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HIV/STI Risk Behavior of Drug Court Participants

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Abstract

Drug abusing offenders have high rates of HIV and other sexually transmitted infections (STI). To date, the HIV/STI prevention needs of offenders in drug court programs have been ignored. This multi-method study employed interviews to assess drug court professionals' perceptions of the need for an HIV risk reduction intervention to be integrated into the services provided to drug court participants. Then, surveys were completed by 235 drug court participants to assess whether their sexual risk behaviors affirmed the need for such an intervention. The survey also assessed demographic characteristics, drug use prior to program entry, HIV knowledge, and condom attitudes. The relationship between duration in the drug court program and sexual risk behavior was also examined. Implications for the development and delivery of HIV risk reduction interventions within drug court programs are discussed.

Keywords

drug courts; felony offenders; HIV prevention; sexual risk behavior; substance abuse

INTRODUCTION

Drug courts provide an alternative to incarceration for persons who are convicted of drug-related crimes and are intensive community-based treatment programs for offenders with drug problems (Marlowe, Festinger, Dugosh, Lee, & Benasutti, 2007). The primary goals of drug courts are to stop the offenders' use of alcohol and drugs and to reduce criminal recidivism. Drug courts can vary somewhat from one jurisdiction to another in terms of the duration of the program and target populations (e.g., adults, juveniles, parents with pending child welfare cases who have alcohol and drug dependency problems), but all drug court programs integrate substance abuse treatment with justice system case management (National Association of Drug Court Professionals, 2004). Drug court programs are managed by multidisciplinary teams that include judges, prosecutors, defense attorneys, community correctional personnel, and drug treatment providers. Drug court participants are required to fulfill obligations that include paying fines and program costs, attending recurrent status hearings, completing counseling sessions with court counselors, successfully

completing drug treatment, and providing regular, random urine samples for drug screening (National Association of Drug Court Professionals, 2004).

Drug courts may also provide access to other rehabilitation and support services, such as mental health treatment and GED classes. However, HIV/ STI prevention is not among the ancillary services typically provided by drug courts (Peyton & Gossweiler, 2001). Given high rates of HIV/STI among drug users, and because substance misuse and addiction contribute to high rates of HIV infection among individuals in the criminal justice system (Macgowan et al., 2009; Weinbaum, Sabin, & Santibanez, 2005), drug courts may provide a window of opportunity to also deliver HIV /STI prevention programming. Individuals in the criminal justice system have disproportionately high rates of HIV and other STIs, with prevalence rates up to 10 times higher than the general population (Weinbaum et al., 2005). HIV, hepatitis, and other STIs in offenders are attributed to injection drug use and needle sharing, abuse of alcohol and other (noninjecting) drugs, and unprotected sex with multiple and high-risk partners (Conklin, Lincoln, & Tuthill, 2000; Hammett, Harmon, & Rhodes, 2002; Macgowan et al., 2009).

Concerns about the unmet health needs of criminal justice populations (Hammett, Gaiter, & Crawford, 1998) led to the development and delivery of a small number of risk reduction interventions for incarcerated offenders (see Bryan, Robbins, Ruiz, & O'Neill, 2006; Wolitski, 2006). However, twice as many offenders are under community supervision than are in prison (Glaze & Palla, 2004; Maruschak, 2004), and they are equally at risk for HIV (Belenko, Langley, Crimmins, & Chaple, 2004; Oser, Leukefeld, Tindall et al., 2006). Yet the HIV prevention needs of offenders under community supervision have been largely ignored in the scientific literature (Belenko et al., 2004) and few HIV prevention interventions have targeted this population (Martin, O'Connell, Inciardi, Surratt, & Beard, 2003; Oser, Leukefeld, Cosentino-Boehm, & Havens, 2006).

Only two studies have examined drug use and sexual risk behaviors of offenders under community supervision and neither study focused specifically on drug court participants. Belenko and colleagues (2004) studied 100 probationers in New York City, and Oser and colleagues (2006a, b) studied 800 felony probationers from rural counties in Kentucky. Although patterns of drug use, measures, and reporting periods were not comparable across the two studies, there were some similarities and differences between the rural and urban offenders in these two studies. For example, 11% of urban males and 23% of urban females reported regular use of cocaine/crack, defined as weekly or more frequently in the past 6 months, while 26% of rural males and 23% of rural females reported cocaine/crack use in the past 30 days. A difference emerged between the two samples in opiate use; 22% of urban probationers reported regular use of heroin, while 40% of rural probationers reported use of prescription opiates. Rates of unprotected vaginal sex were high for both samples, but particularly so for rural probationers. Almost all of the males (91%) and females (95%) in the rural sample reported inconsistent condom use compared to 77% and 67% of males and females respectively in the urban sample. Urban probationers also were more likely to have received alcohol and other drug treatment (83% vs. 65%) and more likely to have been tested for HIV (90% vs. 62%). These findings, plus the higher prevalence of HIV infection among jail inmates in the southern United States (Macgowan et al., 2009), suggested the need for HIV prevention services to be extended to offenders under community supervision.

Drug courts offer a novel setting for HIV risk reduction interventions. To date, the studies of drug court participants provide descriptive information on their substance use patterns, addiction severity, or psychosocial functioning (Festinger et al., 2007; Marlowe et al., 2007). Our search of the literature revealed no research addressing the HIV/STI sexual risk behavior of drug court participants.

Research Questions and Hypothesis

This led us to question: Is there a need to address HIV/STI risk-reduction within drug courts? What challenges might arise in attempting to deliver an HIV risk reduction intervention within the drug court setting? Finally, we wanted to know the following: What relationship might exist between length of participation in the drug court program and engaging in sexual risk behaviors associated with HIV/STI transmission? All drug court participants must complete drug treatment and remain drug free while in the program. Studies show the drug courts significantly increase drug treatment retention and reduce alcohol and other drug use while participants are enrolled in the program (Belenko, 2001; U.S. General Accountability Office, 2005; Wilson, Mitchell, & MacKenzie, 2006). Since drug treatment alone could potentially lower risk behavior by reducing injecting drug use, sharing of injection equipment, and sexual risk behavior, and by providing HIV education, counseling and medical care (Sorensen & Copeland, 2000), we hypothesized that drug treatment and drug court program participation might be sufficient to lead to durable reductions in HIV/STI risk. If the length of time in drug court and long term abstinence from alcohol and drug use does lead to a reduction in HIV sexual risk behaviors, then there would be little need for an HIV risk reduction intervention to be delivered within the drug court setting.

To address these questions and hypothesis, the present mixed method study was conducted in five Mississippi drug courts. Semistructured interviews assessed the views of drug court judges and personnel regarding the need for, and potential barriers to, providing an HIV/STI risk reduction intervention to drug court participants within the highly structured and time-intensive drug court program. A survey was collected from drug court participants to assess their knowledge about HIV/STI, condom attitudes, and sexual risk behaviors. Implications of study findings for the development and delivery of HIV risk reduction interventions to participants in drug court programs are discussed.

METHODS

Participants and Procedures

Semistructured Interviews with drug court personnel—Judges of five drug court programs in Mississippi agreed to be interviewed and gave permission to conduct interviews with program staff involved in their drug court. A semistructured interview guide steered the interviews with the drug court staff, assessing their perceptions of participants' need for an HIV/STI risk reduction intervention, barriers to intervention delivery, and requested suggestions for overcoming the identified barriers. A total of 26 drug court staff, including judges and program coordinators, was interviewed.

Survey of drug court participants—All of the drug court programs were for adults who had committed a felony offense in which substance use was a causative factor. The drug court coordinator at each site provided descriptive statistics on the active program participants' demographic characteristics, offense types, and drugs of choice. Judges also gave the researchers permission to access drug court participants for recruitment to participate in a survey assessing whether their knowledge, attitudes, and behavior warranted direct risk reduction intervention efforts. Researchers attended court sessions where they were introduced by the judges, then given an opportunity to explain the study and recruit volunteers to complete an anonymous paper-and-pencil survey after court. Surveys were collected from 235 drug court participants. Written informed consent was obtained from drug court participants prior to beginning the survey and they were given a \$10 gift card to a local retail chain store as compensation for their time to complete the survey. The study was approved by the Mississippi State University Institutional Review Board.

Measures for Participants

The survey administered to drug court participants assessed demographic characteristics, HIV/STI knowledge, condom attitudes, sexual behaviors, and condom use.

Demographic characteristics—Survey respondents provided information on gender, race, age, educational attainment, their primary and secondary drug of choice, and the offense(s) that resulted in their referral to the drug court program. They were also asked what program phase they were in and how long they had been in the program.

HIV-knowledge test—A 20-question HIV-knowledge test was developed by the first author for an earlier Human Resources and Services Administration funded study of HIV testing among clients in substance abuse treatment. Items were drawn from several sources (Carey & Schroder, 2002; Celentano, Vlahov, Menon, & Polk, 1991; Katz, Mills, Singh, & Best, 1995; St. Lawrence, 1993) and new items were added to reflect current evidence that infection with another sexually transmitted disease can facilitate HIV acquisition. Internal consistency of the measure was acceptable (Cronbach's alpha = .72) among a sample of 194 drug treatment participants (Robertson et al., 2010). Cronbach's alpha among this sample of drug court participants was .62.

Condom barriers—St. Lawrence et al. (1999) developed the Condom Barriers Scale (CBS), a 29-item self-report instrument originally designed for HIV/STI prevention efforts with women. The wording of 10 items was modified for men and its psychometric properties were assessed with a sample of 590 men in drug treatment (Doyle et al., 2009). The measure utilizes a 5-point Likert scale with response options ranging from *strongly disagree* to *strongly agree*. A total score was obtained by summing the items. Higher scores indicated greater perceived barriers to the use of condoms. Cronbach's alpha for the measure with our sample was .94.

Sexual behavior and condom use—Participants reported the number of male and female partners, the total number of vaginal and anal intercourse occasions (total sex occasions; TSO) and the frequency of condom-protected sex in the past 3 months. A 3-month recall period was used to achieve optimal reliability and with sufficient events for analysis (Schroder, Carey, & Vanable, 2003). Condom use was assessed several ways to address measurement issues that have been identified when using condom use as an outcome measure in HIV/STI intervention research (Crosby, 1998). Participants were asked if they used a condom the last time they had sex and to categorize the consistency of condom use in the past 3 months as never, sometimes, or always. The total number of unprotected sex occasions (USO) was calculated by subtracting the number of occasions of condom-protected sex from TSO. Survey respondents were also asked if they had ever (lifetime) or recently (past 3 months) engaged in transactional sex. Transactional sex was defined as buying or selling sex in exchange for money, drugs, food, shelter, or other items.

Data Analysis

Bivariate chi-square tests of independence examined differences between the active participants in the five drug court programs (i.e., total enrollment) and those who completed the survey (i.e., sample). Separate chi-square tests of independence examined gender, racial, and age differences in the proportion of sexually active survey respondents, those reporting consistent condom use, condom use at last sex act, ever (lifetime), and recent (past 3 months) transactional sex. Analyses of variance examined mean differences by gender, race, and age in HIV knowledge and Condom Barriers Scale scores, number of sexual partners, frequency of TSO and frequency of USO. Finally, linear and logistic regression models examined the relationship of length of time in the drug court program with condom use and

sexual behavior while controlling for gender, race and age. Data analyses were conducted using IBM SPSS version 18.

RESULTS

Interviews With Drug Court Personnel

The coordinator of each program was asked to describe the program and provide descriptive statistics on all participants who were actively enrolled in the program at the time of the interview. Although there were some differences in the length of the five drug court programs, program components were the same, as all drug courts in Mississippi follow the drug court program guidelines of the United States Department of Justice (Nored, Cruz, & Downey, 2006). Programs varied in length from 2 to 5 years and can append aftercare services or supervised probation upon program completion. All programs have multiple phases in which the frequency of court appearances, NA/AA meeting attendance, and drug testing progressively decrease with advancement to the next phase. All drug court participants are expected to complete substance abuse treatment during the first phase of the program and thereafter to be clean and sober, employed or performing community service unless physically disabled, and to obtain a GED if they have not graduated from high school. Drug treatment programs that accept drug court referrals conduct an HIV risk assessment on all clients at the time of intake; inform their clients of available HIV testing resources; and provide at least 30 minutes of education on HIV and other sexually transmitted diseases (Mississippi Department of Mental Health, 2011).

After obtaining information about the program and the characteristics of their participants from the coordinators, all drug court personnel including the judges expressed their views about implementing a multisession HIV/STI sexual risk reduction intervention for participants in their drug court. Specifically, they were asked their thoughts about the need for such a program; how the intervention could be integrated into the structure of the existing drug court program; barriers or challenges to delivering the intervention; suggestions for overcoming barriers; and advice for working successfully with drug court participants. Out of the 26 staff interviewed, 23 (89%) believed that participants in their programs were at risk for HIV/STI and would benefit from such an intervention. The remaining three staff was not sure about the need for an intervention. All staff felt the best time to deliver the intervention would be after participants had completed drug treatment which takes place in the first phase of the drug court program. Many drug court staff reasoned that participants might be more receptive and able to benefit from the intervention if it were delivered in the second or third phase of the drug court program because drug-related cognitive impairment would likely have dissipated by then. Staff also felt that with increasing time in the drug court program, participants become more committed to sobriety and more responsible.

Drug court staff identified several potential barriers to delivering an HIV/STI risk reduction intervention with this population. Staff in three of the five drug courts felt that their clients would be reluctant to talk about sexual behavior and would be resistant to changing their sexual behavior, particularly by increasing condom use. Staff in all five drug courts stated that low literacy and low perception of HIV risk would pose challenges to delivering an HIV/STI intervention. Low literacy could make delivering an HIV intervention challenging because it would take additional time to explain the material to participants. Also, those who were more literate would grasp the information at a faster rate, possibly leading to boredom and decreased interest in the intervention. Low perception of risk is particularly problematic when attempting to deliver an HIV/STI intervention, as individuals are less likely to participate if they do not perceive that the intervention is relevant to them. Other potential barriers to delivering an HIV intervention mentioned by drug court staff included: lack of

transportation, time constraints due to the intensive demands of the drug court program, and mental health issues.

Drug Court Program Participant Surveys

As of April 2011, there were 874 participants actively enrolled in the five drug court programs that participated in this research. Characteristics of the program participants and of the drug court participants who completed the survey are displayed in Table 1. Overall, the majority of drug court participants were male, Caucasian/White, and have low educational attainment (high school education or less). Almost half of drug court participants were 30 years of age and younger. There were significant differences in gender and educational attainment between the total drug court population and those who voluntarily completed the survey. Disproportionately more females completed the survey than are enrolled in the drug court programs (42.6% of sample versus 27.5% of total enrollment). The sample also consisted of a larger percentage of high school educated participants and those with some college education and a much smaller percentage of individuals with less than a high school education than in the population of active participants in the five courts.

Table 1 also displays information on the primary drug of abuse and the types of felony offenses that brought offenders into the drug court programs. At enrollment into drug court participants are asked to name their primary drug of choice. Compared to the aggregate information from the five courts, survey participants were more likely to report methamphetamines (25.0% vs. 18.1%), alcohol (16.8% vs. 11.3%), and opiates (12.5% vs. 8.3%) as the primary drugs of choice and were less likely to report cocaine/crack (16.8% vs. 29.2%) and other drug use (2.6% vs. 6.4%) as the primary drugs of choice. There was also a significant difference in type of offence between the total drug court population and those who voluntarily completed the survey with fewer felony DUI offenders participating in the survey than enrolled in the drug court programs. The majority of program participants (78.1%) and survey participants (84.3%) were involved in drug court because of controlled substance use/ possession or property crimes. None of the programs studied accepted violent offenders or individuals convicted of drug trafficking.

HIV Knowledge

Scores on the HIV knowledge test ranged from 0% to 95% correct, with an average score of 64.3% correct. HIV knowledge did not differ significantly by gender or race. However, there was a difference in knowledge by age with those age 31 to 40 years scoring the highest (see Table 2).

Condom Attitudes

Scores on the CBS ranged from 28 to 140 with higher scores indicating greater perceived barriers to the use of condoms. As expected, scores on the CBS were significantly and negatively correlated with frequency of condom protected sex in the past 3 months ($r = -.22$, $p = .01$) and with consistency of condom use ($r = -.38$, $p = .01$) indicating, that more negative the attitudes towards condom use are associated with less condom use. The average score was 66.1 ($SD = 22.3$). Males scored significantly higher than females (see Table 2). There was not a statistically significant difference in CBS scores by race or age.

Sexual Behavior and Condom Use

Gender, racial, and age differences in sexual behavior and condom use are also reported in Table 2. Most (85.5%) drug court participants reported that they were sexually active in the three months prior to completing the anonymous survey. Only age was significantly associated with the percent that were sexually active. Over 90% of participants less than 31

years of age were recently sexually active compared to approximately 78% of those 31 and older. Among those who were sexually active, the number of sex partners ranged from one to 15 with an average of 1.6 ($SD = 1.6$). The average number of sex partners varied significantly by gender with males reporting almost two partners (1.9) compared to slightly more than one partner (1.3) for females. Mean differences in number of sex partners for race and age were not statistically significant. Having multiple sex partners is a risk factor for HIV and 27.5% of survey respondents reported having two or more sex partners in the previous 3 months. Again we observed gender differences, but not race or age differences in the proportion of drug court participants with multiple sex partners. Despite men having more partners than women, there was not a significant gender difference in the frequency of vaginal and anal intercourse. Men reported on average 26 TSO and women reported almost 24 TSO in the previous 3-month period. Whites reported more frequent vaginal and anal sex than Black/ other races.

Participants reported whether or not they used a condom the last time they had sexual intercourse and reported the consistency of condom use in the past three months. The frequency of unprotected sex in the past 3 months was calculated. Overall, only 13.1% reported they used a condom every time they had vaginal or anal sex in the past 3 months, and 19.7% of sexually active survey respondents reported using a condom the last time they had sex. This means that 86.9% of sexually active respondents either used condoms inconsistently (23.5%) or not at all (63.4%). No gender, racial, or age differences were observed for condom use at last sex. However race and age differences were observed for other measures of condom use. Whites reported significantly more frequent unprotected sex than black and other racial/ethnic participants. The average frequency of unprotected sex occasions was 21.8 ($SD = 22.7$), which is alarming when considered in the context of TSO. On average participants reported 25.1 ($SD = 22.9$) TSO in the 3 months prior to the survey. This finding is consistent with the Likert-type measure of condom use and affirms that the majority of vaginal and anal sex was unprotected. Older drug court participants (over 41) were more likely to report that they always used condoms (22.7% compared to 12.4% for under 31 age group and 4.1% for ages 31–40) and never use of condoms (70.5% compared to 58.4% for under 31 age group and 67.3% for ages 31–40).

Overall, 29.6% of participants reported engaging in transactional sex in their lifetimes. Women, minorities, and study participants over age 41 had significantly higher rates of transactional sex during their lifetimes compared to their counterparts (see Table 2). The overall rate of recent transactional sex (in the past 3 months) was 8.7%. Except for race, there were no significant differences observed for recent transactional sex. A larger percentage of minority drug court participants (17.5%) reported trading sex than White drug court participants (6.5%).

Length of Program Participation

The length of program participation among survey participants ranged from less than 1 month to 60 months with an average of 15.5 months ($SD = 12.2$). As time in the program increases so does length of sobriety. We wondered whether length of participation in the drug court program also would be associated with reductions in HIV risk behaviors and increased condom use. Given the observed gender, race, and age differences in sexual behaviors, we controlled for these factors in our regression models. The results are displayed in Table 3. Time in the drug court program was not associated with number of sexual partners nor having multiple partners. However, length of participation was associated with other behaviors that confer risk for HIV. Higher frequency of vaginal and anal sex occasions and frequency of unprotected sex is significantly associated with more time in the program.

DISCUSSION

Drug court programs serve offenders with serious substance abuse problems and are effective in reducing alcohol and drug use and drug-related criminal behavior (Belenko, 2001; U.S. General Accountability Office, 2005; Wilson et al., 2006). However, whether drug courts reduce HIV risk has not been evaluated previously. Our findings reveal that participants of drug court programs engage in sexual behaviors that confer risk for HIV and other sexually transmitted infections even after completing drug treatment and remaining drug free for extended periods of time. We found that a substantial proportion of drug court participants reported having two or more sexual partners, and that the overwhelming majority do not use condoms consistently. Furthermore, more time in the drug court program was associated with greater sexual activity and less use of condoms.

The prevalence of transactional sex among drug court participants warrants concern as it is associated with higher rates of HIV and STIs (Doherty, Garfein, Monterroso, Brown, & Vlahov, 2000; Edwards, Iritani, & Hallfors, 2006; Fishbein & Coutinho, 1997). Almost 30% of drug court participants reported exchanging sex for money, alcohol or drugs, food, or a place to stay during their lifetimes. This figure is substantially higher than the 8% reported by White probationers in rural Kentucky (Oser, Leukefeld, Cosentino-Boehm et al., 2006). Since transactional sex is highly correlated with alcohol and drug use (Bobashev, Zule, Osilla, Kline, & Wechsberg, 2009; Dunkle, Wingood, Camp, & DiClemente, 2010), drug court participation should reduce this high-risk behavior. Yet after becoming drug free, in this sample approximately one third of those who had engaged in transactional sex continued the behavior.

Our findings are consistent with studies of sexual risk behaviors of drug abusers at the time of substance abuse treatment admission (Avins et al., 1994; Bachmann et al., 2000; Murphy et al., 2008). Because substance abuse is strongly linked to HIV, drug treatment providers offer HIV-related services such as general education regarding HIV, HIV testing and counseling, and promotion of risk reduction practices (Brown et al., 2006). The effectiveness of drug treatment on reducing HIV risk behaviors is mixed. Drug treatment is associated with lower incidence of multiple sex partners or transactional sex, but little or no change in unprotected sex (Avins et al., 1997; Farrell, Gowing, Marsden, Ling, & Ali, 2005; Latka et al., 2005; Metzger, Navaline, & Woody, 1998). On the other hand, HIV risk reduction interventions delivered within drug treatment programs can have an impact over and above that produced by drug treatment alone (Prendergast, Urada, & Podus, 2001). Even though drug court programs require participants to successful completion of drug treatment and maintain abstinence from alcohol and other drug use, we found that time in the drug court program was associated with continued engagement in HIV sexual risk behaviors. Clearly, sexual risk reduction interventions are warranted for participants of drug court programs. Our findings have implications for the development and delivery of HIV risk reduction interventions within drug court programs.

HIV Knowledge

Drug court program participants performed poorly on the knowledge test, a finding consistent with previous research that found low HIV knowledge among clients in Mississippi drug treatment programs (Robertson, Herbert, Harvey, & Gresham, 2008). HIV education is not universally nor uniformly provided to individuals receiving drug treatment and the information provided was most frequently of a generalized nature, rather than specifically addressing sex-risk, injection-related risk, or health-care issues (Grella, Etheridge, Joshi, & Anglin, 2000). While all certified substance abuse treatment programs in Mississippi are required to provide at least 30 minutes of information on HIV transmission, prevention, and treatment, the actual content and duration varies considerably across

treatment providers (Robertson et al., 2008). Drug court participants could benefit from more education on HIV and other sexually transmitted diseases and specific prevention methods than what they received while in drug treatment. Although knowledge alone is not sufficient to produce risk behavior change (Bandura, 1994; Kalichman et al., 2002; Robertson, Stein, & Baird-Thomas, 2006), HIV/STI prevention efforts cannot be successful unless persons at risk accurately understand what aspects of their behavior contribute to risk.

Moreover, educational methods should take into account literacy, attention span, and other factors that influence learning. Low literacy was identified in interviews with drug court staff as a challenge to implementing an HIV risk reduction intervention in drug court settings. Studies of neuropsychological functioning of drug court participants have documented problems in comprehension and recall of information (Festinger, DeMatteo, Marlowe, & Lee, 2005; Festinger et al., 2007). In one of those studies 19% of drug court participants had very low reading ability and recall of information presented two weeks previously and this was associated with drug problem severity, reading ability, memory and attention (Festinger et al., 2007). To enhance recall, the information should be interesting and interactive, provided in small increments, and participants need to be quizzed and given corrected feedback.

Condom Promotion

Consistent with research on the sexual risk behaviors of clients in substance abuse treatment (Bachmann et al., 2000), we found that the majority of study participants never used condoms. Risk reduction interventions for drug court participants must also promote increases in condom use. When used correctly and consistently, condoms are an effective method of protection against HIV and many STIs (Centers for Disease Control and Prevention, 2002). In order to motivate drug court participants to use condoms consistently, their low perception of risk for HIV infection and negative attitudes towards condoms must be addressed. Positive condom attitudes and perceptions of personal vulnerability to HIV are motivators to enact prevention behavior (Fisher, Fisher, Misovich, Kimble, & Malloy, 1996) and changing these beliefs and attitudes are effective in increasing condom use (Rhodes, Stein, Fishbein, Goldstein, & Rotheram-Borus, 2007). Techniques to enhance motivation for change include an assessment of personal risk for HIV infection, consideration of the pros and cons of adopting condom use and other risk reduction practices, counseling to address barriers to practicing safer sex, and activities to personalize commitment to sexual safety. Many of these motivational components are incorporated into successful HIV interventions for drug users (Calsyn et al., 2009; Rhodes & Malotte, 1996; Tross et al., 2008) and should be a part of sexual risk reduction interventions for drug court participants.

Skills training on correct condom application are also essential for HIV/STI risk reduction. Errors in the application and removal of condoms are common (Bortot, Risser, & Cromwell, 2006; Crosby, Sanders, Yarber, & Graham, 2003) and occur even among consistent condom users (Warner, Clay-Warner, Boles, & Williamson, 1998). Incorrect condom use can lead to breakage and slippage (Steiner et al., 2007; Yarber, Graham, Sanders, & Crosby, 2004) that, in turn, increase risk of exposure (Duerr et al., 2011). In addition, negative experiences with condoms may increase negative attitudes towards condoms and reduce subsequent condom use (Norris & Ford, 1994). Even brief training on correct condom use can reduce condom breakage and slippage rates (Steiner et al., 2007). Multisession condom-skills training that includes demonstration and practice can increase errorless performance (Lindemann, Brigham, Harbke, & Alexander, 2004; Robertson et al., 2011). In addition to skills training on correct condom application, drug court participants could benefit from communication skills for negotiating safer sex with partners (Semaan, Des Jarlais, & Malow, 2006) and problem-solving skills (Lyles et al., 2007).

Limitations

The findings of this study are limited in three ways. First, data was collected from only five felony drug court programs in Mississippi. Researchers had to obtain permission of the judge to conduct the study and access to all adult drug courts in the state was not granted nor was it feasible given budgetary constraints. Furthermore, drug court participants self-selected into the study and differed in some demographic characteristics from the total population served by the participating courts. Results may not be generalizable to the broader drug court population in Mississippi or to those in drug court programs in other states. Finally, retrospective self-report measures of sexual behavior were used and there is the possibility that the offenders felt constrained from honest reporting within the drug court setting, despite our assurances that the information would not be shared with the judge or other program staff. Although previous research on drug users (Dowling-Guyer et al., 1994; Goldstein et al., 1995) has supported the reliability of HIV risk behavior self-reports, the extent to which there is bias in reporting cannot be entirely discounted.

Conclusion

Drug courts provide an alternative to incarceration for persons convicted of drug-related crimes. They are effective in reducing substance use and criminal recidivism among program participants (Belenko, 2001; U.S. General Accountability Office, 2005; Wilson et al., 2006), but they do not appear to have any significant effect on lowering risk for HIV/STI infection. The results of this study indicate that there is a need for effective HIV/STI risk reduction interventions with drug court participants. The findings may also be used to guide the development of such interventions that are tailored to this population and that can be integrated within drug court settings. Future studies might determine the effectiveness of well-defined HIV knowledge and condom promotion interventions in drug court settings.

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TABLE 1

Characteristics of Participants in Five Mississippi Drug Court Programs

| Variables (%) | Total enrollment (n = 874) | Sample (n = 235) | χ^2 statistic |
|--|----------------------------|------------------|--------------------|
| Gender | | | 105.71 *** |
| Male | 72.5 | 57.4 | |
| Female | 27.5 | 42.6 | |
| Race | | | 5.1 |
| Black | 35.6 | 33.6 | |
| White | 63.8 | 64.7 | |
| Other | 0.6 | 1.7 | |
| Education | | | 105.71 *** |
| Less than high school | 43.6 | 23.8 | |
| GED/High school | 32.6 | 44.7 | |
| Trade/Some college | 19.9 | 28.1 | |
| College graduate/Higher | 3.9 | 3.4 | |
| Age | | | 0.72 |
| 30 and younger | 46.9 | 45.7 | |
| 31–40 | 25.8 | 28.2 | |
| 41 and older | 27.3 | 26.1 | |
| Drug of choice | | | 31.0 *** |
| Alcohol | 11.3 | 16.8 | |
| Cocaine/Crack | 29.2 | 16.8 | |
| Marijuana | 26.7 | 26.3 | |
| Methamphetamine | 18.1 | 25.0 | |
| Opiates | 8.3 | 12.5 | |
| Other | 6.4 | 2.6 | |
| Offense | | | 7.9* |
| Controlled substance use or possession | 56.5 | 60.0 | |
| 3rd DUI | 11.1 | 5.5 | |
| Property | 21.6 | 24.3 | |
| All others | 10.8 | 10.2 | |

* p .05.** p .01.*** p .001.

TABLE 2
 Gender, Race, and Age Differences in HIV Knowledge, Condom Barriers, Sexual Behavior, and Condom Use of Drug Court Participants

| Variables | Gender | | Race | | | Age | | | F/ χ^2 |
|--|--------|-------|-------|-------------|--------------------|--------------------|----------------------|----------------------|----------------------|
| | Female | Male | White | Black/other | F/ χ^2 | Under 31 | 31-40 | Over 41 | |
| HIV knowledge | 65.05 | 64.61 | 65.03 | 64.32 | 0.12 | 62.52 ^a | 68.77 ^b | 64.44 ^{a,b} | 3.85 [*] |
| Condom barriers | 61.36 | 69.08 | 67.66 | 61.86 | 3.37 | 68.83 | 61.94 | 64.32 | 2.07 |
| Transactional sex (lifetime) | 41.2% | 22.0% | 24.7% | 41.9% | 6.78 ^{**} | 18.1% | 35.4% | 48.1% | 16.33 ^{***} |
| Behaviors in past 3 months | | | | | | | | | |
| Sexually active | 83.5% | 86.6% | 83.3% | 89.2% | 1.35 | 93.3% | 78.5% | 77.8% | 10.25 ^{**} |
| Number of partners | 1.27 | 1.92 | 1.54 | 1.83 | 1.43 | 1.61 | 1.78 | 1.55 | 0.29 |
| Multiple partners | 19.0% | 33.6% | 24.4% | 32.9% | 1.64 | 32.0% | 26.9% | 18.8% | 2.99 |
| Total sexual occasions | 23.76 | 26.10 | 28.43 | 18.82 | 7.88 ^{**} | 28.19 ^b | 25.16 ^{a,b} | 17.86 ^a | 3.06 [*] |
| Transactional sex | 10.1% | 10.2% | 6.5% | 17.5% | 5.22 [*] | 6.3% | 15.7% | 12.5% | 3.55 |
| Condom use last sex act | 21.0% | 16.4% | 15.2% | 24.2% | 2.29 | 22.4% | 9.8% | 19.0% | 3.94 |
| Condom use | | | | | 1.55 | | | | 16.44 ^{**} |
| Always | 14.9% | 11.9% | 12.4% | 14.5% | | 12.4% | 4.1% | 22.7% | |
| Sometimes | 18.9% | 26.6% | 18.2% | 33.9% | | 29.2% | 28.6% | 6.8% | |
| Never | 66.2% | 61.5% | 69.4% | 51.6% | | 58.4% | 67.3% | 70.5% | |
| Frequency of unprotected sex occasions | 21.62 | 21.95 | 25.15 | 14.92 | 9.74 ^{**} | 24.19 ^b | 23.33 ^b | 14.43 ^a | 2.94 |

Note. Duncan post hoc tests were conducted when mean differences were observed for age groups and are indicated by the superscript letters.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 3

The Effect of Length of Participation in Drug Court on Sexual Behaviors and Condom Use

| Variables | Regression coefficients | Wald/ <i>t</i> -test statistics |
|---------------------------|-------------------------|---------------------------------|
| Number of partners | -.003 | -.336 |
| Multiple partners | -.024 | 2.507 |
| Total sexual occasions | .335 | 2.572 * |
| Recent transactional sex | .029 | 2.901 |
| Condom use (last sex) | -.033 | 3.254 |
| Frequency unprotected sex | .281 | 2.164 * |

Note. Gender, race and age are included in all logistic and OLS regression models.

*
p .05.

**
p .01.

p .001.