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Drug Testing Policies and Practices: Predicting Successful Outcomes Among Juveniles Participating in Pretrial Diversion Programs

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Abstract

Drug testing is a frequent condition of juvenile justice programs, although research on the effects of drug testing juveniles – especially early system-involved youth – is scarce. The risk-needs-responsivity (RNR) model suggests drug testing would only be a beneficial intervention if substance use contributes to a youth’s criminal behavior and has a rehabilitative component. We examined drug testing policies and practices in one Midwestern state utilizing interviews with 27 diversion program managers and a statewide sample of 665 youth referred to pretrial diversion. Analysis tested whether drug testing juveniles with and without a substance use need predicted successful completion of diversion and decreased the probability of future system involvement. Results indicated that drug testing was not a significant predictor of successfully completing diversion, nor did it decrease youths’ odds of recidivating in the year after discharge from diversion. Further, those with a substance use need were significantly less likely to successfully complete diversion than those without a substance use need, indicating that diversion programs should utilize rehabilitative methods for addressing criminogenic drug or alcohol needs.

Keywords: Juvenile, drug test, substance use, risk-needs-responsivity, diversion, recidivism
Drug Testing Policies and Practices: Predicting Successful Outcomes Among Juveniles Participating in Pretrial Diversion Programs

Prior research has consistently found substance abuse to be an important correlate of delinquency (Bonta & Andrews, 2017; Crowe & Sydney, 2000). Specifically, adolescent substance abuse is associated with negative peer relationships, poor use of free time, and hindered employment opportunities (Guebert & Olver, 2014). Of course, not all youth who use drugs have a substance abuse problem. For instance, Swendsen et al. (2012) found that while 24% of adolescents aged 13 to 18 had tried illicit drugs, only 9% met the criteria for substance abuse. In other words, experimentation with drugs can be a normal part of development for adolescents that most will outgrow (Winters, 2004).

Determining when substance use is a problem requiring services and when use will desist with minimal intervention is an important decision for juvenile justice professionals. Services that are not matched to an individual’s criminogenic risk factors can be ineffective at reducing recidivism and may even increase the likelihood of recidivism for low-risk youth (Bonta & Andrews, 2017). This is of particular concern for juvenile pretrial diversion programs – programs specifically created for early system-involved youth to avoid the unintended consequences of formal court processing (OJJDP, 2017).

In practice, juvenile justice programs frequently rely on drug testing to detect and to deter substance use. Tests are often viewed as unbiased, reliable sources of information on current drug use (Haapanen & Britton, 2002). Given the prevalence of drug use during adolescence, however, a positive test does not necessarily indicate a need for treatment (Chassin, 2008). Furthermore, McClelland, Teplin, and Abram (2004) tested nearly 2,000 juveniles in detention and concluded that drug testing was not a reliable method for detecting substance use.
Rather than relying on drug testing to solely identify need, researchers recommend using a validated assessment tool to identify individuals with substance use issues (Andrews, Bonta, & Wormith, 2006). The need principle of Andrews, Bonta, and Hoge’s (1990) risk-needs-responsivity model suggests that services focused on the factors most likely to contribute to delinquency, as identified by an assessment, will have the greatest likelihood of reducing recidivism. This study applies the need principle to drug testing practices in a statewide sample of juveniles participating in pretrial diversion programs, assessing whether drug testing increases the likelihood of successful diversion completion and reduces the likelihood of subsequent system involvement.

**Juvenile Diversion Programs**

Juvenile diversion programs were developed to help early system-involved youths avoid the unintended consequences of formal court processing, such as stigma from being labeled a delinquent or learning antisocial behaviors from higher-risk youths, which can increase the likelihood of recidivism (OJJDP, 2017). Instead of going through juvenile court and possibly being detained, youths referred to diversion remain in their communities and are connected to services for rehabilitative purposes. After successfully completing a diversion program, a juvenile’s case is typically dismissed and/or never filed on in court.

Although diversion programs are intended to reduce recidivism, research on their effectiveness is somewhat mixed (OJJDP, 2017). In Wilson and Hoge’s (2013) meta-analysis of 73 juvenile diversion programs, recidivism was reduced for youths who participated in diversion compared to youths who were processed through traditional juvenile court. On the other hand, Schwalbe et al.’s (2012) meta-analysis found that of the five diversion types included in the analysis, only family treatment significantly reduced recidivism, while overall diversion was
found to have a nonsignificant effect. These inconsistent findings may reflect differences between the quality of diversion programs and how well they match youths to services.

**Drug Testing Juveniles**

Drug testing can be used within the juvenile justice system to monitor and deter youths’ drug use. Offices likely rely on drug tests because testing positive is clear evidence of youths failing to follow their treatment plan (Haapanen & Britton, 2002); however, very little research has examined the effectiveness of drug testing juveniles. To our knowledge, only two studies, both examining the same sample of serious juvenile offenders on parole, have examined the effects of drug testing within a juvenile population. The sample was taken from a population with a high estimated prevalence of substance abuse problems (Wilson et al., 2001), although substance use needs within the sample were not reported in either study. In the original study, conducted by Haapanen and Britton (2002), the paroled juveniles were randomly assigned to one of five drug testing groups that each increased the frequency of drug testing from never tested up to once a week. Youths were tested for up to two years while on parole and recidivism was tracked for three and a half years. No significant difference in arrest rates were found between the groups while on parole, however, those tested more frequently were more likely to be rearrested during the 42-month follow-up. The authors conclude that drug testing is unlikely to have a long-lasting direct effect on criminality, but rather, that a sustained emphasis on monitoring may negatively impact youths’ intrinsic motivation to abstain from delinquent behavior.

The second study examined some shorter-term outcomes of drug testing with the same sample of youths on parole. Kilmer (2007) found that drug testing did have a short, positive effect on employment and education. Specifically, youths randomly assigned to be drug tested
had an 11% decreased probability of being unemployed or not in school 30-days after release from parole. Together, these studies suggest drug testing may help youths in the short-term but are unlikely to have an impact on behavior long-term. Moreover, it illustrates the need for additional research in this area, especially with early system-involved youths, who are less likely to have a substance use need than youths on probation.

Risk-Needs-Responsivity Framework

According to Andrews, Bonta, and Hoge’s (1990) risk-needs-responsivity (RNR) framework, effective rehabilitation requires adherence to three principles. The risk principle states that the intensity and duration of treatment should match one’s risk level, such that more intensive services are reserved for higher risk youths and lower risk youths receive minimal or no intervention. The need principle states that services targeted at one’s specific criminogenic needs, including substance use, will reduce the likelihood of recidivating. The last principle, responsivity, recognizes the importance of delivering treatment in a way that is consistent with the ability and learning style of the individual.

The RNR framework has been extensively studied within adult corrections and has recently been extended to juvenile settings (Brogan et al., 2015). Within adult programming, researchers have tested these principles in different settings and populations—such as, community corrections, restorative justice programs, community programs, and male and female populations—finding that programs adhering to the RNR principles were more effective at reducing recidivism than programs that did not (Andrews & Dowden, 2007). Although research on juveniles and RNR is less extensive, researchers have generally found that juvenile programs adhering to RNR are more effective than programs that do not (Dowden & Andrews, 2003). In a recent study of 2,482 early system-involved youth, Wylie et al. (2019) found support for a
diversion program following the RNR model. The program designed individualized diversion plans informed by an assessment tool’s identification of risks and needs. They found those who successfully completed the program were less likely to recidivate during the 12-month follow-up than those who did not complete the program.

At the individual level, application of the RNR model and specifically the need principle is mixed. In their study of 124 detained adolescents, Singh et al. (2014) found greater adherence to the need principle significantly decreased externalizing behaviors; however, Wylie et al.’s (2019) study did not find that adherence to the need principle significantly predicted recidivism in the year following youths’ discharge from diversion. These inconsistencies may be due to differences between the studies’ samples, the different outcomes of interest, difficulty in measurement of constructs, and/or adherence to the other components of the RNR model. For example, Singh et al. (2014) found inconsistent application of the risk principle and Wylie et al. (2019) was unable to account for the responsivity principle.

**The Current Study**

The current study combined interviews with diversion program managers and a statewide sample of youths participating in pretrial diversion services to examine drug testing policies and practices within one Midwestern state. Per the need principle, drug testing will be most effective in reducing recidivism when substance use (SU) is an identified need thought to contribute to a juvenile’s criminal behaviors. Therefore, this study hypothesized that drug testing youths with identified SU needs would increase the likelihood of successful diversion completion and lower the likelihood of recidivism within a year of diversion completion, compared to those without SU needs who were drug tested.

**Method**
Data and Procedure

All 31 diversion programs that received state funding between July 2015 and June 2017 were invited to participate in a 20-minute phone interview to better understand statewide policies and practices. Four programs were not included in these interviews because three programs did not have any youths during the study period and one program was unreachable. We interviewed the remaining 27 diversion program managers that received youth referrals from 38 rural and urban counties. Managers were asked about their program’s assessment tool, and drug testing policies and practices, including how assessment tools were used when designing diversion plans, the criteria used when deciding whether to drug test, and the procedure for what happens to the juvenile following a positive drug test.

Data for this study were obtained from the Juvenile Case Management System (JCMS), a statewide database in which juvenile pretrial diversion programs are required under statute to enter individual youth data. Program managers were asked to confirm the accuracy of this data during the interviews. Missing data were obtained in one of two ways: (1) programs gathered and uploaded the missing information to a secure shared folder, or (2) the researchers gathered this information directly from programs’ physical case files.

Sample

The full sample consisted of 954 youths referred to state grant funded juvenile pretrial diversion programs in one Midwestern state between July 2015 and June 2017. Cases were included if the case included a juvenile (under 19 years old) at the time of discharge and had a time at-risk of at least one year (i.e., at least one year had passed from diversion discharge for recidivism). Only juveniles who participated and completed diversion were eligible; as such, cases were excluded if the parents or youths declined to participate (12.8%, n = 122), programs
declined admission (7.3%, n = 70), prosecutors withdrew the referral (2.6%, n = 25), or youths moved or passed away (5.1%, n = 49). Finally, we removed 21 cases that were missing diversion discharge reason and two who were missing the race/ethnicity variable. While only one youth participated in the program that was unreachable for the phone interviews during the study period, they were included in the full sample, but we ultimately removed them from the final sample due to incomplete data. Thus, the final sample included 665 youths from programs that were interviewed for this study. Those excluded from the final sample did not significantly differ from the full sample based on gender, race, age, or location of the program.

Measures

Demographics. Age, gender, race/ethnicity, and program location type were included as demographic variables. Age at the time of referral was measured as a continuous variable.

Gender (0 = female, 1 = male) and race/ethnicity (0 = Youth of Color, 1 = White youth) were each dichotomously measured. The majority of the sample were male (55.9%, n = 372), identified as White (71.6%, n = 476), and participated in a diversion program in an urban county (58.3%, n = 388). At referral, youths were between the ages of 7 and 18 (M = 15.53, SD = 1.80).

Because our interviews revealed there may be differences in diversion philosophy by location in the state, we coded each program into whether it was a rural county (0) or an urban county (1) using the Census Bureau’s (2017) definition of a metropolitan area (Office of Management and Budget, 2016). Using this definition, 11 counties were classified as urban (58.3% of youths, n = 388) and 27 as rural (41.7% of youths, n = 277). Of the 38 counties, 32 served fewer than 20 youths during the study period, four served between 40 and 100 youths, and one served 143 youths.
Program drug tested. While the majority of diversion programs did drug test their youths as a practice, 13.8% of youths (n = 92) participated in programs that did not drug test during the study period. To control for this, a dichotomous variable was created to measure whether the program drug tested (1) or did not drug test (0) during the study period.

Independent Variables

Youths drug tested. A categorical variable was created to measure whether youths were drug tested while completing diversion. Youths were either drug tested at least once (coded as 1), or not drug tested at all (coded as 0).

Substance use needs. Scores from substance use (SU) specific tools, SU items from screeners, or SU subscales from a comprehensive tool were used to assess SU needs. These tools were: the Youth Level of Service/Case Management Inventory 2.0 (YLS/CMI 2.0; 47.1%, n = 198), the Nebraska Youth Screen (NYS; 40.0%, n = 168), the Massachusetts Youth Screening Instrument-2 (MAYSI-2; 5.7%, n = 24), the Arizona Risk/Needs Assessment Instrument (4.5%, n = 19), and the Simple Screening Instrument for Alcohol and Other Drugs (SSI-AOD; 2.6%, n = 11).

Youth Level of Service/Case Management Inventory 2.0. The YLS/CMI 2.0 is a 42-item checklist based on the RNR model and designed for youths aged 12 to 17. Five items contribute to the SU score, which is scored low if no items are present, moderate if 1-2 items are present, and high if 3-5 items are present. Research has found the SU subscale to be predicative for both males and females (Andrews et al., 2012) and has good internal consistency and interrater reliability (Campbell, Dyck, & Wershler, 2014).
**Nebraska Youth Screen.** The NYS is a screener developed specifically in Nebraska, with each domain measured using a single item. For the one SU item, a 0 indicates no need, a 1 means some need was identified, and a score of 2 means SU is a need.

**Arizona Risk/Needs Assessment Instrument.** The Arizona screener consists of 10 yes or no questions with one item specifically related to SU. A “no” is given a score of 0 and a “yes” or “suspicion that the statement is true” is scored 1. Schwalbe (2009) found the Arizona screener to be predictive for both males and females and youths of different races/ethnicities, including White, Black, Latino, and Native American youths.

**Massachusetts Youth Screening Instrument-2.** The MAYSI-2 is a 52-item assessment designed to identify mental health needs for youths aged 12 to 17. Eight questions contribute to the SU score. A score of 0-3 is considered average, 4-6 is a caution score, and 7-8 is a warning score. Research has indicated that the SU score is correlated with the Simple Screening Instrument for Alcohol and Other Drugs (Grisso et al., 2012).

**Simple Screening Instrument for Alcohol and Other Drugs.** The SSI is a 16-item instrument specifically designed to screen for alcohol or drug use. Only 14-items are scored such that a score of 0-1 indicates no SU risk, 2-3 indicates a minimal risk, and a score of 4 or higher indicates a moderate to high SU risk. The tool has been found to have good internal validity and retest reliability (Pilowsky & Wu, 2013).

To include the tools into a single standardized variable, we recoded SU needs using each tool’s scoring guidelines. Scores indicating no or low SU risk were coded (0) as having no SU need, while a score indicating a present, moderate, or high SU risk were coded (1) as having a SU need. Approximately two-thirds of the total sample (63.0%, n = 419) were assessed for SU need. Nearly half of those assessed had a score indicating a SU need (46.4%, n = 195). Efforts
were made to gather as many assessments from programs as possible, however, in many cases, the program either did not conduct any assessment (30.0%, \( n = 200 \)) or the assessment tool used did not assess SU (7.0%, \( n = 46 \)). For those missing a SU assessment, SU referral charges were substituted as the indicator of SU risk. Of the remaining 246 youths, 41.2% (\( n = 101 \)) had a SU referral charge and were coded (1) as having a SU need.

**Outcome Variables**

**Successful completion of diversion.** The youths’ discharge outcome was a dichotomous measure, unsuccessful (0) or successful completion of diversion (1).

**No recidivism.** Recidivism was defined as any future law violation or status offense filed in either juvenile court (sealed cases included) or adult court in the year following discharge from diversion. Status offenses were included in recidivism because in this state youths may be filed on for a status offense, which could pull them deeper into the system. Data were obtained from the state’s trial court case management system (JUSTICE) in December 2016 (for youths served during the fiscal year 2015 to 2016) and 2017 (for youths served during the fiscal year 2016 to 2017). Recidivism data was combined with data from JCMS using a probability matching software that matched youths’ first names, last names, and dates of birth. The data was then coded into a dichotomous measure of no recidivism where cases were coded 0 if youths recidivated in the year following discharge from diversion or coded 1 if they did not recidivate during the follow-up time.

**Data Analysis**

First, results from the interviews with pretrial diversion program managers are discussed to better understand how assessment tools and drug testing was used in practice. Next, we conducted bivariate comparisons (chi-square and correlations) for each outcome, with
background characteristics, whether juveniles were drug tested, and SU needs. Lastly, binary logistic regressions were modeled to estimate the predictive ability of the independent variables for each outcome measure: diversion program success and no recidivism. Although cases are nested within programs statewide, there were many programs with so few cases, that we did not perform a multi-level model with program-level variables. Instead, we controlled for pertinent program level variables as discussed above.

Results

Interviews with Programs

Nearly two-thirds of the 27 program managers interviewed confirmed they drug tested youths during the study period (63.0%, n = 17), all using urinalysis. Of the 17 programs that did drug test, every program reported the youth’s offense was a factor when deciding who to drug test, with over half the programs (58.8%, n = 10) indicating it was the primary factor considered. Additionally, all but three program managers (88.9%, n = 14) said assessment scores informed diversion plans, but only about half the programs that did drug test (58.8%, n = 10) checked the assessments before deciding when to drug test. Lastly, programs were asked about policies regarding positive drug tests. The most common response to a positive test was to step up the number or intensity of services offered (94.1%, n = 16), though half of these programs (52.9%, n = 9) indicated youths would be referred back to court if it was determined they were refusing services. A small number of programs (17.6%, n = 3) specifically stated that drug testing was not a punishment and a positive test would never result in a youth being discharged. The opposite was true for another small handful of programs (23.5%, n = 4) whose formal policies were to refer youths with a positive test after intake back to the county attorney for court processing, however, all but one of these programs indicated this policy was rarely followed.
Of the ten programs that did not drug test, the most common reasons were youths were low-risk and therefore drug testing was unnecessary (40.0%, \( n = 4 \)), or the county attorney did not require it (20.0%, \( n = 2 \)). Other reasons included cost was prohibitive, the drug testing process was uncomfortable and a potential liability, having an honest conversation about drug use was preferable, and urinalysis was inconvenient because the program had no male staff to administer the test.

**Descriptives**

As shown in Table 1, almost half of the sample had a SU need (44.5%, \( n = 296 \)), while about one-fourth were drug tested (23%, \( n = 153 \)). Turning to the outcome variables, being successfully discharged was the most common diversion program outcome (78.0%, \( n = 519 \)). Similarly, the majority of youths did not recidivate within one year of discharge from diversion (84.1%, \( n = 559 \)).

**Bivariate Analyses**

**Successful Discharge**

Of the youths who successfully completed diversion, significant proportional differences were found within each examined variable, except whether the program drug tested during the study period (Table 2). Bivariate comparisons found females were more likely to be successfully discharged than males, \( \chi^2(1) = 5.41, p < .05 \), White youth were more likely than Youth of Color to be successfully discharged, \( \chi^2(1) = 10.37, p < .001 \), and youths participating in rural diversion programs were more likely to be successfully discharged than youths participating in urban diversion programs, \( \chi^2(1) = 6.89, p < .01 \). Additionally, youths who were not drug tested were more likely to be successfully discharged than youths who were drug tested, \( \chi^2(1) = 8.91, p < .01 \). There were no differences for youths participating in programs that drug tested compared
to those that did not drug test on discharge outcome, $\chi^2(1) = 1.30, p = .26$. A significant difference was found among the SU needs variable. Youths with a SU need were less likely to be successfully discharged than those without a SU need, $\chi^2(1) = 4.31, p < .05$. Lastly, a significant age correlation was found, $r(665) = .13, p < .01$, such that, older youths were more likely to be successfully discharged than younger youths.

**No Recidivism**

Only one variable, discharge outcome, was found to have a significant proportional difference among those who did not recidivate within a year of their discharge from diversion. Youths who were successfully discharged from diversion were significantly more likely to not recidivate than youths who were discharged unsuccessfully, $\chi^2(1) = 30.92, p < .001$. None of the other variables were found to have significant proportional differences, which may partially be due to the small number of those who recidivated during the one-year follow-up period.

**Logistic Regressions**

Next, to test whether drug testing youths with identified SU needs would increase the odds of successful discharge and lower the odds of recidivism, binary logistic regression models were estimated (Table 3). The models initially included a drug testing and SU needs interaction predictor variable, however, the variable was not significant in either model (successful discharge: $\chi^2(1) = 0.31, p = .58$; no recidivism: $\chi^2(1) = 1.49, p = .22$) and the overall model fit did not improve (successful discharge: $\chi^2(8) = 37.17, p < .001$, $r^2 = .08$; no recidivism: $\chi^2(9) = 37.18, p < .001$, $r^2 = .09$); therefore, the models without this interaction variable are presented.

The overall model predicting successful discharge was significant, $\chi^2(7) = 36.86, p < .001$, $r^2 = .08$ with a small effect size. Three predictors reached significance: race/ethnicity, $\chi^2(1) = 5.60, p < .05$, age, $\chi^2(1) = 9.67, p < .01$, and SU need, $\chi^2(1) = 4.69, p < .05$. Contrary to
expectations, having an identified SU need was the strongest predictor of unsuccessful diversion discharge. Youths with an identified SU need were 38.0% less likely to be successfully discharged than those without an SU need, controlling for all other variables in the model.

Additionally, White youths’ odds of successful discharge were 1.65 times greater than the odds of successful discharge for Youth of Color, when holding all other variables in the model constant. Also, as age increased the odds of successful discharge increased. For example, a one-year increase in age increased the odds of successful discharge by a factor of 1.19, controlling for the other variables in the model. The drug testing variable, $\chi^2(1) = 3.82, p = .051$, approached but did not reach significance.

A second logistic regression model was estimated to predict the likelihood of not recidivating during the follow-up period (Table 3). While the overall model was significant, $\chi^2(8) = 35.57, p < .001$, $r^2 = .09$ with a small effect size, only two predictor variables reached significance: location, $\chi^2(1) = 4.93, p < .05$, and discharge outcome, $\chi^2(1) = 24.86, p < .001$. The discharge outcome variable was the strongest predictor as youths who were successfully discharged from diversion were 224.0% more likely to not recidivate than those unsuccessfully discharged from diversion, holding all other variables constant. Additionally, the odds of not recidivating were 1.70 times higher for youths participating in urban diversion programs than youths participating in rural programs. As expected from the bivariate comparison findings, neither the drug testing variable, $\chi^2(1) = 0.07, p = .80$, nor the SU need variable, $\chi^2(1) = 1.86, p = .17$, reached significance.

While best practices for identifying needs is to utilize a validated assessment tool, the decision to use SU charges as a proxy for SU needs for those without a SU assessment was informed by our interviews; all of the programs that drug tested during the study period indicated
referral charges were used to design diversion plans. Overall, youth identified as having a SU need from an assessment did not differ from youth identified as having a need by their charge in terms of age, gender, race/ethnicity, whether the program drug tested, discharge outcome, or recidivism. The samples did differ based on location, \( \chi^2(1) = 172.16, p < .001 \), and whether drug tested, \( \chi^2(1) = 13.29, p < .001 \). Specifically, cases in rural counties were less likely to have a SU assessment than cases in urban counties and those who were not drug tested were less likely to have a SU assessment than those who were drug tested.

To test whether there were any differences in the models due to how SU need was operationalized, we estimated both outcome models with the full sample (SU need identified from an assessment + SU need identified by their charge) and the partial sample (SU need identified from an assessment only). Analysis revealed little difference between including the full and partial sample. The partial models were statistically significant with similar effect sizes (successful discharge: \( \chi^2(7) = 39.12, p < .001, r^2 = .14 \); no recidivism: \( \chi^2(8) = 30.40, p < .001, r^2 = .12 \)). As was the case in the full sample, the same three predictors (i.e., age, race/ethnicity, and SU need) were significant in the successful discharge model. With respect to the no recidivism model, location and discharge were similarly significant to the full model, however, the SU need variable reached significance in the partial model (while it was not in the full model) \( \chi^2(1) = 4.65, p < .05 \). Given the similarity between the subsample and full sample and the added predictive power of a larger sample, the full sample was retained for analysis.

Overall, both logistic regression models failed to support the hypotheses. No interaction effect was found between drug testing and SU needs for either outcome of interest indicating that SU needs did not moderate the effect of drug testing on either successful discharge or recidivism. Additionally, while the SU need variable was a significant predictor of successful discharge, it
was not in the hypothesized direction. Holding all other variables constant, those with SU needs were less likely to be successfully discharged from diversion than those without SU needs. Further, being unsuccessfully discharged was the strongest predictor of recidivism.

Discussion

The current study adds to the limited research on drug testing justice-involved juveniles by examining the impact of drug testing on completion of pretrial juvenile diversion and recidivism. This study is unique in that the sample consisted of early-system-involved youths referred to diversion rather than youths involved deeper in the system (Haapanen & Britton, 2002; Kilmer, 2007). Considering diversion is intended to protect youths from the negative consequences of formal court processing, early intervention efforts should be increasing the probability of successful completion of diversion and lowering the odds of a recidivism.

These findings demonstrate that drug testing youths, even those with SU needs, may not be helping youths succeed during or after diversion. The drug tested variable did not significantly predict successful completion of diversion. Further, drug testing was hypothesized to help those with SU needs per the RNR framework, but when controlling for drug testing, youths with SU needs were significantly less likely to be successfully discharged than youths without SU needs. While prior research on drug testing juveniles is limited, this finding is consistent with Haapanen and Britton’s (2002) study, which found drug testing to have no effect on recidivism for juvenile parolees.

The lack of clear support for the use of drug testing in helping juveniles in pretrial diversion succeed may be a result of drug testing being used to monitor drug use, but not really to treat the underlying issue. In Lispey’s (2009) meta-analysis examining the effectiveness of different types of juvenile interventions (i.e., therapeutic, surveillance, deterrence, restorative,
counseling, and skill-building programs), the largest effect sizes were associated with therapeutic interventions. Andrews and Dowden (2007) report that justice professionals will have the greatest influence when the relationship between them and an offender is one of “respect, understanding, care, and positive expectations” (p. 457). Even though most program managers indicated they are not using drug testing in a punitive way, the act of catching youths using drugs through drug testing may not be a therapeutic process and may harm the relationship between program staff and youths (Haapanen & Britton, 2002; Winters, 2004). If this process makes youths view the system as less legitimate, they may be less likely to follow through on program requirements and may be more likely to engage in future delinquency (Fine et al., 2017).

In addition to SU needs, age, and race also were found to significantly predict successful discharge. Somewhat counterintuitively, as age increased the odds of successful discharge increased. This may be an effect of being preselected into a program for lower-risk youths. Because research supports a strong age-crime correlation (Farrington & Loeber, 2000; Hirschi & Gottfredson, 1983), older youths with minor infractions, and no priors may be particularly low risk and less likely to recidivate because of their age. Lastly, the finding that White youths are more likely to be successfully discharged than Youth of Color is consistent with previous research on racial and ethnic disparities. NeMoyer et al. (2014) found that African American youths were significantly more likely than White youth to have failed to comply with juvenile probation requirements. This finding could be a product of racial biases, such as Youth of Color being given more program stipulations or less leniency than White Youth. It may also indicate that diversion programs should invest in culturally appropriate interventions that can reduce the likelihood of unsuccessful diversion completion for Youth of Color.
With respect to recidivism, only the location and discharge outcome variables were significant predictors of not recidivating. Youths discharged from programs located in rural counties were more likely to have future system involvement. One explanation for this finding may be the distribution of resources, as generally, programs in rural counties have less staff, less funding, and fewer community resources (Dyck, 2016). Diversion programs that have more options available to address youths’ drug or alcohol problems, may be better equipped to meet youths’ needs and responsivity factors, which ultimately results in more effective programming. It may be that this state’s rural counties have fewer resources to effectively address youths’ needs, resulting in youths being successfully discharged from diversion, but not being rehabilitated. Another explanation, as explained to us anecdotally, is that law enforcement and county attorney practices in rural communities may differ from urban counties. Specifically, that once youths or family members are labeled as delinquent, this may result in additional future contact.

The last significant factor, successful discharge, was the strongest predictor of not recidivating. This finding highlights the purpose of pretrial diversion, to avoid formal court processing. It may be that by failing to complete pretrial diversion, youths are indeed unable to avoid the unintentional consequences of formal court processing therefore increasing their odds of recidivism (OJJDP, 2017).

Limitations

This study had several limitations that require further consideration. First, the sample consists entirely of youths in one state who met qualifications for diversion and chose to participate. Referral to pretrial diversion may be limited by the type of offense and youths’ risk level; therefore, findings may not be generalizable to all youths in diversion programs. Also,
since participation is voluntary after referral, there may be differences in which youths decline to participate and choose formal court processing because diversion may require more involvement from families who are unable to devote the extra time.

Second, while efforts were made to follow-up with programs and collect missing data over one-third of the sample were not assessed for SU risk. Although there were no significant proportional differences between those with missing data and those with complete data based on who successfully completed diversion and who did not recidivate. Some program managers indicated that sometimes they did not fill out the score sheets but did use a tool during intake. Others were not in charge of the program during the study’s years of interest and could not answer why many assessment scores were not found. It may be that programs that had the majority of their assessment scores available were more likely to be following best practices in other areas of the program as well and had a greater impact on youths than programs with lower quality programming (Lipsey, 2009).

Another methodological limitation is that we did not analyze the data using multi-level modeling techniques to account for differences across programs as most programs had fewer than 20 cases (21 of the 27 programs). Instead, two variables we thought most relevant were included to control for program, geographic location (rural or urban) and drug testing policy (yes or no).

Lastly, SU need was given a broad definition in this study. Any score that indicated a need might be present was included as having a SU need, as well as having a SU-related referral charge for those without a SU assessment score. Best practice for identifying needs would rely solely on assessment scores and not referral charges. In practice, program managers reported that referral charges were frequently used when designing diversion plans including all the programs
that drug tested during the study period. Additionally, best practices would also recommend following a screening indicating a moderate need with a full assessment to determine how to proceed (Hoffman, 2015), but this study did not have access to this decision point.

**Recommendations and Future Directions**

Based on these findings there are several recommendations for programs and implications for future research. First, diversion programs should ensure they are following best practices when it comes to screening and assessing youths for criminogenic needs. This process helps ensure programs are following the principles of RNR and correctly matching youths to services. Research has found programs, and especially community programs, are most effective when adhering to these principles (Bonta & Andrews, 2017).

Second, diversion programs may need to explore new interventions or accommodations, especially those aimed at increasing the success of diversion completion for Youth of Color and youths with SU needs. Both groups of youths were significantly less likely to be successfully discharged than their counterparts indicating a failure of current program practices or overall juvenile justice system failure. Successful early intervention efforts for these groups may not only help these youths successfully complete diversion but also prevent future delinquency.

Third, current drug testing policies appear to not affect youths’ success while completing diversion or afterward. Given that drug testing is a clear measure of current drug use, programs may still want to rely on them. Future research could explore how the relationship between juveniles and program staff changes when youths are being drug tested. This may lend insight into how drug testing policies should be implemented to be more effective, especially with this population (Haapanen & Britton, 2002).
Finally, future researchers may want to explore how drug testing may affect other juvenile justice system outcomes of interest. For example, future researchers could extend Kilmer’s (2007) study by testing if drug testing youths in other settings can also have short-term positive effects on education and employment. Perhaps by learning when drug testing can have a positive impact, these benefits can be prolonged and can inform other policies.

**Conclusion**

This study provides evidence that drug testing youths according to the need principle of RNR, at best, has no effect on the outcomes of interest to juvenile diversion programs. This is particularly important for youths with SU needs, which were found to be an important driver of unsuccessful program completion. Considering the purpose of juvenile diversion programs is to help youths avoid the unintended consequences that stem from formal system involvement, diversion programs may need to invest in more effective interventions to address these needs.
References


Table 1

_Demographic Characteristics_

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 665)</td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>44.1%</td>
<td>293</td>
</tr>
<tr>
<td>Male</td>
<td>55.9%</td>
<td>372</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth of Color</td>
<td>28.4%</td>
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</tr>
<tr>
<td>White Youth</td>
<td>71.6%</td>
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</tr>
<tr>
<td><strong>Location</strong></td>
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<tr>
<td>Rural</td>
<td>41.7%</td>
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</tr>
<tr>
<td>Urban</td>
<td>58.3%</td>
<td>388</td>
</tr>
<tr>
<td><strong>Program Drug Tested</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>13.8%</td>
<td>92</td>
</tr>
<tr>
<td>Yes</td>
<td>86.2%</td>
<td>573</td>
</tr>
<tr>
<td><strong>Youths Drug Tested</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>77.0%</td>
<td>512</td>
</tr>
<tr>
<td>Yes</td>
<td>23.0%</td>
<td>153</td>
</tr>
<tr>
<td><strong>SU Need</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>55.5%</td>
<td>369</td>
</tr>
<tr>
<td>Yes</td>
<td>44.5%</td>
<td>296</td>
</tr>
<tr>
<td><strong>Discharge</strong></td>
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<td></td>
</tr>
<tr>
<td>Unsuccessful</td>
<td>22.0%</td>
<td>146</td>
</tr>
<tr>
<td>Successful</td>
<td>78.0%</td>
<td>519</td>
</tr>
<tr>
<td><strong>Recidivism</strong></td>
<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>15.9%</td>
<td>106</td>
</tr>
<tr>
<td>No</td>
<td>84.1%</td>
<td>559</td>
</tr>
</tbody>
</table>

_Range_  \( M (SD) \)

Age (Years)  7 – 18  15.53 (1.80)
Table 2

*Bivariate Comparisons by Outcome*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Successful Discharge</th>
<th>No Recidivism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>82.3%</td>
<td>241a</td>
</tr>
<tr>
<td>Male</td>
<td>74.7%</td>
<td>278b</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth of Color</td>
<td>69.8%</td>
<td>132a</td>
</tr>
<tr>
<td>White Youth</td>
<td>81.3%</td>
<td>387b</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>83.0%</td>
<td>230a</td>
</tr>
<tr>
<td>Urban</td>
<td>74.5%</td>
<td>289b</td>
</tr>
<tr>
<td>Program Drug Tested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>82.6%</td>
<td>76</td>
</tr>
<tr>
<td>Yes</td>
<td>77.3%</td>
<td>443</td>
</tr>
<tr>
<td>Youths Drug Tested</td>
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<td></td>
</tr>
<tr>
<td>No</td>
<td>80.7%</td>
<td>413a</td>
</tr>
<tr>
<td>Yes</td>
<td>69.3%</td>
<td>106b</td>
</tr>
<tr>
<td>SU Need</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>81.0%</td>
<td>299a</td>
</tr>
<tr>
<td>Yes</td>
<td>74.3%</td>
<td>220b</td>
</tr>
<tr>
<td>Discharge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unsuccessful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (r²)</td>
<td>.13**</td>
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</tr>
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</table>

*Note.* Significantly different bivariate comparisons within each variable are indicated with different superscripts. All differences significant at $p < .05$. $*p < .05$, $**p < .01$, $***p < .001$. 
Table 3

Logistic Regressions Predicting Each Outcome in the Total Sample and Subsamples

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Successful Discharge</th>
<th></th>
<th></th>
<th>No Recidivism</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
<td>OR (95% CI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1.19** (1.07 – 1.33)</td>
<td>1.03 (0.91 – 1.17)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (Male = 1)</td>
<td>0.75 (0.50 – 1.11)</td>
<td>0.82 (0.53 – 1.28)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity (White Youth = 1)</td>
<td>1.65* (1.09 – 2.49)</td>
<td>1.30 (0.80 – 2.07)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location (Urban = 1)</td>
<td>0.75 (0.49 – 1.16)</td>
<td>1.70* (1.06 – 2.72)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Drug Tested (Yes = 1)</td>
<td>1.11 (0.58 – 2.10)</td>
<td>0.89 (0.45 – 1.73)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youths Drug Tested (Yes = 1)</td>
<td>0.63 (0.39 – 1.00)</td>
<td>0.93 (0.54 – 1.61)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SU Need (Yes = 1)</td>
<td>0.62* (0.40 – 0.96)</td>
<td>0.72 (0.45 – 1.16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discharge (Successful = 1)</td>
<td></td>
<td>3.24*** (2.04 – 5.14)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Successful Discharge: \( \chi^2(7, N = 665) = 36.86, p < .001 \). No Recidivism: \( \chi^2(8, N = 665) = 35.57, p < .001 \). *p < .05, **p < .01, ***p < .001.