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Mediators of the Relation Between Partner Violence and Sexual Risk Behavior Among Women Attending a Sexually Transmitted Disease Clinic

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Abstract

Background—Intimate partner violence (IPV) is associated with a wide range of negative outcomes, including sexual risk behavior. This cross-sectional study explored mediators of the relationship between IPV and risky sexual behavior in 717 women recruited from an STD clinic.

Methods—Participants were recruited from a public STD clinic in upstate New York as part of a randomized control trial (RCT) that was designed to evaluate several sexual risk reduction interventions. They completed an Audio Computer-Assisted Self-Interview in a private room.

Results—Among these women, 18% reported IPV in the past 3 months and 57% reported lifetime experience of IPV. Recent IPV was associated with greater sexual risk as measured by more episodes of unprotected sex (overall and with a steady partner). Although IPV was associated with depressive symptoms and drug use before sex, these variables did not mediate the relationship between IPV and sexual risk behavior.

Conclusions—The results indicate that IPV is common among women who attend an STD clinic and warrants increased attention. Research is needed to better understand the pathways linking IPV and HIV risk in women to optimize the design of effective interventions.

Keywords

intimate partner violence; HIV/AIDS, mediation; sexually transmitted disease

Foremost among health problems impacting young women are HIV/AIDS and intimate partner violence (IPV).¹ HIV affects an increasing number of women, particularly economically-disadvantaged urban women of color.² The proportion of AIDS cases among adult and adolescent women in the U.S. has more than tripled since 1985.³ Currently, women account for more than one-fourth of all new HIV/AIDS diagnoses in the U.S. and 78% of these cases have been attributed to heterosexual contact.⁴ In 2002, HIV infection was the fifth leading cause of death among all women ages 35–44.⁵

IPV, which includes physical violence against women by a current or ex-husband or boyfriend, as well as sexual and psychological violence that frequently accompany physical violence,⁶ also affects many women. A U.S. national survey of violence against women found that 52% of women had been physically assaulted either as a child or as an adult; 22% of women reported being physically assaulted by a current or former spouse, cohabiting

partner, boyfriend or girlfriend, or date in their lifetime; 18% acknowledged having been victims of completed or attempted rape; and 1.3% experienced such violence in the last 12 months.⁷ Violence against women is a global issue that has physical, psychological, and economic consequences for women and consequently for their families and their communities.⁸

An increasing amount of research has focused on the short- and long-term consequences of violence against women,^{6, 8–11} including the interrelationship between IPV and HIV/AIDS. Women who experience IPV report greater sexual risk behaviors, including more male partners, greater frequency of vaginal intercourse, and less condom use; in addition, they are more likely to report a history of anal intercourse, sexual relations with a drug injecting-partner, and trading money or drugs for sex.¹² Further, abused women are at substantial risk for sexually transmitted infections.^{10, 13} Research findings have also linked HIV infection with IPV; that is, HIV-infected women are more likely to have had a physically violent partner in their lifetime and to face (physical and/or sexual) violence with their current partner.¹⁴

Although research has found that IPV is related to sexual risk behavior and STD/HIV infection, the causal links between IPV and HIV risk have not yet been established.¹⁵ IPV may *directly* increase HIV risk through forced unprotected vaginal or anal intercourse.^{16–19} In addition, IPV may *indirectly* lead to HIV risk through a variety of mechanisms. There is little conceptual work to guide research on the association between IPV and HIV risk; however, conceptual work from other areas of trauma suggests that substance abuse and psychological distress may mediate the relation between trauma and sexual risk behavior.²⁰

Empirical research also suggests that substance use and psychological distress may mediate the IPV—sexual risk behavior relation. Research has linked IPV to unhealthy emotional states and behaviors, such as depression and anxiety^{21–24} as well as to alcohol and drug use.^{25, 26} Several research studies have linked depression with increased sexual risk behaviors;^{27, 28} however, these findings are not consistent across studies, with one meta-analysis concluding that there is no association between depression and sexual risk behavior.²⁹ Studies have also found an association between substance use and sexual risk behavior.^{30, 31}

Building on conceptual models of the relationship between trauma and sexual risk behavior, as well as empirical research that has found substance use and depression to be associated with both IPV and sexual risk behavior, we investigated a conceptual model in which the relationship between IPV and sexual risk behavior is mediated by depressive symptoms and increased alcohol and drug use. Although other studies have investigated potential mediators of the relation between IPV and condom use intentions,³² to our knowledge, this study is the first to investigate potential mediators of the relation between IPV and actual sexual risk behavior. Understanding the variables that mediate this relation will help researchers develop targeted sexual risk reduction interventions for women who are experiencing IPV.

Methods

Participants

Participants were recruited from a STD clinic in upstate New York as part of a randomized control trial (RCT) designed to evaluate sexual risk reduction interventions.³³ Criteria for inclusion in the RCT included: age 18 or older; willing to participate in a standard clinic visit, including an HIV test; and evidence of sexual risk behavior in the last 3 months (i.e., vaginal or anal intercourse without a condom with: (a) more than one sexual partner; (b) a partner who injected drugs, who had other partners, or who was diagnosed with an STI in the last 3 months; or (c) an HIV positive partner). Each of these risk factors was assessed

separately. Individuals who were HIV positive were excluded and provided with appropriate clinic services and referrals, because the RCT was designed to evaluate sexual risk reduction interventions for individuals who were HIV negative.

One thousand five hundred and fifty seven men and women completed the baseline survey (58% of those who were eligible). Because IPV-related issues may differ between men and women³⁴ for this study we included data only from the 717 women (46%) who completed the baseline survey for the RCT. On average, participants were 28.2 years old ($SD = 9.1$). Nearly two-thirds were African American (65%; $n = 464$) and 23% were Caucasian ($n = 164$). Over half of the sample was unemployed (56%; $n = 405$); 64% had a high school education or less ($n = 458$); 66% of the sample had an income $< \$15,000$ per year ($n = 474$); and 79% were in a steady relationship ($n = 565$).

Procedures

A trained RA called patients from the clinic waiting room by their registration number and escorted them to a private room. The RA explained the purpose of the study and asked each patient if (s)he would be willing to answer the screening questions to determine eligibility for the study. Eligible patients who agreed to participate signed an informed consent form and provided contact information. They also completed a calendar of important events in the last 3 months to assist their recall when responding to survey questions.

Participants were left alone in a private room to complete an audio, computer-assisted self-interview (ACASI). ACASIs improve data quality for sensitive topics, and allow individuals with low literacy skills to participate.³⁵ Participants were trained for completing the survey. All procedures were approved by the Institutional Review Board.

Measures

The ACASI assessed demographic and other descriptive characteristics, intimate partner violence, alcohol use, drug use, depression, and sexual behavior.

Demographic and background characteristics—Participants were asked to report their race, income (re-coded as $< \$15,000$ vs. $\geq \$15,000$), education (recoded as high school or less vs. more than high school), and employment (re-coded as employed vs. unemployed). Participants were also asked whether they ever traded sex for money or drugs.

Intimate partner violence—Three items assessed recent intimate partner violence.^{36, 37} First, participants were asked if they had been hit, kicked, punched, or otherwise hurt by a sexual partner. Second, participants were asked if they had been pressured or forced to have sexual contact. Third, participants were asked if their partner had threatened to hurt or kill them, prevented them from leaving or entering their home, seeing friends, making phone calls, having or keeping a job, continuing their education, or seeking medical attention. If the participants responded affirmatively to any of the three questions, they were asked when the violence had occurred most recently (past three months, past year, or more than one year ago). If the IPV had happened in the past three months, they were considered to have experienced recent IPV. Women who responded affirmatively to one of the three IPV questions were considered to have experienced lifetime IPV.

Substance use and sex—To assess the co-occurrence of substance use and sex, participants were asked how often in the past 3 months they (a) used drugs and (b) drank alcohol before sex.^{38, 39} Responses ranged from (1) never to (5) almost always. Participants were asked to answer these questions about their steady partner as well as non-steady partners. Ratings of drug use and drinking before sex were averaged across partner types.

Center for Epidemiologic Studies Depression Scale (CES-D)—The CES-D is a 20-item self-report scale intended to assess depressive symptoms in the general population.⁴⁰ In the present study, we used the 9-item CES-D, which correlates strongly with the 20-item scale.⁴¹ Items were answered on a 4-point scale ranging from 1 = rarely/none of the time to 4 = most/all of the time in the past week (Cronbach's $\alpha = .88$ for the present sample). A higher score indicated more depressive symptoms.

Sexual behavior—Sexual risk behavior was assessed with items used in previous research.^{38, 39, 42} For the past 3 months, participants reported the number of male and female partners as well as the number of protected and unprotected vaginal (and anal) sex episodes with their (a) steady and (b) non-steady partners. Items were summed to determine the number of unprotected sex episodes (vaginal + anal) as well as the percentage of unprotected sex episodes ($\# \text{ unprotected sex episodes} / (\# \text{ unprotected} + \# \text{ protected sex episodes})$) with their steady partner and all partners.

Data Analysis

Data were inspected for outliers (> 3 standard deviations from the 75th percentile; all outliers were trimmed to 3 SD from the 75th percentile + 1). Data that were non-normally distributed (i.e., number of episodes of unprotected sex; number of partners, past 3 months) were transformed using a $\log_{10}$ transformation. We used a $\log_{10}$ transformation because it reduced the skew of the data (from 1.97 to 0.09 for the number of episodes of unprotected sex, and from 2.06 to 1.05 for the number of partners).

Chi-square and analyses of variance (ANOVA) were conducted to determine which demographic and background variables were associated with IPV; variables that were associated with IPV were included as covariates in subsequent analyses. Logistic regressions and ANCOVAs, controlling for covariates, determined whether IPV was related to sexual risk behavior. To investigate the mediational model, path analyses were conducted using Mplus,⁴³ which allows for the inclusion of all hypothesized mediators in a single model and provides results for each specific indirect effect as well as for the total indirect effect (i.e., the sum of the specific indirect effects). Bootstrapping, which is currently the recommended approach for assessing mediation^{44, 45} was used with 5000 re-samples. Paths from covariates to the mediators and from the covariates to the outcome were included.

Results

Preliminary Analyses

More than half of participants (57%; $n = 407$) reported lifetime experience of IPV and 18% reported experiencing IPV in the past three months ($n = 129$). Participants' average score on the CES-D was 10.4 ($SD = 6.6$) and 39% of the women ($n = 279$) reported symptoms exceeding the cut off score suggestive of depression. Participants reported a median of 15 sexual partners (lifetime) and 2 partners (past 3 months), and 8 episodes of unprotected sex (past 3 months) with an average of 68% of intercourse episodes being unprotected. The average score for the co-occurrence of alcohol and sex was 2.1 ($SD = 1.2$); the average score for the co-occurrence of drug use and sex was 1.9 ($SD = 1.3$).

Employment was related to IPV, $\chi^2 (1, N = 717) = 14.08, p < .001$; women who reported IPV in the past 3 months were more likely to be unemployed than women who did not report IPV (71% vs. 53%, respectively). In addition, trading sex for money or drugs was related to IPV, $\chi^2 (1, N = 702) = 16.12, p < .0001$; women who reported IPV in the past 3 months were more likely to have traded sex than women who did not report IPV (46% vs. 28%,

respectively). Employment and trading sex were included as covariates in all subsequent analyses. Race, income, education, and age were unrelated to IPV.

IPV and Adult Sexual Risk Behavior

IPV in the past 3 months was related to current sexual risk behavior, after controlling for employment and sex trading (see Table 1). Specifically, in the past 3 months, IPV was associated with more episodes of unprotected sex, Wald $\chi^2(1, N = 700) = 13.38, p < .001$, OR = 2.18 (CI = 1.44–3.31) and, among women who had a steady sexual partner, with more episodes of unprotected sex with a steady partner, Wald $\chi^2(1, N = 550) = 10.38, p < .01$, OR = 2.16 (CI = 1.35–3.44). IPV was marginally associated with a greater percentage of episodes of unprotected sex, Wald $\chi^2(1, N = 700) = 3.02, p < .10$, OR = 1.76 (CI = 0.93–3.32). IPV was not associated with the number of sex partners, nor with the percentage of episodes of unprotected sex with a steady partner.

Mediators of the Relation Between IPV and Adult Sexual Risk Behavior

Path analyses were conducted to determine whether alcohol use before sex, drug use before sex, and/or depressive symptoms mediated the relation between IPV and adult sexual risk behavior. Separate analyses were conducted for each sexual risk behavior outcome (i.e., number of episodes of unprotected sex; number of episodes of unprotected sex with a steady partner; percentage of episodes of unprotected sex). All three hypothesized mediators were included simultaneously in the model.

In the path analysis predicting the number of episodes of unprotected sex, IPV was associated with drug use before sex, with depressive symptoms, and with the number of episodes of unprotected sex (see Figure 1A). There were no total or specific indirect effects from IPV to the number of episodes of unprotected sex. Similar results were found with women who reported a steady partner in the past 3 months.

In the path analysis predicting the percentage of episodes of unprotected sex, IPV was associated with drug use before sex and with depressive symptoms (see Figure 1B). There were no total or specific indirect effects from IPV to the percentage of episodes of unprotected sex.

Discussion

Investigation of IPV and sexual risk behavior remains an important area of public health research. This study adds to the literature by investigating potential mediators of the relation between IPV and HIV risk, and provides additional data regarding the prevalence of IPV and HIV risk in a large sample of at-risk women attending a public health clinic.

Overall, we observed alarmingly high rates of lifetime IPV. Fifty-seven percent of the women reported lifetime IPV (physical or psychological abuse or both). This figure is startling when compared to the 30% of women who reported lifetime IPV in a national sample,⁴⁶ and the 24% of women attending an STD clinic who reported lifetime IPV.¹³ There are several possible reasons why the rate of lifetime IPV was higher in our sample when compared with the general population. Patients attending an STD clinic report many adverse life events and psychosocial problems that may interact in a “syndemic” fashion and exacerbate the risk for STD infections.⁴⁷ Another possible reason for the high rates of IPV found in the present study is the use of ACASI for data collection. Previous research has shown that use of ACASI leads to more reporting of sensitive information by research participants.⁴⁸ Finally, the sample included only women who reported sexual risk behavior in the past 3 months. These women may differ in IPV rates compared to women attending STD clinics who do not report recent sexual risk behavior.

Our sample also reported a high number of depressive symptoms. Thirty-nine percent of the women in our study ($n=279$) reported symptoms suggestive of clinical depression. This rate is high in comparison to 7% of women who reported depression in a national study⁴⁹ but is not as high as some other studies that have been conducted with STD clinic patients (e.g., Erbeling, Hummel, Hogan, and Zenilman⁵⁰ reported that 52% of the women in their sample of STD clinic patients reported depressive symptoms).

Corroborating findings from other studies, recent IPV was associated with sexual risk behavior, including more episodes of unprotected sex total and with a steady partner, and marginally associated with a greater percentage of episodes of unprotected sex total.^{51–53} We found that IPV was also associated with depressive symptoms and drug use before sex corroborating other studies that have documented high rates of depression and drug use among women who experience IPV.^{54–56} Contrary to findings from other studies, however, we did not find an association between IPV and alcohol use before sex. Most of the research investigating the relation between IPV and alcohol use has studied a global association between drinking and IPV.⁵⁷ Although we did not use methods like diary assessments that require participants to record their behavior, we used a situational measure of alcohol use before sex⁵⁸ when investigating the relationship between alcohol use and IPV, which is an improvement over global assessments of alcohol use and sexual risk behavior.⁵⁸ Women who experience IPV may drink more frequently in general but, at least in this study, they did not drink more frequently immediately before having sex.

An innovative aspect of the current research involved the investigation of possible mechanisms linking IPV with risky sex: To our knowledge, no other investigators have reported similar analyses. These analyses revealed that depressive symptoms and substance use before sex did not mediate the relationship between IPV and risky sex; that is, although IPV was associated with drug use before sex and with depressive symptoms, in our models (which also controlled for employment and sex work), depressive symptoms and drug use were not related to sexual risk behavior. IPV may lead to depression but depression did not, in turn, lead to sexual risk behavior.

Although some studies have found an association between depression and sexual risk behavior, findings across studies are inconsistent, with one meta-analysis concluding that there is no association between depression and sexual risk behavior.²⁹ Thus, there may not be an association between depression and sexual risk behavior or, alternatively, the association may have been obscured by methodological limitations. For example, many studies (including this one) do not use completely overlapping assessment intervals (e.g., in our study, depression was assessed in the last week whereas sexual behavior was assessed for the last three months). This measurement discordance may attenuate the strength of the relationship.

The relationships among IPV, drug use, and risky sex are complicated. Because substance use impairs judgment and decision-making, it is often assumed to cause sexual risk behavior.^{30, 59} However, women who experience IPV often lack the power to decide about condom use;^{60–62} therefore, whether or not they use substances before sex may be moot because it is their partner who often decides on condom use. Research might consider other possible mediators of the IPV—sexual risk relation, such as relationship power or trauma due to IPV.

Strengths of this study include use of a large sample of women attending a public health clinic, ACASI for data collection, and strong data analytic methods, which allowed for inclusion of multiple mediators in a single model.^{63–65} In addition, use of a situational measure of substance use before sex, rather than a measure of global substance use,

provided a better indicator of the relationship between substance use and high-risk sex during sexual activity.^{31, 58} However, the study also had several limitations. First, the measures used to assess IPV were brief; more detailed measures might have better assessed the construct of partner violence. In addition, our measure of IPV included forced sex, and many episodes of forced sex are likely unprotected. Second, because data were collected from women attending an STD clinic, study findings should not be assumed to generalize to all women. Third, only women who had engaged in sexual risk behavior in the past 3 months were eligible to participate. It is possible that results may have differed had the sample included women who were not engaging in sexual risk behavior. Fourth, this is a cross-sectional study; longitudinal data are preferred for testing mediational models. Fifth, because IPV and sexual behavior are both sensitive topics, an under-reporting bias may have weakened the association between IPV and sexual risk behavior.

This study has important implications. First, the findings indicate that women who experienced IPV engaged in more episodes of unprotected sex than women who did not experience IPV; clinicians need to recognize that women experiencing IPV may be at increased risk for STDs and HIV infection. Second, given the prevalence of IPV, screening assessment, and referral for IPV should become integral in public health clinics. Third, despite a significant body of literature connecting the epidemics of IPV and HIV among women, few HIV risk reduction interventions have been purposefully designed for and implemented with women who are at elevated risk for HIV infection and have experienced IPV. Such programs should focus not only on general practices for sexual risk reduction, but could also focus on gender roles, power, safety plans, sexual assertiveness, mental health, and partner-related variables.⁶⁶ Although expanding clinical intervention efforts to reduce depression and drug use among sexually active abused women might help their general health and mental well-being, based on results from the present study, we would not expect these programs to directly reduce abused women's risk for HIV infection. However, there is a possibility that such interventions might reduce the experience of IPV and thus, indirectly reduce women's risk for HIV infection.

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Figure 1a

Figure 1b

Figure 1.

Figure 1a. Path analysis predicting number of episodes of unprotected sex, past 3 months.

Figure 1b. Path analysis predicting percentage of episodes of unprotected sex, past 3 months.

Table 1

Intimate Partner Violence (IPV) and Sexual Risk Behavior

	IPV, past 3 months (<i>n</i> = 129)		No IPV, past 3 months (<i>n</i> = 588)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>p</i>
Sexual partners (number, past 3 months)	3.0	2.7	2.5	2.2	--
Unprotected sex (number of episodes, past 3 months)	22.9	24.2	14.8	18.9	<.001
Unprotected sex (percentage of episodes, past 3 months)	73%	32%	67%	33%	<.10
	<i>(n</i> = 104) ^a		<i>(n</i> = 461) ^a		
Unprotected sex with steady partner (number of episodes, past 3 months)	23.8	23.6	16.0	19.3	<.01
Unprotected sex with steady partner (percentage of episodes, past 3 months)	78%	33%	73%	35%	--

^aChange in the number of participants due to some women not reporting a steady partner at the time of the assessment.