Published in final edited form as:
Prof Psychol Res Pr. 2007 October 1; 38(5): 518–522. doi:10.1037/0735-7028.38.5.518.

Addressing HIV Risk Behavior Among Pregnant Drug Abusers: An Overview

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Abstract

Both sex- and drug-related HIV risk behavior are common among pregnant drug abusers. In the absence of intervention, these behaviors are likely to continue throughout pregnancy, placing the women and their unborn children at risk of contracting HIV. Drug treatment programs have been found to have limited impact on these behaviors. Although certain drug risk behaviors have been shown to decrease during drug treatment, sex-related risk behavior remains largely unaffected. Similarly, knowledge- and skill-based HIV risk reduction interventions have demonstrated modest efficacy. Therefore, there is a need to develop new interventions that directly target sex- and drug-related HIV risk behavior among pregnant drug abusers, taking advantage of a period in the women's lives in which the potential negative consequences of risk behavior are more significant given the possible impact on their unborn children and in which there may be a heightened desire to make healthier behavior choices. Recent work suggests that a promising new direction for the field may be incorporating motivational interviewing components into traditional HIV risk reduction interventions, which focus on providing HIV risk information and building sex- and drug-related HIV risk reduction skills.

Keywords

drug abuse; HIV risk behavior; intervention; motivational interviewing; pregnancy

HIV risk behavior among pregnant drug abusing women is cause for concern. Both sex- and drug-related HIV risk behaviors are common among pregnant drug abusers and, in the absence of intervention, are likely to continue throughout pregnancy. These behaviors place both the women and their unborn children at risk of contracting HIV. Furthermore, children born to women infected with HIV risk the loss of a primary caregiver.

HIV is a critical and costly health problem for women in the United States. Women make up a rapidly expanding group infected by HIV in the United States (Hader, Smith, Moore, & Holmberg, 2001) and now represent 22.6% of all U. S. AIDS cases, up from 8% 15 years ago (Centers for Disease Control, 2001). Across age groups, the greatest proportionate increase in AIDS cases has occurred among women under the age of 25 years (Centers for Disease Control, 2001). Among American women 25–44 years of age, HIV is the fifth leading cause of death (Hader et al., 2001). Women account for 30% of new infections, almost three quarters of which are heterosexually acquired (Centers for Disease Control, 2001). Injection drug use also plays a major role in HIV infection in women, with 29% of women contracting HIV through their

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own injection drug use and another 15% contracting HIV through sexual contact with an injection drug user (Centers for Disease Control, 2004).

In the United States, more than five million women of child-bearing age (15–44 years old) currently use illicit substances (U.S. Department of Health and Human Services, 1991a). Estimates of illicit drug use during pregnancy range from 0.4% to 27%, depending on the setting in which data are collected (Matera, Warren, Moomjy, Fink, & Fox, 1990; Neerhof, MacGregor, Retzky, & Sullivan, 1989; Ostrea, 1992; U.S. Department of Health and Human Services, 1991b). In a recent survey, 4.3% of pregnant women 15– 44 years of age reported illicit drug use in the prior month (Substance Abuse and Mental Health Services Administration, 2004b).

Sex-related HIV risk behavior has been found to occur at alarming rates in some samples of pregnant women. One index of sex-related risk behavior among pregnant women is the prevalence rate of sexually transmitted infections (STIs). In a recent study of young pregnant African Americans (DiClemente et al., 2004), nearly one quarter of the women were infected with one of four STIs at the time of assessment; 13% were infected with *Chlamydia trachomatis*, 8.9% with *Trichomonas vaginalis*, 1.2% with *Neisseria gonorrhea*, and 1.2% with *Treponema pallidum*. Among those who had been treated for an STI in the past 6 months, 30% tested positive for a current STI, suggesting that sex-related risk behavior may be difficult to change. It should be noted that this sex risk behavior may or may not have continued into the pregnancy. In addition to serving as a potential index of behavior that places these women and their children at risk for HIV, STIs carry their own health risks, including premature delivery, intrauterine growth retardation, spontaneous abortion, stillbirth, and pelvic inflammatory disease (Goldenberg, Andrews, Yuan, MacKay, & St. Louis, 1997; Watts & Brunham, 1999). If untreated, STIs can produce cervical cancer, pelvic inflammatory disease, infertility, ectopic pregnancy, chronic pelvic pain, maternal death and perinatal death, opthalmia neonatorium, and birth defects (Berman & Hein, 1999; Wasserheit, 1989). Furthermore, the presence of STIs can increase the risk of infection when exposed to HIV (Cohen, 1998).

The clinical picture becomes even more complicated among drug abusing pregnant women, a population in which sex-related HIV risk behavior has been found to be prevalent. Relative to nonpregnant injection drug users, pregnant injection drug users have been found to be less likely to use condoms with regular and casual sexual partners and to be as likely to exchange sex for money or drugs (Deren, Beardsley, Davis, & Tortu, 1993). Pregnant drug abusers may reduce their use of condoms during pregnancy given that the pregnancy temporarily eliminates the need for birth control. However, an alternative explanation is that this finding merely reflects a preexisting lower rate of condom use among the women who became pregnant. In other words, these women were more likely to become pregnant because of consistently lower rates of condom use. Regardless of 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 HIV.

In addition to sex-related risk behavior, pregnant drug users are at risk for contracting HIV through their drug use behavior. For instance, pregnant injection drug users have been found to be as likely as their nonpregnant peers to share injection drug use equipment (Deren et al., 1993). These risk behaviors are found among pregnant women engaged in drug treatment as well. Baker, Heather, Wodak, and Lewin (2001) found that pregnant women in methadone maintenance treatment engaged in as much injection drug risk behavior as women not enrolled in treatment and more injection drug risk behavior than nonpregnant women in metha-done maintenance treatment.

Engaging in these sex- and drug-related risk behaviors not only places the women at risk for HIV, it also poses a risk to their unborn children. Perinatal transmission accounts for almost all new HIV infections in children (Centers for Disease Control, 1996). In addition to the risk of perinatal transmission, children born to women infected with HIV risk the loss of a primary caregiver.

Specialized Drug Use Treatment for Pregnant Women

Pregnant women have unique needs that could be addressed in the course of drug use treatment, including health risks to their unborn children as well as increased legal risk and potential loss of custody of their children. Given these special concerns and the rate of illicit drug use during pregnancy, there has been increased interest in the development of specialized drug treatment programs for pregnant women over the past few years. In one of the few randomized controlled trials of drug treatment in pregnant women, Burkett, Gomez-Marin, Yasin, and Martinez (1998) found that prenatal care combined with drug rehabilitation resulted in a higher number of infants with negative toxicology at birth and fewer positive drug tests of mothers at delivery, relative to a prenatal care–only condition, in a sample of racially diverse, predominantly low socioeconomic status women who used cocaine.

Because of ethical concerns surrounding the withholding or delaying of a potentially efficacious drug treatment for pregnant women, some investigators have used quasiexperimental designs to establish support for their programs. For example, Weisdorf, Parran, Graham, and Snyder (1999) examined the treatment retention rate of cocaine-dependent indigent pregnant women in a non–gender-specific 12–step-oriented treatment program with the retention rate of the program following the incorporation of gender-specific and pregnancy-specific treatment components. They found that the specialized treatment for pregnant drug abusers resulted in lower treatment drop-out rates. Longer treatment retention in this population has been found to be associated with better treatment outcomes (Stevens & Arbiter, 1995). Examining nine community-based substance use programs for pregnant women that employed quasiexperimental designs, Eisen, Keyser-Smith, Dampeer, and Sambrano (2000) found reduced rates of alcohol and illicit drug use from intake to delivery among women who received treatment, relative to a comparison group that chose not to accept drug treatment during pregnancy.

Sweeney, Schwartz, Mattis, and Vohr (2000) employed a similar quasiexperimental design to evaluate the impact of a specialized substance abuse program for pregnant women and found that infants born to women who enrolled in the substance abuse treatment program during pregnancy fared better on all parameters, compared with infants of women who enrolled in treatment after delivery. Birth weight was an average of 400 grams higher, gestational age 2 weeks longer, and length of hospital stay 6 days shorter, with an 8-day difference in neonatal intensive care unit length of stay. In addition, women enrolling in the program after their deliveries were also more likely to have delivered infants with positive toxicology screens at birth.

Need for HIV Risk Reduction Interventions in Pregnant Drug Abusers

Drug abuse treatment may also reduce HIV risk behavior; however, the impact of drug abuse treatment on HIV risk behavior may be circumscribed. In a review of 33 studies, with more than 17,000 subjects, Sorenson and Copeland (2000) found strong support for methadone maintenance treatment in the reduction of needle use and HIV infection. However, they discovered less definitive evidence in regard to the impact of methadone maintenance treatment on needle sharing and unsafe sexual behavior. Furthermore, they concluded that very little is known about the impact of treatment modalities other than methadone maintenance on HIV risk behavior and that studies that include more women are needed to determine whether gender

effects are present. As discussed above, there is evidence of continued HIV risk behavior among pregnant women engaged in drug treatment (Baker et al., 2001). Taken together, these findings point to the need for interventions that directly target sex- and drug-related HIV risk behavior in pregnant drug abusers, particularly women enrolled in nonmethadone treatment programs. Nonmethadone programs represent the largest group of drug treatment programs in the United States, with only 7% of substance abuse treatment facilities offering methadone or levo-alpha acetyl methadol (Substance Abuse and Mental Health Services Administration, 2004a). HIV risk interventions aimed at pregnant drug abusing women should be designed to address both the decreased condom use and the sustained needling sharing that have been found in this population (Baker et al., 2001; Deren et al., 1993).

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

Given that very little work has been done examining HIV interventions with pregnant substance abusers, options for intervening in this population derive from nonpregnant populations. In a comprehensive review of HIV risk reduction intervention studies conducted with women, Exner, Seal, and Ehrhardt (1997) 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 those that were directed specifically toward women, emphasized relationship and negotiation skills, and included multiple and sustained contacts with program participants. In the review by Exner et al., one study examined the efficacy of an HIV risk reduction intervention with single, low-income, pregnant women (Hobfoll, Jackson, Lavin, Britton, & Shepherd, 1994). An intervention that incorporated skill training produced greater increases in safer sex intentions and behaviors than two control groups, one of which was a health-promotion condition that equated for contact time. The modest magnitude of the effects achieved suggests that improvements can be made.

Motivationally Enhanced HIV Risk Reduction Interventions With Women

One way in which these traditional knowledge- and skill-based HIV risk reduction interventions have been enhanced in nonpregnant populations is through the incorporation of *motivational interviewing* components (Carey & Lewis, 1999). Motivational interviewing (Miller & Rollnick, 1991, 2002) is a widely disseminated intervention strategy with demonstrated efficacy (see Burke, Arkowitz, & Menchola, 2003; Dunn, Deroo, & Rivara, 2001; Hettema, Steele, & Miller, 2005). Motivational interviewing (Miller & Rollnick, 1991, 2002) is a collaborative, nonconfrontational approach to discussing and facilitating behavior change. A key premise of motivational interviewing 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 establish an environment that promotes adaptive behavior change. In motivational interviewing, ambivalence about change is considered normative. Assumptions are not made about the client's readiness to make changes; rather, the exploration of level of readiness to change is seen as an important exercise. Therefore, the intervention can be tailored to varying levels of readiness to change. Motivational interviewing may be particularly effective with drug using pregnant women because they are thought to be in a "teachable moment" in which the recognition of increased negative consequences of their HIV risk behavior may tip the balance of ambivalence about their behavior in favor of positive change (Higgins, Clough, Hendel, Frank, & Wallerstedt, 1995). Motivational interviewing may help these women to reevaluate the priorities in their lives and make decisions about changing their behavior so that behavior is aligned with priorities.

To facilitate behavior change, motivational interviewing employs four general principles. First, expressing empathy is viewed as essential. This creates a therapeutic environment of

acceptance, which facilitates change. Ambivalence about making a change is viewed as normal. Second, developing discrepancy is a primary aim of motivational interviewing. The therapist attempts to explore any discrepancies between the client's current life situation and his or her goals. The idea is that greater discrepancy will lead to more ambivalence, moving the client toward adaptive behavior change in an effort to relieve the ambivalence. The belief is that it is most effective if the client presents the arguments for change. Third, therapists are encouraged to roll with resistance, rather than opposing or arguing against it. Resistance is viewed as an interpersonal phenomenon and as a signal that the therapist should change his or her behavior. The client is seen as a valuable resource for ideas and solutions. The therapist may invite the client to consider new perspectives; however, alternative perspectives are not imposed on the client. Fourth, the therapist supports the client's self-efficacy to make changes. Self-efficacy is a key determinant of readiness to change. To enhance self-efficacy, the therapist discusses the client's personal responsibility for making a change, conveys his or her own belief in the client's ability to change, and highlights the client's past successes in making changes.

The incorporation of intervention components that directly address motivation to make changes in 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 (Fisher & Fisher, 1992,2000). The IMB model proposes that HIV risk reduction 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. The IMB model is a well-established model in the field of HIV risk reduction, and interventions based on this model have strong empirical support (Carey et al., 1997,2000;Fisher & Fisher, 2000;Fisher, Fisher, Misovich, Kimble, & Malloy, 1996). As noted by Carey and Lewis (1999), a motivationally enhanced intervention has yielded larger effect sizes (d = .56) than traditional skills-based interventions (ds = .32 to .43; DiClemente & Wingood, 1995;Hobfoll et al., 1994;Kelly et al., 1994). Furthermore, the IMB model appears to be generalizable to different populations (Fisher, Fisher, Williams, & Malloy, 1994), although it has received very limited testing in pregnant drug abusers.

In the only trial conducted to date incorporating a motivational intervention for HIV risk behavior for pregnant women, O'Neill et al. (1996) conducted a randomized trial of a six-session HIV risk behavior intervention among pregnant women enrolled in metha-done maintenance treatment. Their intervention included motivational interviewing, psychoeducation about HIV risk, coping skills training, and relapse prevention. However, it 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 typically included in HIV risk interventions. At 9-month follow-up, the intervention group displayed significantly less drug-related HIV risk behavior, relative to a standard care comparison group. The intervention appeared to have no effect on sexual risk behavior. A key limitation of the intervention employed in this study, which may have limited the intervention's impact on HIV risk behavior, is that it was not tailored to meet the unique needs of pregnant substance abusers. However, this study does highlight that motivational interviewing may not be sufficient as a stand-alone HIV risk intervention in this population and may hold more promise when coupled with the types of skill-building exercises that have traditionally been included in HIV risk interventions.

Implications for Practice

Women make up a rapidly expanding group infected by HIV in the United States (Centers for Disease Control, 2001; Hader et al., 2001). Among pregnant drug abusers, sex- and drug-related HIV risk behaviors occur at alarming rates (Baker et al., 2001; Deren et al., 1993). This behavior places the women and their children at risk for HIV infection. Although drug abuse treatment may have some effect on certain HIV risk behaviors, its impact appears to be circumscribed,

with sex-related risk behavior largely unaffected by drug treatment (Baker et al., 2001; Sorenson & Copeland, 2000). Furthermore, although drug risk behavior is reduced through drug treatment, pregnant women continue to engage in some drug use behavior that perpetuates their risk for HIV. As such, there is a need to develop new interventions that directly target sex- and drug-related HIV risk behaviors among pregnant drug abusers, taking advantage of a period in these women's lives in which the potential negative consequences of risk behavior are more significant given the possible impact on their unborn children and in which there may be a heightened desire to make healthier behavior choices (Higgins et al., 1995).

HIV risk reduction interventions that have incorporated motivational interviewing and skills training components show great promise in economically disadvantaged women (Belcher et al., 1998; Carey et al., 1997, 2000). However, very little work has been directed specifically toward pregnant women in drug abuse treatment (O'Neill et al., 1996). If an intervention can be developed to meet the unique needs of pregnant women in drug treatment, it may reduce the acquisition of HIV among pregnant drug abusers and improve health outcomes for the women and their children. To achieve this goal, more work needs to be done to specify the unique treatment needs of pregnant drug abusers and to determine the optimal intervention components to reduce HIV risk behavior in this population. Furthermore, the field would need to determine the optimal parameters for intervening with these women, for example, the most effective timing for the intervention. Once the tailored interventions have been honed, implementation within existing drug treatment and prenatal treatment programs will likely reach the widest audience and maximize risk reduction.

Acknowledgments

THIS WORK WAS SUPPORTED in part by Grant DA20930 to Susan E. Ramsey from the National Institute on Drug Abuse.

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