

Intimate Partner Violence and High-Risk Sexual Behaviors Among Female Patients with Sexually Transmitted Diseases

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Background: Victimization by intimate partner violence (IPV) may play an important role in sexual decision-making, increasing the risk for sexually transmitted diseases (STDs) and HIV.

Goal: To explore the relationship between IPV and high-risk sexual behaviors, substance abuse, partners who had sex outside the relationship, and history of STD among women attending an STD clinic.

Study Design: A self-administered survey of patients attending a public STD clinic in San Francisco was conducted from October 1996 to March 1997. Topics included STD history, sexual risk behaviors, partner violence history, partner characteristics, and demographics. Logistic regression analysis was used to assess the independent effect of IPV on STD risk factors.

Results: Overall, 2115 patients participated, for a response rate of 96%. Data were analyzed for a subgroup of 409 female patients who reported recent male sexual partners. Among these women, 11% reported IPV in the past 12 months; lifetime history of IPV was 24%. A history of IPV was associated with a self-reported history of STD (adjusted odds ratio [OR], 2.15; 95% CI, 1.23–3.77). IPV in the past 12 months was associated with alcohol or drug use before sex (adjusted OR, 2.36; 95% CI, 1.17–4.77) and main partners who had sex outside the relationship (adjusted OR, 3.75; 95% CI, 1.94–7.26).

Conclusions: IPV is common among female STD patients and is associated with risk behaviors and partner factors that increase patients' risk of contracting STD and HIV. Screening and referral for IPV should be routinely conducted for female patients attending STD clinics.

INTIMATE PARTNER VIOLENCE (IPV) and many sexually transmitted infections disproportionately affect women. In the United States, nearly 25% of women have been physically and/or sexually assaulted by a current or former sexual partner; 1.5% experienced such violence in the previous 12 months.¹ According to these estimates, approximately 1.5 million women are assaulted by intimate

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partners annually. Research on abused women has clearly demonstrated that sexual abuse, marital rape, and coercion are often part of the larger constellation of abusive and violent behaviors.^{1,2}

The impact of IPV on sexually transmitted disease (STD) risk factors has only recently been explored. Among community-based samples of low-income black women, researchers have found that IPV is associated with increased sexual coercion and decreased sexual and condom negotiation practices.^{3–5} In another study of female sexual partners of drug users, women who reported physical abuse were more likely to report unprotected anal sex.⁶ Compared with nonabused female patients, abused women presenting to a New York City emergency department were found to be more likely to report having high-risk partners (intravenous drug users, HIV-infected, or men who have sex with men) and commercial sex.⁷

Several studies have examined the association between IPV and self-reported STD history. In a national survey of adult women, Plichta found that women with a history of STD reported IPV four times more commonly than women without a history of STD.⁸ This association was also observed in samples derived from a variety of clinical settings, including family practice clinics,⁹ prenatal clinics,¹⁰ and an urban emergency department.⁷ Furthermore, a recent medical chart review of HIV-infected women found that those who reported IPV were more likely to have a diagnosed STD.¹¹

We know of no studies that have examined the association between IPV and STD risk among female patients attending public STD clinics. This report explores the relationship between IPV and sexual risk behaviors, substance abuse, partners who had sex outside the relationship, and

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history of STD among female patients attending a public STD clinic in San Francisco, California.

Methods

Subjects

A cross-sectional self-administered survey of patients attending a public STD clinic in San Francisco was conducted from October 1996 to March 1997. This clinic provides confidential STD diagnosis and treatment, HIV testing and counseling, and contraception services.

At registration, patients were informed about the survey and asked to participate. They were told that the survey was anonymous and completely voluntary and that refusal would in no way affect their care. Patients who agreed to participate were instructed to fill out the questionnaire while waiting for services. Because of limitations with staffing, the survey was administered to a convenience sample throughout the study period. This sampling was not associated with specific personnel, times of the day, or days of the week and thus was unlikely to cause significant selection bias.

Measurements

The questionnaire was developed by staff members of the STD Prevention and Control Program of the San Francisco Department of Public Health. The survey, which was written at a 9th grade reading level, was part of periodic STD clinic behavioral surveillance and client-satisfaction assessments.¹² In addition to patient demographics, the survey included sexual orientation, sex of partners, sexual risk behaviors, history of STD (chlamydia, gonorrhea, syphilis, warts, herpes, and HIV), and partner violence history. Sexual risk behaviors included number of sexual partners in the past 3 months, number of new sexual partners in the past 3 months, and condom use at last vaginal sex.¹³ In addition, participants were asked whether they thought their "main partner has had sex with someone else in the past 3 months" (partner nonmonogamy) and whether they were "high on alcohol or drugs" the last time they had sex. Participants' experience with IPV was assessed by asking: "Have you been hit, kicked, pushed, or physically hurt by a main sex partner?"¹⁴ Response choices were never, within the past 3 months, between 3 and 12 months ago, and more than 12 months ago.

The survey was written in English and translated into Spanish. The instrument was pilot-tested for content validity. In testing, the instrument could be completed in an average of 30 minutes. Because waiting time is on average 1 hour, the majority of participants had sufficient time to complete the questionnaire.

Data Analysis

The six outcome variables included STD history and five risk factors (multiple sexual partners in past 3 months, new sexual partner(s) in past 3 months, lack of condom use at last vaginal sex, use of alcohol or drugs at last sex, and partners who have multiple partners). The predictor variable was experience with IPV, stratified as recent (within the past 12 months), past only (more than 12 months ago), and never. These categories were treated as hierarchical exposure categories.

To assess the relationships between IPV and sexual risk behaviors, the data were analyzed with SPSS statistical software (SPSS, Chicago, IL, USA).¹⁵ For comparison of means, ANOVA was used to determine statistical significance. For cross-tabulations, statistical significance was determined with the Pearson chi-square test. Statistical significance was defined as $P < 0.05$.

Because prior research has shown that risks for both IPV and STDs include low socioeconomic status, younger age, and nonwhite race,^{16,17} we systematically evaluated the interrelationships between demographic factors (age, race/ethnicity, employment, income, insurance status, and birthplace) and the outcome and predictor variables. We used logistic regression analysis to estimate adjusted odds ratios (ORs) and 95% CIs for the relationship between IPV and each sexual risk behavior. The measures of socioeconomic status were highly colinear (i.e., cross-tabulation chi-square tests between income, employment, and insurance status resulted in P values < 0.005); thus, only income was chosen for the final models. Logistic regression models for each of the six outcome variables were constructed to include age, race/ethnicity (white versus nonwhite), and income (tercile categories).

Results

Sample Characteristics

On the basis of computerized clinic records, we determined that 5329 female and male patients sought care at the clinic during the study period. Of these patients, 2197 (41.2%) were invited to participate. Only 38 (1.7%) refused, and 44 (2.0%) declined because they were comfortable with neither English nor Spanish. Overall, 2115 (96%) agreed to participate in the survey. A total of 470 women completed the survey. Of these, 435 (93%) were identified as heterosexual or bisexual or reported having male sexual partners in the past 3 months; 26 (6%) were excluded because they did not answer the question regarding experiences with IPV. Thus, 409 women were included in this analysis. A comparison of the demographics of patients served during the study period with those of the study participants demonstrated no apparent selection bias.

Characteristics of the study participants are presented in

TABLE 1. Characteristics of the Study Participants (N = 409), San Francisco City Clinic, 1996–1997

Characteristic	No. (%) of Participants
Age, mean (SD)	27.9 (7.8)
Race/ethnicity	
White	204 (49.9)
Black	78 (19.1)
Hispanic	57 (13.9)
Other/mixed	70 (17.1)
Employment status	
Full time	100 (24.6)
Part time	115 (28.3)
Unemployed	120 (29.6)
Student	71 (17.5)
Annual income (\$ U.S.)	
<10,000	254 (62.4)
≥10,000	153 (37.6)
Medically uninsured	315 (77.8)
Born in United States	291 (71.1)
Intimate-partner violence	
Recent (within 12 months)	46 (11.2)
Past (>12 months previously)	54 (13.2)
Never	309 (75.6)
Ever had an STD	248 (65.8)

STD = sexually transmitted disease.

Table 1. The age range was 16 to 68 years, and the mean age was nearly 30 years. The sample was ethnically diverse and included low-income, mostly uninsured persons. Almost one-third of the participants were born outside the United States. Physical violence of a main sexual partner within the last 12 months was reported by 11% of the participants, and an additional 13% reported a history of IPV occurring before the past 12 months. Nearly two-thirds reported that at some time they had an STD such as chlamydia (36.9%), gonorrhea (27.1%), genital warts (28.9%), genital herpes (19.8%), or HIV (0.8%).

High-risk sexual behaviors were common among the participants. Of the 409 women, 35.0% reported having more than one partner in the past 3 months, 54.4% reported having a new partner in the past 3 months, 62.8% reported not using a condom at last sex, and 19.6% reported being high on alcohol or drugs at last sex. In addition, 20.3%

reported that they knew or suspected that their main partner had sex with someone else in the past 3 months.

Associations With Intimate Partner Violence

History of STD diagnosis was significantly associated with IPV experience (Table 2). Compared with never-abused women, a greater proportion of abused women reported a history of STD (77.4% versus 62.0%; $P = 0.006$ for combined recent and past abuse). In terms of sexual risk behaviors, neither multiple partners nor new partners in the past 3 months were statistically associated with IPV experience. Although more abused women reported no condom use at last sex, these differences were not statistically significant. Women abused in the past 12 months were almost twice as likely to report the use of alcohol or drugs at last sex; however, this difference only approached statistical significance. Knowledge or suspicion that a partner had had sex with someone else in the past 3 months was reported most by recently abused women (45.7% versus 17.5%), a difference that was highly significant ($P < 0.001$).

To explore whether these univariate associations were confounded by demographic characteristics of the patients, we evaluated statistically predictive demographics of IPV and each of the outcome variables (data not shown). IPV history did not differ by age, but older women were more likely to report having had an STD previously and less likely to report having a new partner in the past 3 months. Other risk behaviors did not vary by age. IPV history did not vary by race/ethnicity, but black women were more likely to report a history of STD and partner nonmonogamy. Other risk behaviors did not vary by race/ethnicity. IPV history did not vary by patient's country of birth, but patients born in the United States were more likely to report multiple sexual partners and having had an STD. Lower socioeconomic status (as measured by employment, income, and insurance) was associated with IPV history, although no patterns were noted for STD history or risk behaviors.

The results of the multivariate analyses are presented in Table 3. History of STD was significantly associated with

TABLE 2. Relationship Between Sexual Risk Factors and Intimate Partner Violence (IPV)

IPV Experience	Sexual Risk Behavior: % of Female Patients					
	History of STD	>1 Partner in 3 Months	New Partner(s) in 3 Months	No Condom at Last Sex	Alcohol/drug at Last Sex	Partner Nonmonogamy
Never abused (n = 309)	62.0	33.9	54.5	59.3	18.1	17.5
Abused in past only (>12 months ago) (n = 54)	77.6	36.5	50.0	69.2	17.0	14.8
Recently abused (≤12 months ago) (n = 46)	77.3	40.9	59.5	69.8	32.6	45.7
<i>P</i> value*	0.024	0.641	0.653	0.208	0.061	<0.001

*Derived from Pearson chi-square analysis comparing the three categories of IPV experience.

STD = sexually transmitted disease.

TABLE 3. Multivariate Analysis of Association Between Intimate Partner Violence and Sexual Risk Behaviors (N = 409)

Intimate Partner Violence Experience	Sexual Risk Behavior											
	History of STD		Multiple Partners in 3 Months		New Partner in 3 Months		No Condom at Last Vaginal Sex		Alcohol/Drugs at Last Sex		Partner Nonmonogamy in 3 Months*	
	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)
Never abused	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Abused in past only	2.12 (1.04-4.32)	2.05 (0.97-4.35)	1.12 (0.61-2.07)	1.26 (0.67-2.36)	0.83 (0.46-1.51)	1.02 (0.55-1.89)	1.54 (0.82-2.90)	1.49 (0.78-2.87)	0.94 (0.42-2.07)	0.82 (0.37-1.84)	0.90 (0.40-2.04)	0.90 (0.40-2.04)
Recently abused	2.09 (0.99-4.39)	2.25 (1.05-4.81)	1.35 (0.71-2.58)	1.53 (0.79-2.98)	1.23 (0.64-2.37)	1.24 (0.63-2.44)	1.58 (0.79-3.15)	1.50 (0.74-3.02)	2.36 (1.17-4.77)	3.97 (2.07-7.60)	3.75 (1.94-7.26)	3.75 (1.94-7.26)

Reference group is "Never abused." All models adjusted for age, race/ethnicity, and income.

*For analysis of partner nonmonogamy variable, "yes" answers were compared with "no" and "don't know" answers. OR = odds ratio; STD = sexually transmitted disease.

history of IPV. Compared with that for women with no history of abuse, the adjusted OR for combined recent and past abuse was 2.15 (95% CI, 1.23-3.77). Although women with histories of abuse were somewhat more likely to report multiple and/or new sexual partners and lack of condom use, these associations were not statistically significant. Compared with women who had no history of abuse, women who reported abuse within the past 12 months were more than twofold more likely to report the use of alcohol or drugs at last sex (adjusted OR, 2.36; 95% CI, 1.17-4.77) and more than threefold more likely to report partners who had sex with someone else in the past 3 months (adjusted OR, 3.75; 95% CI, 1.94-7.26).

Discussion

Our survey documented a high prevalence of IPV among women attending this public STD clinic and a significant relationship between IPV, STD history, and STD/HIV risk factors. Of the women surveyed, 11% reported IPV within the past 12 months and 24% reported IPV over their lifetimes. These estimates are comparable to those from other public and primary care clinics,^{18,19} emergency departments,²⁰ and prenatal clinics.^{21,22}

Consistent with our hypothesis, we found that women who report a history of IPV were about twofold more likely to report having had an STD diagnosed previously. This magnitude of association is similar to that found in other surveys.^{5,9-11} The relationship between IPV and STD diagnoses is likely mediated by high-risk sexual behaviors as well as partners' risk behaviors. Using data from our survey, we were able to evaluate a few of these specific risk factors.

In this group of female STD patients, IPV was significantly associated with the use of alcohol and/or drugs at last sex and a main partner who had had sex with someone else in the past 3 months (partner nonmonogamy). Alcohol and substance use has been associated with high-risk sexual behavior.^{23,24} Although several studies have documented high rates of substance abuse among abused women,^{18,25,26} we are unaware of research that examines their substance use in the context of sexual encounters. Although few studies have examined STD risk conferred by the abusive partner's behavior,²⁷ partner nonmonogamy may be within the spectrum of abusive behavior. The interconnections between IPV, substance abuse, partner nonmonogamy, and STD acquisition among abused women clearly merit further investigation.

In the current study, associations between IPV and condom use, new partners, and multiple partners were not statistically significant. Previous research examining the association of IPV with condom use has yielded conflicting data. Among low-income black women, condom use was significant lower among abused women,⁴ whereas among emergency department patients, condom use was unrelated

to IPV.⁷ More research is needed to elucidate the consistency (and correctness) of condom use and the factors that influence condom use among abused women.

There are several mechanisms that may explain the ways in which IPV increases STD risk. STD risk may be mediated through the sexually coercive behaviors of the abusive partner within the relationship and through sexual behaviors of the partner outside the relationship. In addition, STD risk may be mediated through the victim's psychological trauma of violence and abuse that leads to impaired decision-making, substance abuse, and greater risk-taking.^{28–30} Conversely, a history or diagnosis of STD may be an initiating factor for partner violence.

The high prevalence of IPV noted in this study has important implications for STD prevention and intervention strategies. For example, standard risk-reduction messages may not be as effective for women in abusive or controlling relationships.^{31,32} Abused women may be more apprehensive about asking their partners to use condoms and refusing sexual advances. Furthermore, women with a history of IPV may be suffering from psychological impairment or substance abuse that weakens their sexual decision-making. Thus, assessing IPV in current and past sexual relationships along with substance abuse is essential for individualizing counseling and making appropriate referrals. Furthermore, if a woman in an abusive relationship contracts an STD, certain partner-management practices may put her at risk for violence. Both STD and HIV partner notification efforts should be guided by an assessment of the risk of domestic violence, and where a risk is indicated, partners should not be notified without the patient's consent.^{33,34}

Because this was a cross-sectional survey, the cause-effect relationship between IPV and STD risk cannot be definitively established. In particular, the timing of the IPV and the history of STD diagnosis cannot be derived from the available data, and as discussed, causal pathways may be bidirectional. The confluence of poverty, social marginalization, substance abuse, violence, and high-risk sexual behaviors is not uncommon. Furthermore, the associations that we found may have been influenced by recall bias. For example, women may perceive having contracted an STD, particular in the context of partner nonmonogamy, as abusive in and of itself. Conversely, abused women may have better recall of both STD history and factors that put them at risk. Other limitations of the study included potential selection bias (in that only 41% of the patients seeking care were ultimately invited to participate in the survey), lack of verification of STD history, and lack of data on the severity and frequency of IPV. No formal adjustments for multiple comparisons were conducted, but because the different outcomes are interrelated, the odds ratios were not independent.

Clinicians providing STD, HIV, and reproductive health services encounter many patients who have a history of IPV.

Our finding that 11% of female patients with STD have been abused by an intimate partner in the past year and that an additional 13% have been abused at some time in their lives is cause for concern and action. At a minimum, health care professionals who provide reproductive care to women in STD clinic settings have the opportunity and obligation to ascertain the occurrence and severity of partner abuse and to intervene on the patient's behalf. In particular, STD clinicians should be trained to ask appropriate screening questions, detect physical signs of abuse, and provide referrals to counseling facilities, shelters, and community-based organizations.

References

1. Tjaden P, Thoennes N. Extent, Nature, and Consequences of Intimate Partner Violence: Findings from the National Violence Against Women Survey. Rockville, MD: National Institute of Justice and the Centers for Disease Control and Prevention, 2000.
2. Schafer J, Caetano R, Clark CL. Rates of intimate partner violence in the United States. *Am J Public Health* 1998; 88:1702–1704.
3. Kalichman SC, Williams EA, Cherry C, Belcher L, Nachimson D. Sexual coercion, domestic violence, and negotiating condom use among low-income African American women. *J Womens Health* 1998; 7:371–378.
4. Wingood GM, DiClemente RJ. The effects of an abusive primary partner on the condom use and sexual negotiation practices of African-Am women. *Am J Public Health* 1997; 87:1016–1018.
5. Wingood GM, DiClemente RJ, McCree DH, Harrington K, Davies SL. Dating violence and the sexual health of black adolescent females. *Pediatrics* 2001; 107:e72.
6. He H, McCoy HV, Stevens SJ, Stark MJ. Violence and HIV sexual risk behaviors among female sex partners of male drug users. *Women Health* 1998; 27:161–175.
7. El-Bassel N, Gilbert L, Krishnan S, et al. Partner violence and sexual HIV-risk behaviors among women in an inner-city emergency department. *Violence Victims* 1998; 13:377–393.
8. Plichta SB. Violence and abuse: implications for women's health. In: Falik M, Collins K, eds. *Women's Health: The Commonwealth Fund Survey*. Baltimore, MD: Johns Hopkins University Press, 1996.
9. Coker AL, Smith PH, McKeown RE, King MJ. Frequency and correlates of intimate partner violence by type: physical, sexual, and psychological battering. *Am J Public Health* 2000; 90:553–559.
10. Martin SL, Matza LS, Kupper LL, Thomas JC, Daly M, Cloutier S. Domestic violence and sexually transmitted diseases: the experience of prenatal care patients. *Public Health Rep* 1999; 114:262–268.
11. Liebschutz JM, Feinman G, Sullivan L, Stein M, Samet J. Physical and sexual abuse in women infected with the human immunodeficiency virus. *Arch Intern Med* 2000; 160:1659–1664.
12. San Francisco City Clinics '96 Survey of Knowledge, Attitudes, Beliefs, Behaviors. San Francisco, CA. STD Prevention and Control. San Francisco: Department of Public Health, 1998.
13. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance System. <http://www.cdc.gov/nccdphp/dash/yrbs/index.htm>, 2001.
14. Feldhaus KM, Koziol-McLain J, Amsbury HL, Norton IM, Lowenstein SR, T AJ. Accuracy of 3 brief screening questions for detecting partner violence in the emergency department. *JAMA* 1997; 277:1357–1361.
15. SPSS, Inc. SPSS Base 8.0 for Windows. Chicago, Illinois: SPSS, 1998.
16. Sorenson SB, Upchurch DM, Shen H. Violence and injury in marital arguments: risk patterns and gender differences. *Am J Public Health* 1996; 86:35–40.
17. Division of STD Prevention. Sexually Transmitted Disease Surveil-

- lance, 1999. Atlanta, Georgia: Department of Health and Human Services, Centers for Disease Control and Prevention, 2000.
18. McCauley J, Kern D, Kolodner K, et al. The "battering syndrome": prevalence and clinical characteristics of domestic violence in primary care internal medicine practices. *Ann Intern Med* 1995; 123:737-746.
 19. Wagner PJ, Mongan P, Hamrick D, Hendrick LK. Experience of abuse in primary care patients: racial and rural differences. *Arch Fam Med* 1995; 4:956-962.
 20. Dearwater SR, Coben JH, Campbell JC, et al. Prevalence of intimate partner abuse in women treated at community hospital emergency departments. *JAMA* 1998; 280:433-438.
 21. McFarlane J, Parker B, Soeken K, Bullock L. Assessing for abuse during pregnancy: severity and frequency of injuries and associated entry into prenatal care. *JAMA* 1992; 267:3176-3178.
 22. Gazmararian JA, Lazorick S, Spitz AM, Ballard TJ, Saltzman LE, Marks JS. Prevalence of violence against pregnant women: review article. *JAMA* 1996; 275:1915-1920.
 23. Hingson RW, Strunin L, Berlin BM, Heeren T. Beliefs about AIDS, use of alcohol and drugs, and unprotected sex among Massachusetts adolescents. *Am J Public Health* 1990; 80:295-299.
 24. Caetano R, Hines AM. Alcohol, sexual practices, and risk of AIDS among blacks, Hispanics, and whites. *J Acquir Immun Defic Syndr* 1995; 10:554-561.
 25. Neff JA, Holamon B, Schluter TD. Spousal violence among Anglos, blacks, and Mexican Americans: the role of demographic variables, psychosocial predictors, and alcohol consumption. *J Fam Violence* 1995; 20:1-21.
 26. Berenson AB, Stiglich NJ, Wilkenson GS, Anderson GD. Drug abuse and other risk factors for physical abuse in pregnancy among white non-Hispanic, black, and Hispanic women. *Am J Obstet Gynecol* 1991; 164:1491-1499.
 27. Molina LD, Basina-Smith C. Revisiting the intersection between domestic violence and HIV risk. *Am J Public Health* 1998; 88:1267-1268.
 28. Miller M. A model to explain the relationship between sexual abuse and HIV risk among women. *AIDS Care* 1999; 11:3-20.
 29. Resnick HS, Acierno R, Kilpatrick DG. Health impact of interpersonal violence 2: medical and mental health outcomes. *Behav Med* 1997; 23:65-78.
 30. Campbell JC, Lewandowski LA. Mental and physical health effects of intimate partner violence on women and children. *Psychiatr Clin N Am* 1997; 20:353-374.
 31. Amaro H. Love, sex, and power: considering women's realities in HIV prevention. *Am Psychol* 1995; 50:437-447.
 32. Koenig LJ, Moore J. Women, violence, and HIV: a critical evaluation with implications for HIV services. *Maternal Child Health J* 2000; 4:103-109.
 33. North RL, Rothenberg KH. Sounding board: partner notification and the threat of domestic violence against women with HIV infection. *N Engl J Med* 1993; 329:1194-1196.
 34. Rothenberg KH, Paskey SJ. The risk of domestic violence and women with HIV infection: implications for partner notification, public policy, and the law. *Am J Public Health* 1995; 85:1569-1576.