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Order in The Court? The Association Between Substance Use, Exposure to Violence, Risky Sexual Behaviors & Observed Court Behaviors Among Women Involved in the Criminal Justice System

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Abstract

Drug courts, therapeutic justice programs for individuals charged with drug offenses, have sub-optimal completion rates. The Courtroom Behavior Checklist (CRBCL), an assessment that quantifies readiness for drug court and drug court behaviors, was developed to predict female offenders who may be at-risk for non-compliance and termination. Data derived from 264 mainly urban women recruited from a Municipal Drug Court System in St. Louis, MO, were used to evaluate the association between substance use, victimization, HIV/AIDS risk behaviors, and observed drug court behaviors. Results showed that women who reported recent substance use or were categorized as at risk for HIV/AIDS were significantly more likely to have scores indicative of unfavorable drug court behaviors, while women who experienced victimization had scores indicative of favorable drug court behaviors. Other factors significantly associated with unfavorable drug court behaviors included greater lifetime arrests, lower education, and being less religious or spiritual. Our findings suggest that the CRBCL may have added utility in identifying women in drug court with recent substance use and risky sexual behaviors. However, further studies on other samples of offenders are needed to support these findings.

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Keywords

CRBCL; courtroom behavior; SAVA; women; criminal justice

1. Introduction

1.1 Gender Differences in Population Growth of the Criminal Justice System

The proportion of those involved in the criminal justice system in the United States has increased dramatically over the past several decades (Blumstein, 2015; Dumont, Allen, Brockmann, Alexander, & Rich, 2013; Massoglia & Pridemore, 2015; Vera Institute of Justice, 2014). Though the alarming figures of those incarcerated in the United States have led to small decreases in incarceration rates, gender differences in these rates are evident (Greiner, Law, & Brown, 2014; Minton & Golinelli, 2014). Research by Minton & Golinelli (2014) found that though the population of individuals in county and city jail decreased in recent years, the proportion of females in jails increased by nearly 11%. Though men are still significantly more likely to be involved in some form of correctional supervision, women are the fastest growing population in the criminal justice system (Hall, Golder, Conley, & Sawning, 2013; Greiner, Law, & Brown, 2014; Minton & Golinelli, 2014).

1.2 Drug Courts and the Development of the CRBCL

In recent years, therapeutic justice programs have emerged to curb incarceration rates among offenders with mental health issues including addiction (Mitchell, Wilson, Eggers, & MacKenzie, 2012; Matusow et al., 2013; Sevigny, Pollack, & Reuter, 2013). Drug courts, therapeutic justice programs for offenders charged with drug offenses, have become increasingly popular. However, drug court completion rates are sub-optimal (DeVall, Gregory, & Hartmann, 2015; Mitchell et al., 2012; Sevigny, Fuleihan, & Ferdik, 2013).

Overall, the criminal justice system and related therapeutic justice programs comprise a population of females who are at risk for poor outcomes and termination from these programs (Fulkerson, Keena, & O'Brien, 2013; Peters, Kremling, Bekman, & Caudy, 2012; Reingle et al, 2012; Sevigny, Fuleihan, & Ferdik, 2013). In response to the need for a good measure to predict female offenders who will be non-compliant or change high-risk behaviors while in therapeutic justice programs, investigators developed the Courtroom Behavior Checklist (CRBCL) (Reingle et al., 2012). The CRBCL, an assessment that has been used over 7,000 times in the Municipal Court system, quantifies readiness for drug court and drug court behaviors among women at drug court and may also serve as a proxy for conformity to norms. In a prior analysis evaluating the association between high CRBCL scores (indicating unacceptable behavior) and recidivism (defined as new misdemeanor or felony arrests and new Municipal violations), Reingle and colleagues (2012) found that the women with higher CRBCL scores had up to three times the odds of re-offending than women with lower scores.

1.3 SAVA Syndemic and the Potential Correlation with CRBCL

Research has found that among women, initial involvement in the criminal justice system and subsequent re-offenses are linked with the SAVA syndemic, which is the con-current and mutually reinforcing issues of substance abuse (SA), violence (V), and sexual behaviors that can lead to HIV/AIDS (A) such as sex trading (Singer, 1996; Scot, Fedock, & Kubiak, 2014; Scott, Grella, Dennis, & Funk, 2014; Tripodi & Davis, 2013; Messina, Grella, Cartier, & Torres, 2010; Steinberg et al, 2011; Klein, Elfison, Senn, Carey, & Coury-Doniger, 2011). Since many female offenders are arrested for drug-related charges and often have high rates of victimization and risky sexual behaviors, the CRBCL may be a way to identify women in drug court with these frequently co-occurring issues.

A way to conceptualize the possible link between observed drug court behaviors and its potential relationship with SAVA may lie in the most common framework used in interventions for offender populations, the therapeutic community treatment program. This framework views any type of negative behaviors (e.g. substance use), as a part of a larger behavioral disorder and suggests that changes in unfavorable behaviors depends on adopting prosocial behaviors, which are behaviors that are beneficial to one's self and others (Staton-Tindall, Harp, Winston, Webster, & Pangburn, 2015). Using this framework, it is conceivable that female offenders' unfavorable behavior in drug court may be linked with other issues such as the SAVA syndemic, which is known as one of the most common pathways into the correctional system for females.

1.4 Current Analysis

The current analysis assessed the association between self-reported SAVA leading up to baseline and observed drug court behaviors at baseline, measured using the CRBCL and controlling for socio-demographic characteristics. We hypothesize that women who meet the criteria for the SAVA syndemic will have significantly higher baseline CRBCL scores compared to women who do not. The CRBCL may serve as a means to identify the women at drug court at highest risk for the SAVA syndemic, which may allow more targeted and intense interventions.

In addition, prior research indicates that religion/spirituality has been associated with decreases in risky behaviors and increases in prosocial behaviors (Shariff, Willard, Andersen, & Norenzayan, 2016; Acheampong, Lasopa, Striley, & Cottler, 2015; Cheney et al, 2014; Gmel et al, 2013; Sussman, Reynaud, Aubin, & Leventhal, 2011). We aim to understand the possible role of religion/spirituality and other environmental and social risk factors such as various markers of social economic status, childhood experiences, perceptions of risky sexual and drug-using behaviors, and social support in the association between SAVA and observed drug court behaviors.

The criminal justice system lacks a good measure to predict who will be non-compliant or change their drug-using behavior and accompanying risky sexual behaviors. A recent systematic review of the HIV literature highlighted a lack of structural interventions in criminal justice settings to reduce HIV/AIDS transmission (Shoptaw et al., 2013). Thus,

results from these analyses may fill a significant gap with the development of much-needed structural intervention.

2. Methods

Data for this retrospective analysis comes from a National Institute of Nursing Research funded study-Sisters Teaching Options for Prevention (STOP) (R01NR09180 PI: Cottler). The sample was comprised of 319 underserved women mainly recruited from a Municipal Drug Court System in Midwest, US. STOP research staff members were present at the courts and recruited women for the study. Interested, eligible, women (18+ years of age, released on probation or parole, and intend to remain in the study area (St. Louis, MO) for the next 12 months) were scheduled for an initial interview outside of the courtroom. It is important to note that the sample of women was not randomly selected, thus limiting generalizability. Also, though much of the STOP sample came from a drug court system, around 12% of the sample were recruited from areas other than drug court (e.g., community treatment centers). Of the 282 women recruited from the Municipal Court system, 6% (N=18) were excluded from this analysis as they were granted an excused absence from court. Thus, the sample size for this study was 264 women. All women underwent the same baseline processes and interviews about risky sexual behavior, substance use, violence, and socio-demographic variables, at baseline. This study was approved by the Institutional Review Board at Washington University of St Louis.

2.1 Measures

2.1.1. The Washington University Risk Behavior Assessment (WU-RBA)—

Adapted from National Institute on Drug Abuse (NIDA)'s Risk Behavior Assessment, the WU-RBA was used to assess sexual behavior such as number of sex partners, condom use during sexual activities, and sex trading, as well as drug using behaviors such as quantity and frequency of licit and illicit drug use, and perceptions of sexual and drug-using behaviors (Needle et al, 1995; Shacham & Cottler 2010).

2.1.2. The Violence Exposure Questionnaire (VEQ)—The Violence Exposure Questionnaire, developed from the Conflict Tactics Scale (Strauss, 1979), assessed various forms of current and past violent experiences and abuse including sexual abuse, being threatened or attacked with a weapon, and physical and emotional abuse.

2.1.3 The Court Room Behavior Check List (Main Outcome-Observed Drug Court Behaviors)—STOP research staff was allowed into court to assess courtroom behaviors using the CRBCL; 13 items were measured, with items 1–7 assessed before court and items 8–13 assessed during court. The assessment measured attendance, items related to court readiness, demeanor, and behavior (e.g., disrupting the judge, being distracted) in drug court. The scores ranged from 0 (indicating favorable behavior), to 35 points (for an unexcused absence from the Court). For items that were subjective, staff was trained to ensure they understood the intent. Moreover, since the women were seen in court more than once, the CRBCL score prior to the baseline was used for analysis, consistent with previous analyses (Reingle et al., 2012). The CRBCL recorded behaviors through an overall score

that ranged from 0 (indicating optimal behavior) to 35 (for an unexcused absence from the Court) (Table 1).

2.2 Main Exposure-SAVA in the past 4 months Prior to Baseline

2.2.1 Violence—To assess exposure to violence, as in victimization, participants were asked several questions: 1) “During the past 4 months, has anyone attacked you with a gun?”, 2) “During the past 4 months, has anyone pressured or forced you to participate in sexual acts against your will?”, 3) “During the past 4 months, has anyone abused you emotionally, that is, did or said things to make you feel very bad about your life?”, 4) “During the past 4 months, has anyone hurt you to the point that you had bruises, cuts, broken bones, or otherwise physically abused you?”, and 5) “During the past 4 months, has anyone attacked you with knife, stick, bottle, or other weapon?”. Overall, participants were considered having experienced violence in the past 4 months if they answered “yes” to at least one of these questions.

2.2.2 HIV/AIDS risk behaviors—Participants were considered to meet the criteria for HIV/AIDS risk behaviors if they reported having at least one partner who was an injection drug user or had other partners simultaneously or the women had 2+ sex partners, AND at least one reported unprotected sex acts (any unprotected vaginal, anal, or oral sex).

2.2.3 Substance use—Participants were asked “How many days have you used (drug)” and subsequently how many times a day each drug was used if they reported using a specific substance for 1 or more days in the past 30 days. The number of uses of marijuana, stimulants (speed, amphetamines), crack/cocaine, and heroin in the past 30 days was calculated for each participant by multiplying the number of days used by how many times a day each drug was used. Overall, recent substance use was the summation of the number of uses for all drugs in the past 30 days. Both the total number of uses for each drug, as well as the total number of uses for all drugs were used in the analysis.

2.2.4 SAVA Criterion—To assess SAVA, a four-level variable was created; “0” (no SAVA component criterion met), “1” (one SAVA component criterion met), “2” (two SAVA component criteria met), “3” (all three SAVA component criteria met). Participants who met all three criteria (substance use, violence, and HIV/AIDS risk) were considered to have the SAVA syndemic.

2.2.5 Covariates—Potential cofounders that were included in this analysis were: religion/spirituality (defined as viewing religion and spirituality as very important, attending religious services regularly, and seeking advice from religious leaders in the past 12 months vs. no), number of arrests greater than 25th percentile of reported arrests in the sample (4+ life-time arrests vs. 3 or less life-time arrests), childhood experiences (separated 6+ months from parents before the age of 15 vs. no or less than 6 months from parents before the age of 15; experiencing child sexual abuse before the age of 15 years of age vs. not), and social support (having someone who you can talk to and ask for favors vs. not). Socio-demographic covariates included in this analysis were: education (at least a high school diploma vs. no high school diploma), age (18–29 years of age vs. 30+), unstable housing

(living with others, on the streets, halfway house etc. vs. living in own house or apartment) and race (black vs. non-black).

2.3 Analysis

Negative binomial regressions were used for our analyses to account for over-dispersion in CRBCL scores. Overall, 2 multivariable analyses were conducted: 1) a negative binomial regression model assessing behavior specific correlates of baseline CRBCL scores and 2) a negative binomial regression model assessing the association between the number of SAVA criterion met and baseline CRBCL scores.

3. Results

3.1 Socio-Demographic Characteristics

Among our sample, 69% self-identified as Black and 31% self-identified as non-black--primarily White (Table 2). Around a third of the women reported being married, widowed, separated, or divorced, and less than 30 years of age, while nearly half (46%) of the women reported having less than a high school diploma. Regarding childhood experiences, 74% of the women reported being separated 6+ months from at least one parent, while around half of the women (50%) reported being sexually abused before the age of 15. The vast majority of the women also reported having social support (someone to talk to and ask for favors) (78%) but not stable housing (74%). Regarding belief systems, 43% of the women reported that they had risky sexual behaviors that needed changing, while 48% reported that they had drug-using behaviors that needed changing. Approximately one fourth (23%) of the women reported regularly attending religious services, viewing religion/spirituality as important to them, and seeking advice from religious leaders in the past 12 months. Overall, our sample consisted of women who reported numerous criminal justice involvements, around 71% of the women reported 4 or more lifetime arrests. Of these socio-demographic variables, religion/spirituality was significantly associated with decreased CRBCL scores, while believing that you had risky drug-using behaviors that need changing, lower education, being recruited from a city drug court, and 4+ arrests was significantly associated with increased CRBCL scores ($p<0.05$).

3.2 Exposure to Violence, HIV/AIDS Risk, Substance Use at Baseline

Exposure to violence in the past 4 months was highly prevalent with nearly 60% of women reporting at least one instance of violence (Table 3). The most commonly reported instance of violence was emotional abuse which was reported by 53% of the women, followed by 19% for physical abuse (defined as being hurt to the point of bruises, cuts, or broken bones). Around 10% of women reported being pressured or forced to participate in sexual acts or being attacked with a knife, stick, bottle, or another weapon. A small percentage of women (4%) reported being threatened with a gun in the past 4 months. Of these violent experiences, being threatened with a gun and reporting at least one instance of violence was significantly associated with decreased CRBCL scores.

Sexual risk taking was also commonly reported (Table 3); 69% reported having at least one instance of unprotected sex of any kind in the past 4 months. Specifically, 64% of the

women reported at least one case of unprotected vaginal sex in the past 4 months, 49% reported at least one instance of performing oral sex without any protection in the past 4 months, and 9% reported at least one instance of unprotected anal sex in the past 4 months. Nearly half (45%) of the women reported having 2 or more sex partners in the past 4 months, while around a quarter of the women reported having at least one risky partner (23%). Overall, 46% of the women met the criterion for having HIV/AIDS risk behaviors, defined as having 2 or more sex partners or at least one risky partner AND having one or more instance of an unprotected sex act.

Illicit substance use in the past 30-days was reported by almost half of the women (47%) (Table 3). The most commonly used substances were crack/cocaine and marijuana, which was reported by 35% and 27% of the women respectively. Only a small percentage of the women reported heroin (5%) or stimulant use (1%). The use of crack/cocaine, heroin, and the composite variable combining any substance use were significantly associated with higher CRBCL scores.

3.3 SAVA Among the Sample at Baseline

Overall, 16% of the women recently used an illicit substance, experienced at least one incident of violence, and met the criteria for HIV/AIDS risk behaviors in the past 4 months, which met the criteria for a SAVA syndemic (Table 3). Around the same percentage of women did not experience any type of violence or have HIV/AIDS risk behaviors in the past 4 months, and did not use an illicit drug in the last 30-days, while, 33% of the women met 1 criterion or 2 SAVA criteria. The overall SAVA variable was significantly associated with CRBCL scores at the .05 significance level.

3.4 Severity of Substance Use, Violence Experienced, and HIV/AIDS Risk at Baseline

We also evaluated whether the severity of substance use, violence experienced, and the risky sexual behaviors differed among SAVA criterion (Table 4). The results showed that among those who had SAVA, the median number of times individuals used any type of substance in the past 30 days was 18. These individuals also had a median number of 3 sexual partners, 19 unprotected sex acts, and experienced 2 acts of violence in the past 4 months. Those who did not have SAVA generally tended to have used substances fewer times than those with SAVA, however similar numbers of sex partners and violence experienced were evident among all groups.

3.5 Multivariable Models Assessing Behavior Specific Correlates of CRBCL Scores

We used a multivariable negative binomial regression model to assess behavior specific correlates of baseline CRBCL scores (Table 5). In the unadjusted model, women who used any substance in the past 30 days had significantly higher scores (RR 1.75, 95% CI 1.39, 2.16) respectively than women who did not report any substance use; however, the strength of this association decreased in the adjusted model (RR 1.40, 95% CI 1.09, 1.79). Women who met the criteria for having HIV/AIDS risk also had significantly higher CRBCL scores in the adjusted model (RR 1.37, 95% CI 1.08, 1.76). On the contrary, women who had experienced violence in the past 4 months had significantly lower scores than women who were not exposed to violence (RR .70, 95% CI .55, .89).

In regards to socio-demographic correlates of CRBCL scores, women who were less educated, had 4 or more arrests, or were recruited from the city drug court had 29%, 32%, and 45% increased scores compared with women who had higher levels of education, less than 4 arrests, or were recruited from the county, family, or state drug courts. In addition, women who were less religious/spiritual were significantly more likely to have higher CRBCL scores than women who were very religious/spiritual. In fact, religion/spirituality was one of the strongest predictors of CRBCL scores in the adjusted model (RR 1.39, 95% CI 1.05, 1.86). Race and age were not significant correlates of CRBCL scores in the unadjusted or the adjusted models.

3.6 Multivariable Models Assessing SAVA and CRBCL Scores

Our multivariable negative binomial regression model assessing SAVA and baseline CRBCL scores yielded interesting and similar results to the behavior specific model (Table 5). In the unadjusted model, women who had SAVA had 80% higher CRBCL scores than women who did not meet any SAVA criterion (RR 1.82, 95% CI 1.20, 2.75). However, after adjusting for socio-demographic factors, the number of SAVA component criterion met was no longer statistically significantly associated with CRBCL scores.

In this model, there was a trend for women with 4 or more arrests or lower education to have higher CRBCL scores than women who had less than 4 arrests or higher education, however, these associations marginally missed significance (RR 1.30, 95% CI .97, 1.76; RR 1.22, 95% CI .96, 1.55). The association between religion/spirituality and CRBCL scores was statistically significant and increased in strength in this model compared to the adjusted behavior specific model (RR 1.66, 95% CI 1.24, 2.21). Participants who agreed that they had risky drug-using behaviors that needed changing were significantly more likely to have higher CRBCL scores than participants who did not agree (RR 1.39, 95% CI 1.07, 1.80).

4. Discussion

In this analysis, we aimed to evaluate the association between syndemic issues of substance use, victimization, and HIV/AIDS risk leading up to baseline and observed drug court behaviors at baseline, controlling for socio-demographic characteristics. We hypothesized that women with these syndemic issues would be significantly more likely to have scores indicative of unfavorable drug court behaviors compared to women who did not report all three components (substance use and violence and HIV/AIDS risk). The results of our unadjusted negative binomial regression model, which illustrated the significant increase in CRBCL scores among women who reported all three components, supported our hypothesis, meaning that women with the syndemic were significantly more likely to have scores indicative of unfavorable drug court behaviors. However, this association was attenuated when adjusted for socio-demographic characteristics of the sample, meaning that the prior significant associations were explained by the various socio-demographic factors. Moreover, women who used an illicit substance in the past 30 days or met the criteria for HIV/AIDS risk were more likely to have unfavorable drug court behaviors than non-substance using women or women who did not meet the criteria for HIV/AIDS risk. On the contrary,

exposure to violence was a significant correlate of scores indicative of favorable drug court behaviors.

Our analyses yielded further interesting results. In our unadjusted model assessing substance use, exposure to violence, HIV/AIDS risk and unfavorable drug court behaviors, women who reported one of these factors were more likely to have scores indicative of unfavorable drug court behaviors. However, this was not true for women who reported at least two of these factors. We believe that the descriptive statistics on the severity of substance use, violence, and risky sexual behaviors by the number of SAVA component criteria met provides some clarification. Women who met two SAVA component criteria tended to experience more violence than women in the other groups. Since exposure to violence was linked with significantly decreased scores, this may explain why meeting two factors was not significant in the unadjusted model, while meeting one and all 3 were.

Our study did yield further results that were consistent with the known literature. Those who were less religious/spiritual, had less than a high school diploma, and had 4 or more arrests were significantly more likely to have unfavorable drug court behaviors. Prior studies have found that religion/spirituality has been linked with prosocial behaviors, which may offer an explanation as to why religious/spiritual women were more likely to have more favorable drug court behaviors (Shariff et al., 2016; Sussman et al., 2011). In addition, religion/spirituality has also been shown to reduce the odds of substance use, which was one of the strongest predictors of drug court behaviors in our analyses (Cheney et al., 2014). Reingle et al (2012) found that observed drug court behaviors predicted future criminal offenses, however, the results of these analyses suggest that observed drug court behaviors also is associated with baseline demographics of the women such as prior arrest history. Lastly, women with lower education were significantly more likely to have unfavorable drug court behaviors than women with more education. Lower education has been previously linked with poorer criminal justice outcomes (Mitchell et al., 2012). However, in regards to drug court behaviors, it may be plausible that women with lower education levels may have been unaware of the expectations of court, and thus leading these women to have scores indicative of unfavorable drug court behaviors.

4.1 Strengths and Limitations

There are several limitations to this study. First, our sample was not randomly selected, meaning that the results of this study may not be generalizable to all females in drug court. Second, we relied on self-report data on sensitive questions, which can lead to the social desirability bias. However, our study also has many strengths including a relatively large population of an under-researched population of female offenders. Moreover, our study used a rich data set with detailed items on substance use, violence, risky sexual behaviors, and perceptions of these behaviors. The availability of such data allowed a detailed analyses examining many variables which may not be available in other data sources. Moreover, to our knowledge, the CRBCL is the first assessment which quantifies court readiness and behaviors, providing a measurable variable for analyzing these outcomes.

5. Conclusion

The CRBCL may have added utility in identifying female offenders with recent substance use, exposure to violence, and risky sexual behaviors. Further studies on other samples of offenders are needed to support these findings. Overall, our study was comprised of a high-risk population of females who have experienced recent trauma, used substances, and have risky sexual behaviors. Our findings corroborate with other research that highlights the need for gender-specific interventions for females due to high levels of substance use, risky sexual behaviors, and trauma experienced (Blankenship, Reinhard, Sherman, & El-Bassel, 2015; Scott et al., 2014; Abram, Teplin, & McClelland, 2004).

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References

- Acheampong AB, Lasopa S, Striley CW, & Cottler LB (2015). Gender Differences in the Association Between Religion/Spirituality and Simultaneous Polysubstance Use (SPU). *Journal of Religion and Health*, 1–11. [PubMed: 25534048]
- Blumstein A (2015). Racial disproportionality in prison. In *race and social problems* (pp. 187–193). Springer New York.
- Cheney AM, Curran GM, Booth BM, Sullivan SD, Stewart KE, & Borders TF (2014). The religious and spiritual dimensions of cutting down and stopping cocaine use a qualitative exploration among African Americans in the south. *Journal of Drug Issues*, 44(1), 94–113. [PubMed: 25364038]
- DeVall KE, Gregory PD, & Hartmann DJ (2015). Extending recidivism monitoring for drug courts methods issues and policy implications. *International Journal of Offender Therapy and Comparative Criminology*, 0306624X15590205.
- Dumont DM, Allen SA, Brockmann BW, Alexander NE, & Rich JD (2013). Incarceration, community health, and racial disparities. *Journal of Health Care for the Poor and Underserved*, 24(1), 78–88 [PubMed: 23377719]
- Fulkerson A, Keena LD, & O'Brien E (2013). Understanding success and nonsuccess in the drug court. *International Journal of Offender Therapy & Comparative Criminology*, 57(10), 1297–1316. doi:10.1177/0306624X12447774 [PubMed: 22641858]
- Fries L, Fedock G, & Kubiak SP (2014). Role of gender, substance use, and serious mental illness in anticipated postjail homelessness. *Social Work Research*, 38(2), 107–116
- Gmel G, Mohler-Kuo M, Dermota P, Gaume J, Bertholet N, Daepfen JB, & Studer J (2013). Religion is good, belief is better: Religion, religiosity, and substance use among young Swiss men. *Substance Use & Misuse*, 48(12), 1085–1098. [PubMed: 24041170]
- Greiner LE, Law MA, & Brown SL (2014). Using dynamic factors to predict recidivism among women a four-wave prospective study. *Criminal Justice and Behavior*, 0093854814553222.
- Hall MT, Golder S, Conley CL, & Sawning S (2013). Designing programming and interventions for women in the criminal justice system. *American Journal of Criminal Justice*, 38(1), 27–50.
- Klein H, Elifson KW, & Sterk CE (2008). Depression and HIV risk behavior practices among “at risk” women. *Women & Health*, 48(2), 167–188. [PubMed: 19042215]
- Massoglia M, & Pridemore WA (2015). Incarceration and health. *Annual Review of Sociology*, 41, 291–310.
- Matusow H, Dickman SL, Rich JD, Fong C, Dumont DM, Hardin C, Marlowe D, & Rosenblum A (2013). Medication assisted treatment in us drug courts: results from a nationwide survey of

availability, barriers and attitudes. *Journal of Substance Abuse Treatment*, 44(5), 473–480. [PubMed: 23217610]

Messina N, Grella CE, Cartier J, & Torres S (2010). A randomized experimental study of gender-responsive substance abuse treatment for women in prison. *Journal of Substance Abuse Treatment*, 38(2), 97–107. [PubMed: 20015605]

Meyer JP, Springer SA, & Altice FL (2011). Substance abuse, violence, and HIV in women: A literature review of the syndemic. *Journal of Women's Health* 20(7).

Minton TD, & Golinelli D (2014). Jail Inmates at Midyear 2013-statistical Tables. Washington, DC: US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

Mitchell O, Wilson DB, Eggers A, & MacKenzie DL (2012). Assessing the effectiveness of drug courts on recidivism: A meta-analytic review of traditional and non-traditional drug courts. *Journal of Criminal Justice*, 40(1), 60–71.

Needle R, Fisher DG, Weatherby N, Chitwood D, Brown B, Cesari H, Booth R, Williams ML, Watters J, Andersen M and Braunstein M (1995). Reliability of self-reported HIV risk behaviors of drug users. *Psychology of Addictive Behaviors*, 9(4), p.242.

Peters RH, Kremling J, Bekman NM, & Caudy MS (2012). Co-occurring disorders in treatment-based courts: Results of a national survey. *Behavioral Sciences & The Law*, 30(6), 800–820. [PubMed: 22807069]

Reingle JM, Striley CW, Small E, Crecelius R, O'Leary CC, & Cottler LB (2013). Can courtroom behavior predict recidivism? An assessment of the courtroom behavior check list for women presenting in drug court. *American Journal of Criminal Justice*, 38(4), 520–534.

Scott CK, Grella CE, Dennis ML, & Funk RR (2014). Predictors of recidivism over 3 years among substance-using women released from jail. *Criminal Justice and Behavior*, 0093854814546894.

Sevigny EL, Fuleihan BK, & Ferdik FV (2013). Do drug courts reduce the use of incarceration? A meta-analysis. *Journal of Criminal Justice*, 41(6), 416–425.

Shacham E, & Cottler L (2010). Sexual behaviors among club drug users: Prevalence and reliability. *Archives of Sexual Behavior*, 39(6), 1331–1341. [PubMed: 19757011]

Shariff AF, Willard AK, Andersen T, & Norenzayan A (2016). Religious priming: A meta-analysis with a focus on prosociality. *Personality and Social Psychology Review*, 20(1), 27–48. [PubMed: 25673322]

Shoptaw S, Montgomery B, Williams CT, El-Bassel N, Aramrattana A, Metzger DS, Kuo I, Bastos FI & Strathdee SA (2013). Not just the needle: The state of HIV prevention science among substance users and future directions. *Journal of Acquired Immune Deficiency Syndromes*, 63(0 2), S174. [PubMed: 23764632]

Singer M (1996). A dose of drugs, a touch of violence, a case of AIDS: conceptualizing the SAVA syndemic. *Free Inquiry in Creative Sociology*, 24(2), 99–110.

Staton-Tindall M, Harp KL, Winston E, Webster JM, & Pangburn K (2015). Factors associated with recidivism among corrections-based treatment participants in rural and urban areas. *Journal of Substance Abuse Treatment*, 56, 16–22. [PubMed: 25858761]

Steinberg JK, Grella CE, Boudov MR, Kerndt PR, & Kadrnka CM (2011). Methamphetamine use and high-risk sexual behaviors among incarcerated female adolescents with diagnosed STD. *Journal of Urban Health*, 88(2), 352–364. [PubMed: 21394658]

Straus MA (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) scales. *Journal of Marriage and the Family*, 75–88.

Vera Institute of Justice. (2014). Drug War Détente? A Review of State-level Drug Law Reform, 2009–2013.

Sussman S, Reynaud M, Aubin HJ, & Leventhal AM (2011). Drug Addiction, Love, and the Higher Power. *Evaluation & the Health Professions*, 34(3), 362–370. [PubMed: 21411471]

Tripodi SJ, & Pettus-Davis C (2013). Histories of childhood victimization and subsequent mental health problems, substance use, and sexual victimization for a sample of incarcerated women in the US. *International Journal of Law & Psychiatry*, 36(1), 30–40. [PubMed: 23196054]

Table 1.

Description and Distribution of CRBCL and Scores

Item	Values
Present at court	Present=0, Unexcused absence=35
Under the influence of drugs or alcohol	No=0, Yes (observed by research staff) =5, Yes (court comment) =10
Cell phones/pagers turned off	Yes=0, No=1
Has notes about progress	Yes=0, No=1
Has documents about progress	Yes=0, No=1, Falsified documents=5
Is alone or with an advocate	With Advocate=0, Alone=1, With Children=3
Disruptive in court	No Talking=0, Talking (observed by research staff) =1 Talking (court comment) =2 Not Eating=0, Eating=1 Not Rifling through Possessions=0, Rifling through Possessions=1
Courteous to court staff	Yes=0, No=1
Interrupted the judge	No=0, Yes (observed by research staff) =1, Yes (court comment)=3
Prepared to take notes on required tasks	Yes=0, No=1
Responded to judge appropriately	Yes=0, No (observed by research staff) =1, No (court comment)=2
Appeared to have confident demeanor	Yes=0, No=1
Distribution of CRBCL scores	25 th Percentile (3), Median (4), 75 th Percentile (5)

Table 2.

Sample Characteristics of Participants at Baseline (N=264)

Demographic Characteristics	CRBCL Scores (0-2) N=50 (19%)	CRBCL Scores (3) N=64 (24%)	CRBCL Scores (4) N=77 (29%)	CRBCL Scores (5+) N=73 (27%)	Total N=264 (100%)	p value
Race						
African-American	34 (68%)	46 (72%)	57 (74%)	56 (63%)	183 (69%)	.16
All other races	16 (32%)	18 (28%)	20 (26%)	27 (37%)	81 (31%)	
Marital Status						
Ever married	19 (38%)	17 (27%)	26 (34%)	29 (40%)	91 (34%)	.18
Never married	31 (62%)	47 (73%)	51 (66%)	44 (60%)	172 (66%)	
Age						
Less than 30 years of age	10 (20%)	24 (38%)	20 (26%)	19 (26%)	73 (28%)	.23
30 years of age+	40 (80%)	40 (63%)	57 (74%)	54 (74%)	191 (72%)	
Social Support						
Has social support	40 (80%)	47 (73%)	55 (71%)	63 (86%)	205 (78%)	.06
No social support	10 (20%)	17 (27%)	22 (29%)	10 (14%)	59 (22%)	
Education						
Less than high school diploma	22 (44%)	26 (41%)	33 (43%)	43 (59%)	147 (46%)	<.001
High school diploma or higher	28 (56%)	38 (59%)	44 (57%)	30 (41%)	140 (53%)	
Child Sexual Abuse						
No	31 (62%)	26 (42%)	35 (45%)	38 (52%)	130 (50%)	.50
Yes	19 (38%)	36 (58%)	42 (55%)	35 (48%)	132 (50%)	
Separation from Parents before the age of 15 (6+ mos.)						
No	13 (26%)	15 (23%)	17 (22%)	24 (33%)	69 (26%)	.14
Yes	37 (74%)	49 (77%)	59 (78%)	49 (67%)	194 (74%)	
Arrest History						
Less than 4 arrests	76 (34%)	20 (31%)	24 (31%)	15 (21%)	76 (29%)	<.0001
More than 4 arrests	33 (66%)	44 (69%)	53 (69%)	58 (79%)	188 (71%)	
Housing						
Unstable Housing	35 (70%)	47 (73%)	56 (73%)	56 (77%)	194 (74%)	.91
Stable Housing	15 (30%)	17 (27%)	21 (27%)	17 (23%)	70 (27%)	

Demographic Characteristics	CRBCL Scores (0–2) N=50 (19%)	CRBCL Scores (3) N=64 (24%)	CRBCL Scores (4) N=77 (29%)	CRBCL Scores (5+) N=73 (27%)	Total N=264 (100%)	p value
Religion/Spirituality						
No	35 (70%)	48 (75%)	59 (77%)	62 (85%)	204 (77%)	
Yes	15 (30%)	16 (25%)	18 (23%)	11 (15%)	60 (23%)	<.001
Recruitment Site						
County, Family, or State Drug Court	17 (34%)	29 (45%)	17 (22%)	12 (16%)	75 (28%)	<.0001
City Drug Court	33 (66%)	35 (55%)	60 (78%)	61 (84%)	189 (72%)	
Perceived to have risky sexual behaviors that need changing						
No	29 (58%)	35 (55%)	46 (60%)	41 (56%)	151 (57%)	.77
Yes	21 (42%)	29 (45%)	31 (40%)	32 (44%)	113 (43%)	
Perceived to have risky drug behaviors that need changing						
No	28 (56%)	38 (59%)	44 (57%)	28 (38%)	138 (52%)	<.0001
Yes	22 (44%)	26 (41%)	33 (43%)	45 (62%)	126 (48%)	

* p values are generated from unadjusted negative binomial regressions

Table 3.

SAVA Among the Sample at Baseline (N=264)

SAVA in the Past 4 Months	CRBCL Scores (0-2) N=50 (19%)	CRBCL Scores (3) N=64 (24%)	CRBCL Scores (4) N=77 (29%)	CRBCL Scores (5+) N=73 (27%)	Total N=264 (100%)	p value
Violence Components						
Was threatened with a gun						
No	45 (90%)	62 (97%)	75 (97%)	72 (98%)	254 (96%)	
Yes	5 (10%)	2 (3%)	2 (3%)	1 (1%)	10 (4%)	.01
Was pressured or forced to participate in sexual acts						
No	47 (94%)	55 (86%)	73 (95%)	64 (88%)	239 (91%)	.91
Yes	3 (6%)	9 (14%)	4 (5%)	9 (12%)	25 (9%)	
Emotionally abused						
No	27 (54%)	29 (45%)	31 (40%)	37 (51%)	124 (47%)	.08
Yes	23 (46%)	35 (55%)	46 (60%)	36 (49%)	140 (53%)	
Physically abused (hurt to the point of bruises, cuts, broken bones)						
No	41 (82%)	53 (83%)	59 (77%)	61 (84%)	214 (81%)	.94
Yes	9 (18%)	11 (17%)	18 (23%)	12 (16%)	50 (19%)	
Attacked with knife, stick, bottle, or another weapon						
No	45 (90%)	58 (91%)	72 (94%)	65 (89%)	240 (91%)	.93
Yes	5 (10%)	6 (9%)	5 (6%)	8 (11%)	24 (9%)	
Any Violence						
No	25 (50%)	26 (41%)	29 (38%)	35 (48%)	115 (44%)	.02
Yes	25 (50%)	38 (59%)	48 (62%)	38 (52%)	149 (56%)	
HIV/AIDS Risk Behavior Components						
Unprotected oral sex (performed)						
No	26 (52%)	35 (55%)	41 (53%)	33 (45%)	135 (51%)	.69
Yes	24 (48%)	29 (45%)	36 (47%)	40 (55%)	129 (49%)	
Unprotected vaginal sex						
No	17 (34%)	24 (38%)	30 (39%)	25 (34%)	96 (36%)	.93
Yes	34 (66%)	40 (63%)	47 (61%)	48 (66%)	168 (64%)	

SAVA in the Past 4 Months	CRBCL Scores (0-2) N=50 (19%)	CRBCL Scores (3) N=64 (24%)	CRBCL Scores (4) N=77 (29%)	CRBCL Scores (5+) N=73 (27%)	Total N=264 (100%)	p value
Unprotected anal sex						
No	45 (90%)	59 (92%)	72 (94%)	63 (86%)	239 (91%)	.05
Yes	5 (10%)	5 (8%)	5 (6%)	10 (14%)	25 (9%)	
Any unprotected sex act (vaginal, anal, or oral)						
No	14 (26%)	22 (34%)	27 (35%)	19 (26%)	82 (31%)	.71
Yes	36 (74%)	42 (66%)	50 (65%)	54 (74%)	182 (69%)	
Number of sex partners (2+ vs. less than 2)						
No	29 (58%)	38 (59%)	44 (57%)	33 (45%)	144 (55%)	.06
Yes	21 (42%)	26 (41%)	33 (43%)	40 (55%)	120 (45%)	
Risky partner (likely to be an IDU or have another partner)						
No	40 (80%)	44 (69%)	62 (81%)	52 (71%)	198 (75%)	.14
Yes	10 (20%)	20 (31%)	15 (19%)	21 (29%)	62 (23%)	
HIV/AIDS risk behavior (risky partner OR 2+ sex partners AND 1+ unprotected sex act)						
No	28 (56%)	37 (58%)	47 (61%)	31 (42%)	143 (54%)	.07
Yes	22 (44%)	27 (42%)	30 (39%)	42 (58%)	121 (46%)	
Substance Use (Number of Uses in Past 30 Days)						
Marijuana						
No	38 (76%)	49 (77%)	47 (61%)	14 (19%)	193 (73%)	.21
Yes	12 (24%)	15 (23%)	30 (39%)	59 (81%)	71 (27%)	
Crack/Cocaine						
No	36 (72%)	46 (72%)	50 (65%)	40 (55%)	172 (65%)	<.0001
Yes	14 (28%)	18 (28%)	27 (35%)	33 (45%)	92 (35%)	
Heroin						
No	40 (98%)	61 (95%)	73 (95%)	68 (93%)	251 (95%)	.04
Yes	1 (2%)	3 (5%)	4 (5%)	5 (7%)	13 (5%)	
Stimulants						
No	50 (100%)	62 (97%)	77 (100%)	73 (100%)	262 (99%)	.33
Yes	0 (0%)	2 (3%)	0 (0%)	0 (0%)	2 (1%)	

SAVA in the Past 4 Months	CRBCL Scores (0-2) N=50 (19%)	CRBCL Scores (3) N=64 (24%)	CRBCL Scores (4) N=77 (29%)	CRBCL Scores (5+) N=73 (27%)	Total N=264 (100%)	p value
Any drug use in the past 4 months						
No	32 (64%)	39 (61%)	36 (47%)	34 (47%)	141 (53%)	<.0001
Yes	18 (36%)	25 (39%)	41 (53%)	39 (53%)	123 (47%)	
SAVA						
No Criterion Met	12 (24%)	12 (19%)	11 (14%)	10 (14%)	45 (17%)	.03
One SAVA Criterion Met	19 (38%)	24 (38%)	23 (30%)	22 (30%)	88 (33%)	
Two Sava Criteria Met	11 (22%)	18 (28%)	33 (43%)	26 (36%)	88 (33%)	
All three SAVA Criteria Met	8 (16%)	10 (16%)	10 (13%)	15 (21%)	43 (16%)	

* p values are generated from unadjusted negative binomial regressions

Table 4.

Severity of Substance Use, Violence Experienced, and HIV Risk by SAVA Groups

SAVA Patterns	N (%)	Median # of Times Used Substances in Past 30 Days	Median # of Any Type of Unprotected Sex in Past 4 months	Median # of Sex Partners in Past 4 months	Median # of Violent Experiences in Past 4 months
No SAVA Criterion Met	45 (17%)	--	--	--	--
1 SAVA Criterion Met	88 (33%)				
Violence Only	35 (13%)	--	--	--	1
HIV Risk Only	19 (8%)	--	10	3	--
Substance Use Only	34 (11%)	10	---	--	--
2 SAVA Criteria Met	87 (33%)				
Violence + HIV Risk	42 (16%)	--	16.5	3	2
Substance Use + Violence	29 (10%)	3	--	--	1
HIV Risk+ Substance Use	17 (8%)	42	15	2	--
All 3 SAVA Criteria Met	43 (16%)				
Substance Use + Violence+ HIV Risk		18	19	3	2

* All groups are mutually exclusive

* Example Interpretation: Among those who met all 3 SAVA criteria, the median number of substance uses was 18, the median number of unprotected sex acts was 19, the median number of sex partners was 3, & the median number of violence experienced was 2.

Table 5.
Adjusted Multivariable Negative Binomial Regression Assessing Number of SAVA Criterion Met and Baseline CRBCL Scores (N=264)

Variables	Unadjusted Estimates RR (95% Wald Confidence Limits)	Adjusted Estimates Substance Use, Violence, HIV/AIDS Risk RR (95% Wald Confidence Limits)	Adjusted Estimates SAVA RR (95% Wald Confidence Limits)
Race			
Non-Black	1.0	1.0	1.0
Black	.84 (.64, 1.08)	.96 (.75, 1.22)	.93 (.73, 1.20)
Age			
30 years of age+		1.0	1.0
18–29 years of age	.84 (.64, 1.10)	1.06 (.79, 1.43)	1.01 (.75, 1.37)
Education			
High school diploma+	1.0	1.0	1.0
Less than high school	1.54 (1.21, 1.95)	1.29 (1.02, 1.63)	1.22 (.96, 1.55)
Diploma			
Recruitment Site			
County, Family, or State Drug Court	1.0	1.0	1.0
City Drug Court	1.99 (1.52, 2.62)	1.45 (1.02, 2.06)	1.50 (1.06, 2.13)
Arrest History			
Less than 4 arrests	1.0	1.0	1.0
4+ arrests	1.80 (1.38, 2.34)	1.32 (.98, 1.77)	1.30 (.97, 1.76)
Religion/Spirituality			
Yes	1.0	1.0	1.0
No	1.68 (1.26, 2.25)	1.39 (1.05, 1.86)	1.66 (1.24, 2.21)
Perceived to Have Risky Drug Using Behaviors that Need Changing			
No	1.0		1.0
Yes	1.58 (1.26, 2.01)		1.39 (1.07, 1.80)
SAVA			
No criterion Met	1.0		1.0
1 Criterion Met	1.51 (1.05, 2.16)		1.23 (.86, 1.76)
2 Criteria Met	1.34 (.93, 1.92)		1.03 (.71, 1.50)
3 Criteria Met	1.82 (1.20, 2.75)		1.14 (.73, 1.75)

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Variables	Unadjusted Estimates RR (95% Wald Confidence Limits)	Adjusted Estimates Substance Use, Violence, HIV/AIDS Risk RR (95% Wald Confidence Limits)	Adjusted Estimates SAVA RR (95% Wald Confidence Limits)
Violence			
No	1.0	1.0	
Yes	.76 (.60, .96)	.70 (.55, .89)	
HIV/AIDS Risk			
No	1.0	1.0	
Yes	1.25 (.98, 1.58)	1.38 (1.08, 1.76)	
Any Substance Use in Past 30 Days			
No			
Yes	1.75 (1.39, 2.16)	1.40 (1.09, 1.79)	