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Physical and sexual violence and health care utilization in HIV-infected persons with alcohol problems

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Abstract

We examined interpersonal violence and its association with health care utilization and substance use severity among a cohort of 349 HIV-infected men and women with histories of alcohol problems assessed biannually up to 36 months. Data included demographics, lifetime interpersonal violence histories, age at first violence exposure, recent violence (prior six months), substance use severity and health care utilization (ambulatory visits, Emergency Department (ED) visits, hospitalizations) and adherence to HIV medication. Kaplan-Meier survival curves estimated the proportion of subjects experiencing recent violence. Generalized estimating equation regression models evaluated the relationship between recent violence, utilization and substance use severity over time, controlling for demographics, CD4 counts and depressive symptoms. Subject characteristics included: 79% male; mean age 41 years; 44% black, 33% white and 23% other. Eighty percent of subjects reported lifetime interpersonal violence: 40% physical violence alone, and 40% sexual violence with or without physical violence. First violence occurred prior to age 13 in 46%. Twenty-four (41%) of subjects reported recent violence by 24 and 36 months, respectively. In multivariate analyses, recent violence was associated with more ambulatory visits, ED visits and hospitalizations and worse substance use severity, but not medication adherence. Due to the high incidence and associated increased health care services utilization, violence prevention interventions should be considered for HIV-infected patients with a history of alcohol problems.

Introduction

Interpersonal violence is intentional use of force (or threat of force), and includes both physical and sexual violence. It is experienced by a majority of people in the United States at some point in their lives. A survey of 16,000 men and women found that 52% of women and 66% of men had experienced physical assault at some point in their lives, while 18% of women and 3% of men had experienced rape (Tjaden & Thoennes, 2000). Studies of the

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prevalence of childhood sexual violence, including national and local probability samples, have shown that approximately 25% of adult women and 16% of adult men report childhood violence (Johnsen & Harlow, 1996).

Among a variety of populations studied, individuals who report lifetime histories of interpersonal violence are more likely to report a number of associated findings compared to those who do not report such histories. These findings include: increased somatic symptoms, increased medical illnesses, worse self-rated health status, more sexually transmitted diseases, more substance use and abuse, increased mental illness, increased health care utilization (ED visits and hospitalizations) and more subsequent violence (Bergman et al., 1992; Coker et al., 2000, 2002; Eisenman et al., 2003; Felitti et al., 1998; Frayne et al., 1999; Johnsen & Harlow, 1996; Kilpatrick et al., 1997; Koss et al., 1991; Liebschutz et al., 2002; Liebschutz et al., 1997, 2000, 2003; Windle, 1994). Although most of these studies focused on female victims of interpersonal violence, a few extended these findings to men (Clark et al., 2001; Eisenman et al., 2003; Liebschutz et al., 2002). A consistent feature of most of these studies is the cross-sectional association of lifetime history of interpersonal violence with worse consequences, physical health, mental health and risky behaviors (Felitti et al., 1998; Liebschutz et al., 2002; McCauley et al., 1998; Plichta, 1992; Zierler et al., 1991). Only one longitudinal study of 3,006 women assessed over two years found that exposure to violence during this period was associated with an increase in substance use and abuse (Kilpatrick et al., 1997). In addition, substance abuse and high risk sexual behaviors confer an increased risk of experiencing subsequent interpersonal violence (Clark et al., 2001; Kilpatrick et al., 1997; Liebschutz et al., 2002). HIV-infected individuals with drug abuse and risky sexual behaviors are at particularly high risk for having experienced violence. The prevalence and consequences of violence exposure have been studied most carefully among HIV-infected women and less so among HIV-infected men. Among HIV-infected women, 66–68% report physical and 32–46% sexual violence as adults; 41% report physical and 31–41% sexual violence as children; and 21–28% report interpersonal violence in the prior year (Cohen et al., 2000; Gielen et al., 2000; Kimerling et al., 1999; Morrill et al., 2001; Vlahov et al., 1998). Few studies examine exposure to violence among HIV-infected men, although studies of men at high risk for HIV (men who have sex with men (MSM) and injection drug users) demonstrate high violence exposure of all types: childhood, physical and sexual violence (Jinich et al., 1998; Liebschutz et al., 2002; Zierler et al., 1991, 2000). Among a nationally representative probability sample of 2,864 HIV-infected adults, 20.5% of the women, 11.5% of the MSM and 7.5% of the heterosexual men reported physical harm by a partner or someone close to them since the HIV diagnosis, a period of one to six years in the majority of the sample (Zierler et al., 2000).

The thrust of the research on violence among HIV-infected persons has been the relationship of violence to risk transmission. The impact of violence exposure on physical health, mental health, substance abuse and health care utilization in this population has received less attention (Eisenman et al., 2003; Liebschutz et al., 2000). Studies have been limited by their cross-sectional design to examine the impact of recent violence compared to childhood or lifetime violence. Prospectively collected data on violence incidence in an HIV-infected population, male or female, has not been published. Existing studies utilizing cross-sectional violence exposure have not examined the effect of lifetime or recent violence exposure on

HIV-medication adherence. Because HIV-infected individuals often have multiple comorbidities, it is difficult to attribute any observed associations to the violence or the comorbid problems. If recent violence is shown to be important in its relationship to comorbidities, interventions to prevent violence might help improve quality and appropriateness of medical care.

To address these questions, we examined interpersonal violence in a longitudinal cohort of HIV-infected men and women with a history of alcohol problems and the association of violence exposure with health care utilization, substance abuse severity and adherence to HIV medications. We report data on males separately because of lack of such published data. We define interpersonal violence broadly: physical and/or sexual violence perpetrated by strangers, acquaintances and intimates at any age.

We hypothesized that exposure to interpersonal violence in this cohort would be high, and that those who reported prior interpersonal violence, childhood violence and recent violence would have higher utilization, worse substance abuse severity and lower HIV medication adherence than those who did not report these exposures.

Methods

Subjects

The HIV-ALC (HIV-Alcohol Longitudinal Cohort) study recruited HIV-infected individuals with a history of alcohol problems with the primary aim of evaluating the effect of alcohol use on HIV disease. A randomized controlled trial was conducted for 151 members of this cohort to test a behavioral intervention to improve adherence to HIV medication (Samet et al., 2002). With the approval of the Institutional Reviews Boards of Boston Medical Center and Beth Israel Deaconess Medical Center, individuals were asked to participate if they had a lifetime history of alcohol problems, (defined as two or more positive responses to the CAGE questionnaire (Ewing, 1984; Samet et al., 2004) and were HIV-infected. Those patients recruited from the Boston Medical Center HIV Diagnostic Evaluation Unit (Samet et al., 1995) who did not meet CAGE criteria were eligible if one of the two regular attending physicians made a clinical diagnosis of alcohol abuse or dependence. Other eligibility requirements included fluency in English or Spanish, Mini-Mental State Examination score greater or equal to 21 (Folstein et al., 1975) and no plans to move from the Boston area in the next two years.

Multiple methods of recruitment were utilized during the data collection period from July 1997 through July 2001. Primary enrollment, 56% of subjects, was from the HIV Diagnostic Evaluation Unit, an intake clinic for HIV-infected patients initiating medical care. Additional subjects were recruited as follows: 17% from posted flyers at homeless shelters and HIV/AIDS social service agencies in the Boston area, 13% from Boston Medical Center's Primary Care Practices, 5% from a respite facility for homeless persons, 4% from a methadone clinic, 4% from referrals by friends and 2% from the Beth Israel Deaconess Medical Center.

Data collection

After obtaining informed consent, a research associate interviewed subjects using a standardized instrument to ascertain baseline information including the following: demographics, exposure to interpersonal violence, alcohol and drug use, health care utilization in the preceding six months, adherence to HIV medications and depressive symptoms. Subsequent research interviews were attempted at six-month intervals through July 2001, a maximum period of 30 months. We attempted to obtain CD4 cell counts and HIV RNA levels on all subjects. Laboratory tests performed within six months of the interview as part of clinical care were recorded. If not available through routine clinical care, blood samples were obtained and tested for CD4 cell count and HIV RNA using the Boston Medical Center Clinical Laboratory. Interviews were conducted both in English and in Spanish. The Spanish interview utilized standardized scales when available; the remainder of the interview was translated from English into Spanish, back-translated to assure accuracy, and then corrected.

Key variables

Interpersonal violence—For physical violence, the subjects were asked, ‘Have you ever been physically abused or assaulted ... (for example: kicked, hit, choked, shot, stabbed, burned or held at gunpoint)?’ For sexual violence, the subjects were asked, ‘Have you ever been sexually assaulted ... (for example: unwanted sexual touching anywhere on your body, touching of genitals and/or breasts, or made to have oral sex or vaginal or anal intercourse against your will by force or the threat of force)?’ If a violence history was reported, subjects were asked their age at the time of the first violence and whether any violence occurred within the past six months. The questions about violence in the past six months were asked at each subsequent research interview to all subjects.

Three variables were created to describe interpersonal violence: lifetime violence, recent violence and childhood sexual violence. Recent violence referred to violence occurring in the past six months. For lifetime violence and recent violence, three mutually exclusive categories were defined: no violence, physical violence only (without sexual violence) and sexual violence (with or without physical violence). Childhood sexual violence was defined as sexual violence occurring prior to age 13.

Outcome variables

Health care utilization—Three variables were used to define health care utilization in the prior six months: the number of ED visits, the number of hospitalizations and the number of ambulatory care visits.

Alcohol and drug severity—Alcohol and drug use severity were assessed using the Addiction Severity Index (ASI), an assessment instrument with well-documented reliability and validity, scored 0–1, with higher scores indicating increased severity (McLellan et al., 1985).

Medication adherence—Adherence was determined with the AIDS Clinical Trials Group (ACTG) Questionnaire for Adherence to Anti-Retroviral Medications(Chesney et al.,

2000). Subjects reported the names of their antiretroviral medications, as well as the number of doses and the total number of pills prescribed daily. The three-day self-reported number of pills missed was computed for each HIV medication and the outcome was dichotomized (100% adherent versus less than fully adherent). The 30-day self-reported number of pills missed was also dichotomized (≥95% adherent versus ≤95% adherent).

Other independent variables—Additional variables were included in our analysis including: gender, ethnicity (black, white, Hispanic or other), homelessness, CD4 count, any use of drugs or alcohol in the past 30 days, depressive symptoms, participation in the randomized controlled trial and medication status. Homelessness was defined as having spent at least one night either on the street or in a shelter in the six months preceding the interview (Kertesz et al., 2003). Depressive symptoms were measured by the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977), a continuous scale to measure depressive symptoms. The question for HIV medication status was, 'Are you currently taking any HIV medications (such as AZT or protease inhibitors)?' Health insurance status was measured, but 99% of all subjects had access to private, Medicaid or a special publicly-funded health insurance for HIV-infected individuals such that all had coverage for medications, ambulatory visits and hospitalizations.

Data analysis

Descriptive statistics were used to characterize the study population. We used the Kaplan-Meier survival estimator to calculate the proportion of subjects reporting recent violence over time. Since recent violence was defined as any physical or sexual violence in the six months prior to each interview, time 0 was considered to be six months prior to the first interview. Thus, although there were 30 months of follow-up, the survival estimator calculated 36 months of possible exposure to violence. Generalized estimating equation regression models were used to evaluate the relationship between recent violence and ambulatory visits, ED visits, hospitalizations, adherence to HIV medication and substance abuse severity over time while controlling for age, gender, education, race, childhood violence, recent substance use, medication status, CD4 count, participation in the randomized control trial for adherence, depressive symptoms and homelessness.

Models substituting lifetime violence (sexual and physical) for childhood violence exposure were also conducted. The results were similar in direction and magnitude, and are not reported separately. The logit link (Poisson regression) was used for the number of ambulatory visits, ED visits and hospitalizations per six-month period. The logit link was used for the dichotomous adherence outcomes and the identity link (linear regression) for the substance use severity indices. Only the 250 subjects taking HIV medication were used in the calculations involving adherence measures. An identity working correlation matrix was specified and empirical standard error estimates reported.

Stratified analyses by gender were performed. They showed no differences in the directions of the findings, although the statistical significance of the results were attenuated by the lower numbers in the separate gender groups. Because recent violence was a low frequency event, the female models evaluating effect of recent violence on hospitalizations, ED visits,

substance abuse severity and adherence did not include enough observations to be conducted separately. Only the total group and male model results are reported.

Results

Subject characteristics

Characteristics of the 349 subjects in this cohort include the following, as outlined in Table I: mean age 41 years old; male 79%; ethnic minorities 77%; high school graduates 60%; and homeless 29%. Fifty-nine percent of the sample reported a history of injection drug use, while 19% reported MSM and 22% reported heterosexual contact as their mode of HIV transmission. Alcohol and drug use in the last 30 days was reported by 47% of the subjects, while 19% reported hazardous drinking as defined by the National Institute on Alcohol Abuse and Alcoholism guidelines (National Institute on Alcohol Abuse and Alcoholism, 1995). Of the 349 subjects, 219 (63%) had at least one follow-up interview after baseline, with an average of three follow-up visits per subject. Previous work reported that time of recruitment into this study was the most important predictor of the number of completed visits ($p < 0.0001$) with subjects entering at the beginning of the recruitment completing, on average, three interviews more than subjects entering at the end of the recruitment (Ehrenstein et al., 2004).

Interpersonal violence prevalence

A lifetime history of interpersonal violence was exceedingly common, with 80% reporting such histories, half of those with physical violence only and half with sexual violence with or without physical violence. Forty-six percent reported occurrence of first physical or sexual violence before age 13, 17% between 13 and 17 and 17% after 17 (Table II). In 885 follow-up interviews, 9.7% reported violence in the prior six months. Survival analyses show that 24% (95% confidence intervals 21, 27) and 41% (95% CI 36, 46) of the sample reported at least one episode of violence by 24 and 36 months, respectively. When including only those subjects who reported a lifetime history of violence at baseline, 45% (95% CI 40, 50) reported at least one episode of subsequent violence by 36 months. Among men, 36% (95% CI 31, 41) reported at least one episode of recent violence by 36 months. Among women, 54% (95% CI 44, 64) reported at least one episode of recent violence by 36 months.

Association of violence exposure with health care utilization

Among 885 follow-up interviews, the median number of ambulatory visits, ED visits and hospitalizations in the prior six months was four (range=0–48), 0 (range=0–15), and 0 (range=0–10), respectively, with 75% quartile numbers of six ambulatory visits, one ED visit and no hospitalizations. Lifetime and childhood violence were not associated with any difference in ambulatory visits, ED visits or hospitalizations (all p values>0.10). Recent violence (when controlling for lifetime and childhood violence) was independently associated with 1.45 more ambulatory visits (p=0.01), 1.65 more ED visits (p=0.003) and 1.65 more hospitalizations (p=0.03) in the prior six months. For the male subjects, recent violence was associated with 1.61 more ambulatory visits (p=0.01), 1.35 more ED visits (p=0.15) and 1.27 more hospitalizations (p=0.34) in the prior six months (see Table III). Other factors associated with increased ambulatory visits were female gender (p=0.02),

younger age (p=0.02), white race (p=0.03), abstinence from drugs or alcohol (p=0.01), more depressive symptoms (p=0.05) and lower CD4 count (p=0.04). Other factors significantly associated with increased hospitalizations were black ethnicity (p=0.004) and lower CD4 count (p=0.03). The only other factor besides recent violence significantly associated with increased ED visits was increased depressive symptoms (p=0.0001).

Association of violence with substance use severity

In 888 follow-up interviews, the mean ASI alcohol score was 0.18 (SD=0.21) and mean ASI-drug score was 0.11 (SD=0.11). Neither lifetime violence nor childhood violence was associated with worse alcohol or drug use severity as measured by the ASI. Recent violence was associated with 0.08 higher scores on ASI-alcohol (worse alcohol use severity) (p=0.004) and 0.02 higher scores on ASI-drug (p=0.08). For the male analyses, recent violence was associated with 0.11 higher scores on ASI-alcohol (worse alcohol use severity) (p=0.001) and 0.02 higher scores on ASI-drug (p=0.30). Younger age (p=0.001), black ethnicity (p=0.004) and homelessness (p=0.04) were associated with worse alcohol use severity. Black ethnicity (p=0.02) and increased depressive symptoms (p <0.0001) were associated with worse drug use severity.

Association of violence with adherence to HIV medication

Lifetime, childhood and recent violence were not significantly associated with any change in adherence to HIV medications in any of the models tested (three-day and 30-day, males only), all p values>0.10. In both models, only increased depressive symptoms (p <0.003) and use of alcohol or drugs in the last 30 days (p=0.001) were significantly associated with decreased adherence to HIV medication.

Discussion

The overwhelming majority of this cohort of HIV-infected men and women with a history of alcohol problems experienced interpersonal violence. Half of those abused reported sexual violence. Close to half the sample experienced their first violence in childhood. Over the three-year follow-up, more than a third of men and half of women were exposed to subsequent violence. While the high level of violence experienced by women was expected, the men in this study experienced almost equally high levels of violence. These high exposures to violence have been suggested in other studies on HIV-infected persons (Gruskin et al., 2002; Zierler et al., 2000), although they were cross-sectional studies asking about recent violence and may not be as reliable in establishing incidence of violence exposure as was this prospective data collection. Our study's finding of such high violence exposure might, in part, be accounted for by the broader definition of violence (both known and unknown perpetrators) and by the eligibility criteria of past alcohol problems and high prevalence of prior drug abuse, a known risk factor for experiencing subsequent violence (Kilpatrick et al., 1997).

Given that violence was experienced by the majority of subjects, the consistent and significant association of recent violence with increased health utilization was impressive even after controlling for prior violence exposure. The association of increased health care

utilization and interpersonal violence exposure is well documented among HIV-infected and non-HIV-infected women (Bergman et al., 1992; Eisenman et al., 2003; Frayne et al., 1999; Koss et al., 1991; Liebschutz et al., 2000; Plichta, 1992). Only one study evaluated the effect of intimate partner violence among HIV-infected men (Eisenman et al., 2003) and found that gay/bisexual men with violence victimization had increased ED visits (OR 1.74, 95% CI 1.20–2.52), whereas heterosexual men with violence victimization had increased outpatient mental health visits (OR 2.23, 95% CI 1.07–4.64) and a trend toward increased hospitalizations (OR 2.74, 95% CI 0.96–7.85). Among HIV-infected women in that study, only outpatient mental health visits were associated with violence victimization. That study was limited in its assessment of violence (physically hurt by partner or someone close to them since diagnosis of HIV), which might explain the lack of association of violence exposure to utlization outcomes.

No study has been designed to look at causality of this association. One potential explanation for the increased utilization, that violent injuries account for the utilization, has not been shown in previous studies (Bergman et al., 1992; Koss et al., 1991; Liebschutz et al., 2000; Rosenberg et al., 2000; Schnurr et al., 2000). Furthermore, this explanation would not account for an increase in ambulatory visits. A second hypothesis, that violence exposure affects physical health which leads to more need for medical care, has been suggested by previous study findings. The bulk of the studies on this topic have looked at somatic symptoms, chronic pain and self-reported health status (Coker et al., 2000; Drossman et al., 1990, 1995; Frayne et al., 1999; Liebschutz et al., 1997, 2000; McCauley et al., 1998). A few studies have shown an association with physical illnesses such as pneumonias, or coronary events that would require ED visits or hospitalizations (Coker et al., 2000, 2002; Cokkinides et al., 1999; Frayne et al., 1999; Liebschutz et al., 1997, 2000). All studies were limited by use of self-report data or small sample sizes and most focused on women. Coker and colleagues found a 1.5–1.6 fold increase in chronic diseases (hypertension, heart disease, arthritis, obstructive pulmonary disease and cancer) among men and women, respectively, who reported a history of physical violence as part of a large national survey on interpersonal violence (Coker et al., 2002). In multiple logistic regression analyses controlling for severity of violence exposure, they found that severe psychological violence, not physical, was associated with a 1.6 fold increased risk of developing a chronic disease in women only. In a study using medical record reviews of 50 HIV-infected women, exposure to interpersonal violence was associated with more infectious illnesses and health care utilization, even while controlling for CD4 count (Liebschutz et al., 2000). A third possible explanation, increased mental illness leading to increased utilization, is theoretically supported by many studies. These show that violence exposure leads to worse mental health (Felitti et al., 1998; Goodman et al., 1993; Mullen et al., 1988; Resnick et al., 1997; Schelling et al., 1998). As well as studies showing an increase in health care utilization associated with Post-traumatic Stress Disorder, the mental illness most closely identified with interpersonal violence exposure (Calhoun et al., 2002; Marshall et al., 1997, 1998; Schelling et al., 1998). All utilization studies looked at lifetime or childhood exposure to interpersonal violence and not recent violence. The only study suggesting an association with recent interpersonal violence did not measure physical or sexual violence exposure, per se, but marital stress among cohabitating Swedish women with coronary heart disease. It

showed a threefold increased risk of recurrent coronary events among those reporting marital stress (Orth-Gomer et al., 2000). The association between violence and increased health care utilization found in this and other studies warrants further examination through epidemiological and biological methods. In particular, studies of this relationship should include not only past exposure to violence but also recent exposure.

The relationship between recent violence and increased substance use severity found in this study is consistent with other published data. Based on a two-year follow-up of a national probability sample of 3,006 women, Kilpatrick and colleagues (1997) concluded that ‘drug use leads to a vicious cycle in which substance use increases risk of future assault and assault increases risk of subsequent substance use’. They also concluded that alcohol use appeared to be a reaction to assault and not a predictor of subsequent violence. Lastly, they found a strong predictor of recurrent violence based on prior violence exposure. Our study confirms these associations, although does not point to the direction of causality. Our finding that recent violence was only weakly associated with increased severity of drug use was likely due to the low incidence of recent drug use and of recent violence at any one point through the follow-up period.

The lack of association of adherence to HIV medication with prior or recent violence has not been reported elsewhere. Because of the smaller number of subjects taking HIV medications, our study may not have had sufficient sample size to detect such a difference. However, there was not even a trend toward increased or decreased adherence. Larger studies of adherence to HIV medication would be required to evaluate this question.

A unique aspect of this study is the longitudinal nature of assessing violence exposure in combination with longitudinal assessment of health care utilization and other outcomes. The study by Eisenman and colleagues prospectively examined health care utilization in an HIV-infected sample but used a single baseline question on violence exposure as the sole determinant of this status (Eisenman et al., 2003). In addition, our study included large numbers of heterosexual men, a group that has been understudied with respect to the associations between violence exposure and health outcomes. The study population is unique in that all subjects had a history of alcohol problems and a high proportion of the sample had a history of injection drug use. These characteristics provided a sample with a heavy burden of violence exposure, helping to tease out the effect of recent violence exposure on a number of outcomes.

The study’s main limitation is the lack of consistent follow-up by subjects over the 30-month follow-up period. Analytically, this was handled by using the Generalized Estimating Equation which takes advantage of longitudinal data while weighing responses based on number of observations for any subject. Because the main cause for lack of follow-up was late recruitment into the study, this would not bias the results in either direction. Another limitation was the self-report nature of the utilization data. This method has been used in numerous studies and shown to be a valid method for assessing health care utilization (Cleary & Jette, 1984; Roberts et al., 1996). Another limitation was the lack of statistical power to stratify the men by their sexual orientation to compare to the HIV Costs and Service Utilization Study sample (Eisenman et al., 2003; Zierler et al., 2000). Lastly, it

would have been useful to stratify by the frequency and severity of violence exposure, but we were not able to measure that with the instruments used.

Conclusion

Violence is very common among HIV-infected men and women with a history of alcohol problems, including high exposure to recurring violence. The recent violence exposure was associated with increased health care utilization and worse substance use severity. These findings suggest that attention to violence prevention measures in such populations of HIV-infected persons may be an opportunity to minimize health care utilization and potentially improve physical and mental health. Future research about the health and health services implications of interpersonal violence exposure should account for both recent and past violence exposure.

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Table I

Subject characteristics at baseline*.

	Total ***N*=/349**	**Males** ***n*=/276 (79%)**	**Females** ***n*=/73 (21%)**
Age mean years (SD)	40.6 (7.3)	41 (7.3)	38.8 (7.3)
Race			
Black	154 (44)	116 (42)	38 (52)
White	116 (33)	94 (34)	22 (30)
Hispanic	75(21)	63(23)	12(16)
Other	4(1)	3(1)	1(1)
High school graduate	210 (60.2)	164 (59.4)	46 (63)
Homelessness	101 (29)	88 (32)	13 (18)
HIV infection risk factor			
Injection drug use	205 (59)	166 (60)	39 (54)
MSM	65 (19)	65 (24)	
Heterosexual /blood	78 (24)	45 (16)	33 (46)
Alcohol use			
Abstinent	201 (58)	153 (55)	48 (66)
Moderate	82 (24)	69 (25)	13 (18)
Hazardous	66 (19)	54 (20)	12 (16)
CD4 count			
mean, mm^3 (SD)	401 (278)	390 (261)	444 (335)

* *n* (%) unless noted otherwise.

Table II

Exposure to interpersonal violence: baseline characteristics.

	Total *N*=/349	Male *n*=/276	Female *n*=/73
Lifetime exposure			
None	67 (20)	58(22)	9 (12)
Physical only	139 (40)	128 (47)	11 (15)
Sexual +//−/Physical	139 (40)	86 (32)	53 (73)
Age at first exposure			
Never	67 (20)	58 (22)	9 (12)
</13 years	156 (46)	120 (44)	36 (50)
13–/17 yrs	59 (17)	41 (15)	18 (25)
18+/years	60 (17)	51 (19)	9 (13)

*Numbers may not add up to 100% due to rounding.

Table III

Associations of recent physical and sexual violence with health care utilization and substance use severity[a].

	Total sample	Males only
Ambulatory visits[b]	1.45 (1.08, 1.95)	1.61 (1.12, 2.32)
ED visits[b]	1.65 (1.18, 2.30)	1.35 (0.89, 2.06)
Hospitalizations[b]	1.65 (1.03, 2.45)	1.27 (0.77, 2.11)
ASI Alcohol[c]	0.08 (0.03, 0.14)	0.11 (0.04, 0.17)
ASI Drug[c]	0.02 (−/0.01, 0.04)	0.02 (−/0.01, 0.05)

[a]From longitudinal Poisson regression models controlling for childhood violence, substance abuse, mental health symptoms, age, high school graduate, race, housing status, gender, and currently taking medication;

[b]IRR is the estimated rate of utilization of those reporting recent violence versus those not reporting recent violence (95% CI);

[c]differences in mean ASI scores comparing those reporting recent violence versus those not reporting recent violence. (95% CI).