defined target population and

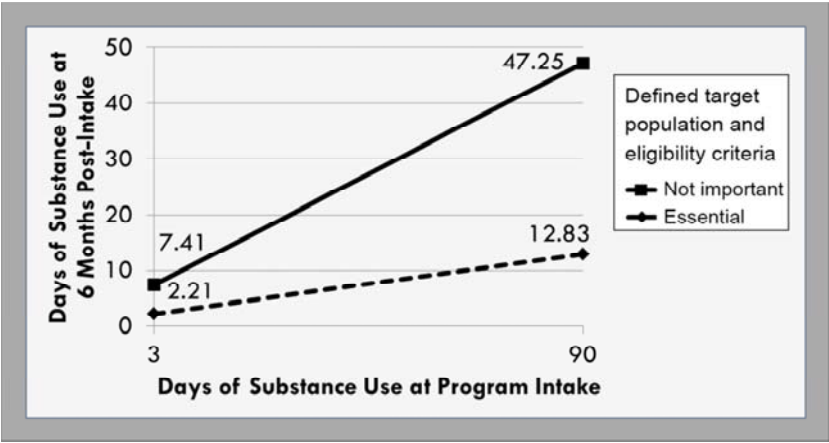


Figure 1. Effect of Importance Given to Having Defined Target Population and Eligibility Criteria on Change Over Time in Substance Use

eligibility criteria essential were more effective at reducing days of substance use for heavy substance users than those that did not consider it important.

Sanctions—Results indicated that the effect of the use of sanctions to modify noncompliance on days of substance use at six months post-intake also depended on client substance use at intake. This interaction effect showed a similar pattern to that of the effect illustrated in Figure 1. Clients who enrolled in the program having used substances during 3 of the past 90 days were predicted to engage in similar numbers of days of use at six months post-intake regardless of whether sanctions to modify noncompliance were always or never utilized ($M = 1.78$ and 6.28 , respectively). However, clients who enrolled in the program having used substances all 90 of the past 90 days were predicted to engage in more days of substance use at six months post-intake when their program never utilized sanctions to modify noncompliance ($M = 27.59$) compared to when their program always utilized these sanctions ($M = 14.39$). Thus, all programs were effective at reducing days of substance use for heavy substance users, but the programs that employed sanctions to modify noncompliance more frequently were more effective at reducing days of substance use for heavy substance users than those that did not apply such sanctions.

Random and observed drug testing—The statistically significant effects of use of random and observed drug testing on days of substance use at six months post-intake indicated that utilization of random and observed drug testing was effective at impacting days of substance use at six months post-intake of all clients, but it was more effective for clients who engaged in more days of substance use at program intake. Clients who had used substances during 3 of the past 90 days when they enrolled were predicted to engage in fewer days of use at six months post-intake if their program always used random and observed drug testing ($M = 2.21$) compared to if their program never did ($M = 9.39$). This difference was greater among clients who enrolled in the program having used substances all 90 of the past 90 days ($M = 14.81$ and 37.64 , respectively).

Cultural competency training—Results indicated that the effect of training personnel to be culturally competent on substance problems at

six months post-intake depended on client substance problems at intake. This interaction effect also showed a pattern similar to the effect illustrated in Figure 1. Clients who enrolled in the program having two substance problems were predicted to have a similar number of problems at six months post-intake regardless of whether training personnel to be culturally competent was essential or not important to the program ($M = 0.27$ and 0.63 , respectively). However, clients who enrolled in the program having 16 substance problems were predicted to have more substance problems at six months post-intake when their program did not think that training personnel to be culturally competent was important ($M = 4.46$) compared to when their program considered it essential ($M = 1.42$). Thus, all programs were effective at reducing substance problems for all clients, but the programs that considered it essential to train personnel in cultural competency were more effective at reducing substance problems among heavy substance users than programs that considered this training to be less important.

Gender-appropriate treatment—The statistically significant effects of provision of gender-appropriate treatment on days of substance use and substance problems indicated that days of use and substance problems at six months post-intake decreased as frequency of gender-appropriate treatment increased. On average, clients of programs that never utilized gender-appropriate treatment reported 9.96 more days of substance use and 1.35 more substance problems at six months post-intake than clients of programs that always provided it. Therefore, all clients of programs that provided gender-appropriate treatment had less substance use and problems at six months post-intake than clients of programs that did not provide it.

Policies and procedures responsive to cultural differences—The statistically significant effect of use of policies and procedures responsive to cultural differences on substance problems at six months post-intake indicates that substance problems at six months post-intake decreased as frequency of use of policies and procedures responsive to cultural differences increased. On average, clients of programs that never utilized policies and procedures responsive to cultural differences reported 1.08 more substance problems at six months post-intake compared to clients of programs that always used them. Therefore, all cli-

ents of programs that had policies and procedures responsive to cultural differences had fewer substance problems at six months post-intake than clients of programs that did not have them.

Crime-Related Outcomes

A few JDC:SIP and RF program characteristics were statistically significantly related to improved crime-related outcomes even when controlling for client-level characteristics and behaviors. Test statistics of statistically significant effects are shown in Table 5.

TABLE 5		STATISTICALLY SIGNIFICANT EFFECTS OF PROGRAM CHARACTERISTICS ON CRIME-RELATED OUTCOMES					
Predictor: JDC Strategy in Practice		Crime-Related Outcomes					
		Total Crime			Illegal Activity		
		B	t	p	B	t	p
A nonadversarial approach was used to address youth needs (main effect)					-0.44	-2.57	.018
A nonadversarial approach was used to address youth needs moderated by total crime/illegal activity at intake (interaction effect)		0.03	2.12	.046			
Youth noncompliance was responded to with sanctions designed to modify this behavior moderated by total crime/illegal activity at intake (interaction effect)		-0.01	-2.27	.034			
Program staff coordinated with the school system to make sure the youth enrolled in an appropriate educational program moderated by total crime/illegal activity at intake (interaction effect)		-0.02	-3.15	.005	-0.05	-3.23	.004
Frequent reviews of treatment plans were scheduled (main effect)					0.29	2.80	.011

Note: Only statistically significant results are shown. Statistically insignificant results and results on the effects of client characteristics and behavior statistically controlled for in the analyses are available upon request.

Nonadversarial approach—Use of a nonadversarial approach was related to both crime-related outcomes. The statistically significant effect of use of a nonadversarial approach on illegal activity indicated that, on average, clients of programs that never employed a nonadversarial approach had an illegal activity score at six months post-intake 1.76 points greater than the score of clients of programs that always used this approach. Therefore, all clients of programs that used a nonadversarial approach had less illegal activity at six months post-intake than clients of programs that did not use such an approach.

Use of a nonadversarial approach also impacted total number of crimes at six months post-intake. However, this impact depended on frequency of client criminal activity at intake. This effect, shown in Figure 2, indicated that the adolescent substance use treatment programs that more frequently employed a nonadversarial approach were differentially effective at impacting total number of crimes at six months post-intake depending on how many crimes clients had committed at intake—sometimes resulting in worse criminal behavior outcomes. As shown in Figure 2, clients who enrolled in the program having recently committed 10 crimes are predicted to have recently

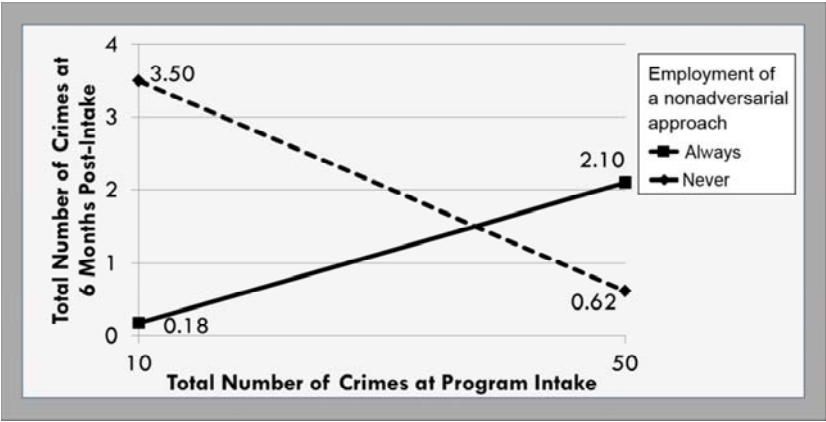


Figure 2. Effect of Employing a Nonadversarial Approach on Change Over Time in Number of Crimes

committed *more* crimes at six months post-intake when their program never used a nonadversarial approach ($M = 3.50$) compared to when their program always used such an approach ($M = 0.18$).

However, clients who enrolled in the program having recently committed 50 crimes were predicted to have recently committed *fewer* crimes at six months post-intake when their program never used a nonadversarial approach ($M = 0.62$) compared to when their program always used such an approach ($M = 2.10$). Therefore, all programs were effective at reducing number of crimes for all clients. However, programs that employed a nonadversarial approach more effectively reduced number of crimes for clients with less criminality at program intake, whereas programs that did not use this approach more effectively reduced number of crimes for clients with more criminality at program intake.

Sanctions—In contrast, some of the JDC:SIP and RF program characteristics were related to improved crime-related outcomes for clients who engaged in more criminal activity at program intake compared to those who engaged in less criminal activity at intake. Results indicated that the effect of the use of sanctions to modify noncompliance on number of crimes at six months post-intake depended on number of crimes at intake. This interaction effect showed a pattern similar to the interaction effect illustrated in Figure 1. This effect indicated that the adolescent substance use treatment programs that frequently used sanctions to modify noncompliance were particularly effective at impacting criminal activity outcomes at six months post-intake of those clients who had engaged in more criminal activity at program intake. Clients who enrolled in the program having recently committed 10 crimes were predicted to commit the same number of crimes at six months post-intake regardless of whether their program always or never imposed sanctions to modify noncompliance ($M = 0.02$ and 0.50 , respectively). However, clients who enrolled in the program having recently committed 50 crimes were predicted to commit more crimes at six months post-intake if their program never used sanctions to modify noncompliance ($M = 2.86$) compared to when their program always imposed them ($M = 0.62$).

Interaction with school system—Results indicated that the effect of coordination with the school system on number of crimes at six months post-intake depended on number of crimes at intake. This interaction effect also showed a pattern similar to that of the interaction effect illustrated in Figure 1. This effect indicated that the adolescent substance use treatment programs that frequently coordinated with the school system were particularly effective at reducing criminal activity at six months post-intake among those clients who had engaged in more criminal activity at program intake.

Clients who enrolled in the program having recently committed 10 crimes were predicted to commit the same number of crimes at six months post-program intake regardless of whether their program always or never coordinated with the school system ($M = -0.16^1$ and 0.39 , respectively). However, clients who enrolled in the program having committed 50 crimes recently were predicted to commit more crimes at six months post-intake if their program never coordinated with the school system ($M = 4.11$) compared to when their program always did ($M = -0.12^2$). Therefore, all programs were effective at reducing number of crimes for all clients. However, programs that coordinated with the school system more effectively reduced number of crimes for clients with more criminality at intake compared to programs that did not.

Results indicated that the effect of coordination with the school system on illegal activity at six months post-intake depended on illegal activity at intake. This interaction effect also showed a pattern similar to that of the interaction effect illustrated in Figure 1. Clients who enrolled in the program having an illegal activity score of 1.0 were predicted to have the same illegal activity score at six months post-intake regardless of whether their program always or never coordinated with the school system ($M = 2.18$ and 1.89 , respectively). However, clients who enrolled in the program having an illegal activity score of 10 were predicted to have a higher illegal activity score at

¹ Because these are predicted means based on the data, negative scores are possible. This negative score essentially reflects zero crimes.

² Here again, this negative score essentially reflects zero crimes.

six months post-intake if their program never coordinated with the school system ($M = 4.91$) compared to when their program always coordinated with it ($M = 3.37$). Thus, all programs were effective at reducing illegal activity among clients with high criminality, but the programs that coordinated with the school system were more effective at reducing illegal activity among clients with high criminality.

Frequent reviews of treatment plans—A statistically significant effect of frequency of scheduling reviews of treatment plans on illegal activity indicated that frequently scheduling reviews of treatment plans was related to *more* illegal activity at six months post-intake. This effect indicated that clients of programs that always scheduled review of treatment plans scored 1.16 points higher on illegal activity at six months post-intake compared to clients of programs that never scheduled review of treatment plans. Therefore, all clients of programs that frequently scheduled reviews of treatment plans had more illegal activity at six months post-intake than clients of programs that did not frequently schedule these reviews.

DISCUSSION AND IMPLICATIONS FOR PRACTICE

As adolescent substance use treatment programs, including JDCs, seek to improve the effectiveness and efficacy of their programs by responding to the critical needs of the youth they serve, many have questioned what approaches result in the best client outcomes. As hypothesized, results of the present study suggest consensus in the field of adolescent substance use treatment about critical components of these treatment programs. Although, as expected, there was greater similarity between the JDCs that were and were not implementing RF, the program characteristics promoted by JDC:SIP (NDCI & NCJFCJ, 2003; NCJFCJ, 2014) and RF (reclaimingfutures.org; Reclaiming Futures, n.d.) were prevalent among these two types of JDCs as well as among IOPs. Not only were these program characteristics evident in all of these types of programs, but they were, on average, implemented to a large extent. Even the 8 of 26 (30.8%) JDC:SIP and RF program characteristics that were implemented to a varying extent

by type of adolescent substance use treatment program were implemented to a fairly large extent in all program types. This prevalence of the JDC:SIP and RF program characteristics across JDC/RF programs, JDC-only programs, and IOPs suggests that they have been identified as critical components of adolescent substance use treatment programs by practitioners and scholars.

This interpretation of the prevalence of these program characteristics holds true even if some of that prevalence is due to compliance with requirements of the funders of the treatment programs and JDCs (e.g., SAMHSA and OJJDP). Because funder requirements tend to be created by experts in the field, they also reflect current practice, experience, and research related to JDCs and adolescent substance use treatment.

The ever-present focus on client substance use and recidivism outcomes leads us to infer that practitioners and scholars in the field have identified these program characteristics as critical based on their real or assumed direct impact on these outcomes. However, they might also be thought of as critical components of adolescent substance use treatment programs for other reasons, such as their influence on enrollment of youth and families in the programs. Avoidance of sentencing motivates many adolescents and families to enroll in JDCs and other substance use treatment programs. However, this motivation does not prompt all youth and families to enroll. Therefore, as program enrollment is the first step in receiving services, any program characteristic that encourages enrollment is critical to client success (Drug Strategies, 2003). Practitioners and scholars might also consider the JDC:SIP and RF program characteristics as critical to adolescent substance use treatment because, for example, they might make the process of obtaining treatment and other services less traumatic, less frustrating, faster, and/or less of a burden for youth and families. These are important factors to consider.

The 13 JDC:SIP and RF program characteristics that were not found to impact client substance use or criminal behavior outcomes (Table 3) should not be devalued, as they might otherwise positively impact client outcomes or youths' and their families' experience with the substance use treatment program. For example, engaging program

clients quickly in services—at least one service contact within 14 days of initial assessment—might speed the process by which clients can achieve desirable outcomes. Similarly, some of these program characteristics, such as recognizing and engaging family as a valued partner, might make the process of obtaining treatment and other services less traumatic and less frustrating for youth and families. Further research could provide insight into the possible beneficial impacts of these 13 JDC:SIP and RF program characteristics and of the 4 JDC:SIP and RF program characteristics whose impact on client substance use and criminal activity outcomes could not be tested in the present study due to lack of variation across programs. Until then, we recommend focusing efforts on increasing the implementation of JDC:SIP and RF program characteristics identified in the present study as impacting client substance use and criminal activity outcomes.

In total, nine of the JDC:SIP and RF program characteristics were found to impact substance use and criminal activity outcomes, with seven of these resulting in improved outcomes. These seven include:

- Having a defined target population and eligibility criteria
- Imposing sanctions to modify noncompliance
- Conducting random and observed drug testing
- Coordinating with the school system
- Providing gender-appropriate treatment
- Employing policies and procedures responsive to cultural differences
- Training personnel to be culturally competent

Adolescent substance use treatment programs, including JDCs, should consider these characteristics critical and emphasize them when designing and implementing their programs.

As expected, and consistent with previous research (Alegria et al., 2011; Chesney-Lind et al., 2008; CASA, 2003), some of these identified critical components of adolescent substance use treatment programs—particularly including providing gender-appropriate treatment, employing policies and procedures responsive to cultural differences, and training personnel to be culturally competent—are related to targeted treatment. These findings further support the idea that different

youth have different treatment needs and that treatment effectiveness depends on meeting those needs (Alegria et al., 2011; Chesney-Lind et al., 2008; CASA, 2003; SAMHSA, 2013). Thus, according to the present study, all adolescent substance use programs, including JDCs, should put effort into implementing these program characteristics to increase the effectiveness of their programs. These findings also underscore the importance of screening for and assessment of need using reputable, evidence-based tools, as noted in previous research (Cooper, 2009; Henggeler, 2007; Riggs, 2003), because identification of need is necessary to matching treatment and services to need.

The identification of sanctions to modify noncompliance and conducting of random and observed drug testing as critical components of adolescent substance use treatment programs demonstrates the efficacy of external motivators in shaping behavior. Early adolescent problem behavior is a strong predictor of later behavior patterns (McGue & Iacono, 2005) that can be difficult to disrupt, particularly when the behavior is addictive (McGue, Iacono, Legrand, Malone, & Elkins, 2001). It is the main goal of adolescent substance use treatment programs like JDCs and IOPs to disrupt this pattern of behavior. Such programs might need to use external motivators to discourage undesirable behavior and encourage desirable behavior until clients develop internal motivations. A main challenge of JDCs and other adolescent substance use treatment programs is that many clients are mandated to enroll and lack internal motivation to recognize their problems, engage in treatment, and/or change their behavior. External motivators, such as drug testing, might function to initiate the process of problem recognition, treatment engagement, and behavior change while programs simultaneously work to develop clients' internal motivations with respect to these crucial behaviors.

Results indicated that many of the program characteristics related to improved outcomes were particularly effective at impacting substance use and/or criminal behavior outcomes of clients who engaged in more substance use and/or criminal behavior at program intake. These critical components of substance use treatment programs included having a defined target population and eligibility criteria, imposing sanctions to modify noncompliance, performing random and

observed drug testing, coordinating with the school system, and training personnel to be culturally competent. These results are consistent with recent research on recidivism, which indicates that JDCs are more effective at preventing recidivism among clients with high criminogenic risk (Planning and Research Administrative Office of the Courts, 2015).

These findings have multiple implications for practice. They suggest that program eligibility criteria, and the youth who are enrolled in the programs as a result, have a meaningful impact on program effectiveness. Moreover, programs with the identified program characteristics will likely be more effective and efficient if they target youth with relatively more substance use and more criminal behavior. Therefore, JDCs and other adolescent substance use treatment programs should consider the population they serve. They should also monitor this population on an ongoing basis to be able to quickly identify changes in the characteristics of the population they are serving and then modify their program accordingly. In addition, programs with limited capacity should consider focusing on youth with high levels of clinical problems to increase the possible impact of their limited capacity. Programs with the capacity to serve both youth with high levels and lower levels of clinical problems in their community should consider the different needs of these two populations and offer different treatment programs and accompanying services accordingly.

The findings that use of a nonadversarial approach and scheduling of frequent reviews of treatment plans can result in desirable crime-related outcomes for many clients but less desirable outcomes for others requires more investigation. Investigation into the reason for these effects and into other benefits of a nonadversarial approach and frequent reviews should be conducted to better inform JDCs and other adolescent substance use treatment programs.

LIMITATIONS

This study has a few limitations. First, four program characteristics could not be tested regarding their impact on client outcomes due to lack of variability. Further research is needed to determine if these

program characteristics are critical to client success. Second, the client-level and program-level data were collected by self-report measures. Furthermore, the program-level self-report data assessed perceived extent of engagement in each program characteristic or the perceived extent to which each program characteristic was an important objective of the program, not actual engagement in or implementation of each program characteristic. This difference perhaps explains why this study's self-report program data indicated little to no variability in the rates of clients achieving treatment initiation or engagement, whereas data available from the GAIN treatment logs maintained by clinicians have been shown to vary between IOPs, JDC programs, and JDC/RF programs (Dennis, Baumer, Moritz, Nissen, & Stevens, 2016; Ives et al., 2010). Ideally, collateral client-level data (e.g., drug testing, school reports), as well as program-level data from implementation evaluation, would strengthen the self-report data. These types of collateral data were not available to be utilized in this study. The self-report nature of the data should be considered when interpreting the results and determining how to apply the findings to practice.

A third limitation of this study was that youth were not randomly assigned to JDC/RF programs, JDC-only programs, and IOPs implementing the JDC:SIP and RF program characteristics to different extents. This limitation influences the interpretation of the findings. However, multiple methods, as recommended by NADCP for evaluation of JDCs (NADCP, 2015), were used to test alternative interpretations of the findings, including using comparative data on program characteristics and statistically controlling for differences across programs in types of clients served (i.e., client characteristics at program intake). Even so, although the findings suggest promising practices for JDCs, they do not indicate causal relationships between JDC:SIP and RF program characteristics and client outcomes. Further research to determine which program characteristics are critical to client success should strive to meet all of NADCP's (2015) best practices for evaluation of JDCs.

A final limitation of this study is that it does not directly address the question of why JDCs implementing JDC:SIP and/or RF have

been found to be more effective than those that do not. This study examines the JDC:SIP and RF program characteristics that are associated with improved client outcomes and so might account for the favorable impact of JDC:SIP (Carey, Herrera Allen, Perkins, & Waller, 2013) and RF (Moritz et al., 2013) on client outcomes. However, it does not examine the overall impact of JDC:SIP and RF on client outcomes, nor does it examine which JDC:SIP and RF program characteristics account for these overall effects. Research that directly addresses these questions would contribute to the findings of this study and provide a more complete picture of the critical components of adolescent substance use treatment programs.

CONCLUSION

This study identified critical components of adolescent substance use treatment programs, which include JDCs. It identified JDC:SIP and RF program characteristics implemented commonly in JDCs and adolescent substance use programs. It also identified JDC:SIP and RF program characteristics that are associated with client substance use and criminal activity outcomes. These findings underscore the importance of screening and assessment of need, program eligibility criteria, matching treatment and services to client characteristics and need, and utilizing motivators to change behavior.

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This manuscript reflects the authors' original work.

The University of Arizona's Institutional Review Board declared this study non-human subjects research because of its utilization of existing, de-identified data and of data about program characteristics.

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