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HIV Risk Behavior Among Female Substance Abusers

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Abstract

HIV is an increasingly critical and costly health problem for American women. Substance use plays a major role in HIV infection in women. There are several plausible explanations for the association between substance use and HIV risk behavior. Pregnant substance abusers are a population deserving of special attention given the prevalence of risk behavior in this population and the added risk of perinatal transmission of HIV. Current guidelines for the screening and treatment of HIV among pregnant women and their infants are delineated. Substance abuse treatment has a limited impact on HIV risk behavior in female substance abusers. Similarly, traditional knowledge- and skill-based HIV risk reduction interventions have modest efficacy in this population. Hence, there is a need to develop new interventions that directly target sex- and drug-related HIV risk behavior among female substance abusers. Recent work suggests that the incorporation of motivational interviewing components into traditional HIV risk reduction interventions may be a promising new direction for the field.

Keywords

substance abuse; pregnancy; HIV risk; motivational interviewing

HIV is an increasingly critical and costly health problem for American women. Women comprise the most rapidly expanding group infected by HIV in the U.S.¹ Women now represent 27% of all AIDS cases in the United States, up 17% between 2001 and 2005, with the most dramatic increases among women of color^{2,3}. While African-American and Hispanic women together make up fewer than 25% of all U.S. women, they account for 82% of AIDS cases among women^{2,4}. Across age groups, women between the ages of 15 and 39 years old have demonstrated the greatest proportionate increase in AIDS cases³. Among women in the U.S. between 25 and 34 years of age, HIV is the sixth leading cause of death, and HIV is the fifth leading cause of death for women between 35 and 44 years of age³. Women now encompass more than a quarter of all newly diagnosed HIV/AIDS cases, over three-quarters of which are heterosexually acquired^{2,3}.

HIV Sex- and Drug-Risk Behavior Among Female Substance Abusers

Substance use plays a major role in HIV infection in women. As many as 29% of women contract HIV through their own injection drug use, and another 15% contract HIV through sexual contact with an injection drug user⁵. Furthermore, female injection drug users (IDUs) have one of the lowest rates of survival among those diagnosed with AIDS².

Use of alcohol and non-injection drugs, including crack cocaine, may increase a woman's risk of sexually transmitted HIV infection through increased engagement in high-risk sexual

behaviors, such as unprotected sex and sex exchange for drugs or money^{6, 7}. Extensive research has found that individuals who use alcohol and drugs are at higher risk for engaging in a number of sex risk behaviors, including reduced condom use, increased number of sexual partners, use of drugs and alcohol before and during sexual activity, engagement in sexual activity with high risk partners (e.g., sex with IDUs), and involvement in sex exchange for drugs or money⁷⁻¹⁶. Rates of unprotected sex events are especially high among drug users, regardless of the type of drug used^{8, 13, 15, 17, 18}. Additional findings suggest that as much as 70% of sex events among drug users involve the presence of drugs and alcohol immediately prior to and during sexual activity¹⁵, which is particularly troubling given that substance use has been shown to reduce intent to use condoms^{19, 20}.

Reasons for the Association between Substance Use and HIV Risk Behavior

The presence of drug-related HIV risk behavior among substance users is not surprising. However, the reason for the increased rate of sex-related HIV risk behavior among substance users is not as readily apparent. Several hypotheses have been proposed to account for the relationship between substance use and sex risk behavior. Some have suggested that the use of alcohol and drugs increases the probability for sex risk behavior through impairment of judgment, disinhibition, and reduced pain sensitivity during intercourse²¹⁻²⁴. Indeed, findings indicate that use of alcohol prior to and during sexual activity may lead individuals to minimize their sexual risk while unrealistically inflating their perceived ability to detect sexual risk (see²⁵ for review of findings). Additional research suggests that drug cravings and associated drug-seeking behavior may supersede women's concerns regarding unsafe sex, resulting in an increased potential for engagement in risky sexual behavior²⁶. Nadeau and colleagues¹³ also found that women's use of substances before and during sexual activity prevented them from thinking about the potentially negative consequences associated with unsafe sex. Alarming, one recent study found that some female substance users even falsely believed that use of drugs and alcohol protects against pregnancy¹⁸.

Others have argued that the relationship between substance use and sex risk behavior is complicated by additional social, interpersonal, contextual, and individual risk factors associated with risky sexual behavior^{25, 27-31}. For instance, research indicates that individuals who use drugs while engaging in unprotected sex also score higher on measures of impulsivity, risk-taking, and sensation seeking³². In other instances, substance use may exacerbate the influence of other risk factors on sex risk behavior. For example, previous research indicates that alcohol use may intensify the relationship between increased sexual arousal and reduced condom use³³.

The association between relationship characteristics/dynamics and sex risk behavior has been examined among substance users. Among substance users, condom use has been found to occur less frequently within main, long-term, cohabitating, financially interdependent, and trusted relationships^{13, 15, 17, 34, 35}. Consistent with findings based on HIV risk among general populations, research on female substance users indicates that women may engage in unprotected sexual activity in order to preserve and enhance intimate relationships, and fear of partner rejection and distrust may suppress women's requests to use condoms^{13, 17, 36, 37}. Partners' willingness to use condoms, increased communication about condom use, and greater perceived control over condom use have also both been shown to increase condom use among female substance users^{15, 18, 34}. Conversely, female substance users who have problems communicating with their partners about condom use and feel incapable of negotiating condom use are less likely to use condoms^{13, 18}.

Substance use appears to play a unique role in influencing the association between relationship characteristics/dynamics and sex risk behavior. Although condom use among substance users

typically occurs more commonly with casual or new partners, research indicates that unprotected sex with a casual partner is more likely to occur when an individual is high or intoxicated, sexually aroused, and when condoms are unavailable^{15, 32}. Use of alcohol immediately prior to and during sex events can impair safe sex negotiation and refusal skills, resulting in an increased risk of unsafe sexual practices²⁵. In addition, substance use can increase risk for sexual assault, which often involves unprotected sexual contact²⁷. Partner's drug use behavior can further affect decisions related to female drug use and condom use³⁸⁻⁴¹, and findings suggest that condom use is less likely to occur in relationships characterized as drug interdependent³⁵. Despite the fact that increased perceptions of partner risk can increase condom use under certain circumstances^{15, 42}, additional research conducted by Booth and colleagues⁸ found that drug users with an IDU partner were more likely than those without an IDU partner to engage in unprotected sexual activity.

Pregnant Substance Abusers Deserve Special Attention

Among substance abusers, sex-related HIV risk behavior has been found to remain prevalent or even increase during pregnancy. Pregnant injection drug users, relative to non-pregnant injection drug users, have been found to be just as likely to exchange sex for money or drugs, but may be less likely to use condoms with regular and casual sexual partners and to be as likely to exchange sex for money or drugs⁴³. Pregnant substance abusers may reduce their use of condoms during pregnancy given the temporary elimination of the need for birth control. Alternatively, this finding may merely reflect a pre-existing lower rate of condom use among the women who became pregnant. In other words, these women were more likely to become pregnant due to lower rates of condom use. Whether condom use is reduced or merely remains low during pregnancy, low rates of condom use place these women and their unborn children at risk for contracting HIV.

In addition to sex-related risk behavior, pregnant substance abusers often engage in drug-related risk behavior. For example, pregnant injection drug users have been found to be as likely as their non-pregnant peers to engage in the sharing of injection drug use equipment⁴³. These risk behaviors have also been found among pregnant women in drug treatment. Baker and colleagues⁴⁴ found that pregnant women in methadone maintenance treatment engaged in as much injection drug-related risk behavior as women not enrolled in treatment and more injection drug-related risk behavior than non-pregnant women in methadone maintenance treatment.

In addition to placing the women at risk for HIV, this sex- and drug-related risk behavior poses a risk to their unborn children. Perinatal transmission of HIV accounts for nearly all new HIV infections in children⁴⁵. Children born to women infected with HIV face the additional risk of the loss of a primary caregiver.

Screening and Treatment of Pregnant Women and their Newborns

In order to minimize the risk of perinatal transmission of HIV, the Centers for Disease Control and Prevention (CDC) recommends screening for HIV early in all pregnancies⁴⁶. The CDC recommends the inclusion of HIV testing in the panel of routine prenatal tests unless the patient declines testing. Furthermore, the CDC recommends that a second HIV test during pregnancy be considered for all pregnant women⁴⁶ as a result of work that demonstrated that, even in populations with low rates of HIV, a second HIV test during pregnancy is cost-effective⁴⁷ and work that suggests that an increasing percentage of perinatally infected infants have mothers who acquire the infection during pregnancy⁴⁸. In addition to the consideration of a second HIV test during pregnancy for all pregnant women, the CDC recommends a second HIV test for all women who receive health care in areas with elevated incidence rates of HIV or AIDS, for women who receive health care from facilities with a prenatal screening rate of at least one

HIV-infected case per 1,000 screens conducted, for women who engage in behavior that places them at elevated risk of contracting HIV, and for women who have signs or symptoms of an acute HIV infection⁴⁶. Finally, the CDC recommends rapid HIV testing for any woman with undocumented HIV status at the time of labor unless she refuses testing⁴⁶.

For women who are HIV-infected and have been receiving highly active combination therapy (HAART) and for HIV-infected women who have not been receiving antiretroviral therapy but demonstrate clinical indications for antiretroviral therapy, the current recommendation is to continue or begin a HAART regimen, avoiding drugs with teratogenic potential or with a known potential risk to pregnant women⁴⁹. The recommendation is that the HAART regimen be continued during the intrapartum period, with a continuous infusion of zidovudine during labor, and during the postpartum period. A 6-week course of zidovudine is recommended for the infant. Cesarean delivery at 38 weeks is recommended in cases in which plasma HIV RNA remains >1000 copies/mL. The recommendations are very similar for HIV-infected pregnant women who have not been receiving antiretroviral therapy and do not display clinical indications for antiretroviral therapy⁴⁹. For these individuals, the recommendation is to consider delaying HAART initiation until the first trimester has concluded and to evaluate need for antiretroviral therapy postpartum. All other treatment recommendations are the same as stated above. The recommendations for HIV-infected women who have received no antiretroviral therapy prior to labor involve delivering some combination of zidovudine, nevirapine, and/or lamivudine to the woman during labor and possibly postpartum and administering zidovudine, nevirapine and zidovudine, or zidovudine in combination with additional drugs to the infant; however, appropriate dosing of other drugs has not been well established in neonates⁴⁹. If no antiretroviral therapy is delivered during labor to an infant born to an HIV-infected woman, the recommendation is to administer zidovudine for 6 weeks to the infant or to use zidovudine in combination with additional drugs⁴⁹.

Impact of Drug Abuse Treatment on HIV Risk Behavior

Unfortunately, drug abuse treatment appears to have a circumscribed impact on HIV risk behavior. In a review of 33 studies, totaling more than 17,000 subjects, Sorenson and Copeland⁵⁰ found strong support for a reduction of needle use and HIV infection among individuals engaged in methadone maintenance treatment. However, there was less definitive evidence regarding the impact of methadone maintenance treatment on needle sharing and unsafe sexual behavior. In addition, they concluded that there is a paucity of data regarding the impact of treatment modalities other than methadone maintenance on HIV risk behavior and that it is important for future studies to include more women in order to determine whether gender effects are present. These findings point to the need for interventions that directly target sex- and drug-related HIV risk behavior.

Knowledge- and Skill-Based HIV Risk Reduction Interventions with Women

Given that very little work has been done examining HIV interventions with female substance users, options for intervening in this population derive from non-substance using populations. Following a comprehensive review of HIV risk reduction intervention studies conducted with women, Exner and colleagues⁵¹ concluded that interventions that teach self-management and interpersonal skills can be effective in decreasing HIV risk behavior, increasing risk-related knowledge, and producing the desired changes in attitudes toward risk behavior. The most efficacious programs were tailored specifically for women, emphasized relationship and negotiation skills, and included multiple and sustained contacts with program participants. Even though these interventions have demonstrated some efficacy, the magnitude of the effects achieved with these interventions suggests that improvements are possible.

Motivationally-Enhanced HIV Risk Reduction Interventions with Women

A key way in which traditional knowledge- and skill-based HIV risk reduction interventions have been enhanced is through the incorporation of motivational interviewing components⁵². Motivational interviewing^{53, 54} is an intervention approach with wide dissemination and demonstrated efficacy (see^{55, 56}). Motivational interviewing^{53, 54} is a collaborative and non-confrontational approach to discussing and facilitating behavior change. In motivational interviewing, a key tenet is that motivation is the product of the interaction between the client and the therapist, rather than some personal state or trait that resides within the client. Therefore, the therapist's task is to create an environment that promotes behavior change. Ambivalence about change is considered normative within the motivational interviewing framework. The client's readiness to make changes is not assumed. Instead, an important exercise in motivational interviewing is the exploration of level of readiness to change. Therefore, the intervention is appropriate for varying levels of readiness to change.

To facilitate behavior change, motivational interviewing employs four general principles. The first is expressing empathy, which creates a therapeutic environment of acceptance, which is seen as facilitating change. The second is developing discrepancy. To achieve this, the therapist attempts to explore any discrepancies between the client's current life situation and his or her goals. The belief is that greater discrepancy will lead to more ambivalence about his/her current behavior, moving the client toward adaptive behavior change in an effort to relieve the ambivalence. The assumption is that it is most effective if the client presents the arguments for change. The third principle of motivational interviewing is rolling with resistance, in which therapists are discouraged from opposing or arguing against resistance. Client resistance is interpreted as an interpersonal phenomenon and as a signal that the therapist should change his or her behavior. Furthermore, the client is seen as a valuable source of ideas and solutions. In motivational interviewing, the therapist may invite the client to consider new perspectives; however, there is no attempt to impose alternative perspectives on the client. The fourth principle is supporting the client's self-efficacy to make changes. Self-efficacy is viewed as an important determinant of readiness to change. To increase self-efficacy, the therapist is encouraged to discuss the client's personal responsibility for making a change, to convey his or her own belief in the client's ability to change, and to highlight the client's previous adaptive changes.

The incorporation of intervention components that directly target motivation to change HIV risk behavior is consistent with leading theoretical models of HIV risk behavior change, such as the Information-Motivation-Behavior (IMB) model of HIV risk behavior^{57, 58}. The IMB model posits that HIV risk behavior is determined by an individual's *information* about HIV transmission and prevention, *motivation* to reduce risk for HIV infection, and mastery of *behavioral* skills necessary to reduce risk. In the area of HIV risk reduction, the IMB model is a well-established model, and interventions based on this model have garnered strong empirical support⁵⁸⁻⁶¹.

Carey and colleagues⁵⁹ examined the efficacy of a motivationally-enhanced, 4-session HIV risk behavior intervention, relative to a waitlist control condition, among low-income urban women. They found that the women who received the intervention had greater knowledge and risk awareness, stronger intentions to employ safer sexual practices, greater communication of their intentions to their partners, less substance use that was temporally associated with sexual activity, and fewer incidents of unprotected vaginal intercourse, relative to the women assigned to the control condition. These effects were found at 3-week follow-up, and most of the effects were still present at a 3-month follow-up. Furthermore, as noted by Carey et al.⁵², the motivationally-enhanced intervention yielded larger effect sizes ($d=0.56$) than traditional skills-based interventions ($ds=0.32$ to 0.43)⁶²⁻⁶⁴.

In a second study employing the same intervention, Carey and colleagues⁶⁰ tested the intervention against a health promotion group that equated for contact time in another sample of economically disadvantaged urban women. The women who received the HIV risk behavior intervention had greater HIV-related knowledge and reduced intentions to engage in risky behavior, relative to the women in the control group. Furthermore, among the HIV risk behavior intervention women, those who reported imperfect intentions regarding risk behavior had a fourfold increase in condom use and reported more discussion about condom use and HIV testing with their partners. In addition, they were more likely to have refused to participate in unprotected sex. Carey et al. interpreted these later findings as reflecting a more realistic assessment of the potential barriers to safer sex.

Belcher and colleagues⁶⁵ examined the efficacy of a similar intervention with low-income urban women. However, this intervention was conducted in a single 2-hour session. The control condition was an AIDS education intervention that equated for contact time. At 3-month follow-up, the women who received the HIV risk behavior intervention reported significantly higher rates of condom use during vaginal intercourse, relative to women in the control condition. However, they found no treatment effects for AIDS-related knowledge and self-efficacy.

O'Neill and colleagues⁶⁶ conducted a randomized trial of a six-session HIV risk behavior intervention among pregnant women enrolled in methadone maintenance treatment. Their intervention consisted of motivational interviewing, psychoeducation about HIV risk, coping skills training, and relapse prevention. The intervention in this study did not include exercises to build skills (e.g., proper condom use, cleaning of needles) to reduce sex- and drug-related HIV risk behavior, which are typical components of HIV risk reduction interventions. At 9-month follow-up, the intervention group, compared to the standard care comparison group, displayed significantly less drug-related risk behavior. The intervention did not appear to reduce sex-related risk behavior.

Conclusions

Taken together, the work in this area suggests that HIV risk reduction interventions that effectively address both sex- and drug-related HIV risk behavior among female substance abusers are sorely needed. Interventions that incorporate motivational interviewing components may improve upon the efficacy of previous interventions, at least among economically disadvantaged women^{52, 60, 65}. Furthermore, the limited work that has been directed specifically toward female substance users highlights that motivational interviewing may not be sufficient as a stand-alone intervention to reduce HIV risk in this population and may hold more promise when coupled with the types of skill-building exercises traditionally included in HIV risk reduction interventions⁶⁶.

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