Investigating Partner Abuse Among HIV-Positive Men Who have Sex with Men

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Abstract

High rates of partner abuse (PA) of all types—physical, sexual, and psychological—have been identified in studies of HIV-positive individuals. We examined both the prevalence and correlates of same-sex PA in HIV-positive men who have sex with men (MSM). Participants recruited from public outpatient HIV clinics ($N = 168$) completed CASI surveys about PA and current physical and mental health. Electronic medical record data were obtained for HIV biomarkers. Results indicate high rates of past year PA (physical, 19%; sexual, 17%; psychological, 51%; any, 54%), with rates comparable to, or higher than, those reported in recent studies of HIV-positive women and older studies of HIV-positive MSM. Overall, participants endorsing past year PA reported poorer mental but not physical health. Participants who endorsed past year physical PA, specifically, reported the largest number of mental health problems. HIV care providers should routinely assess PA, especially physical PA, in all MSM patients.

Keywords

Partner abuse; HIV/AIDS; Sexual orientation; Victimization; Violence

Introduction

Physical, sexual, and emotional abuse perpetrated by relationship partners is an unfortunately common phenomenon with a significant public health impact [1, 2]. Partner abuse (PA) occurs in casual and steady dating or sexual partnerships (i.e., romantic relationships, primary relationships), including same-sex partnerships [3], and can result in acute and chronic physical and mental health problems [4]. In a nationally representative

survey in the United States, 22% of women reported experiencing PA (physical or sexual) in their lifetime [5]. In urban men who have sex with men (MSM), comparable figures were obtained from a probability-based sample, including 22% reporting physical PA and 5% reporting sexual PA within the past 5 years [6]. These findings highlight the need to better understand the phenomenon of PA in MSM relationships.

Research specifically focused on same-sex PA has been relatively limited. Despite the small number of studies, some notable findings have emerged, such as shared risk factors for both PA and the acquisition of HIV/AIDS [3, 6–8], including previous life experiences such as a family history of violence or childhood sexual abuse; current behavior, including substance use; mental health problems; and socioeconomic situation, especially poverty. Given the high rates of PA and the increasing numbers of people living with HIV/AIDS because of treatment advances [9], there is a need for further research on the potential synergy of these epidemics—especially within MSM communities, who are typically excluded from PA research. In one large study of urban MSM [6], for example, authors report that HIV-positive men were more likely than HIV-negative men to report both physical (1.2× greater odds) and psychological (1.5× greater odds) PA in the past 5 years. A review of 35 studies on PA and HIV [8] in women indicated that, compared to HIV-negative women sampled from the same underlying populations, HIV-positive women reported more frequent and more severe PA.

Some correlates of PA in HIV-positive individuals have been identified in the literature. Most of this research has been descriptive, cross-sectional studies of women, however [4, 8, 10–12]. Evidence from the general PA literature suggests that, in addition to embarrassment and stigma because of their victimized status, victims of PA frequently face acute injuries (i.e., that result directly from physical or sexual violence) as well as chronic injuries (e.g., chronic pain, hyposexual desire). Further, victimization-related injuries are related to physical and mental health outcomes (e.g., poor health status, poor health-related quality of life, high utilization of health services) even after the abuse ends [13–17]. In addition to these general risk factors, PA among individuals living with HIV/AIDS may also be related to disclosure [18, 19], the increased stress or burden of physical problems brought on by managing a chronic illness like HIV, or a potentially higher need for caretaking and support from relationship partners [8, 13, 20, 21]. Also, an HIV-positive PA victim may have fears of abandonment that are intensified through a negative self-image and hopeless view about being able to find a non-abusive partner later [22].

Until the past few years, no reports of physical or mental health correlates of abuse in HIV-positive MSM had been published. The most comprehensive single study on PA and MSM [6] examined only demographic correlates of abuse, finding that victims of PA were more likely to be younger, less educated, and HIV-positive. Topics addressed by published analyses from the HIV Cost and Services Utilization Study (HCSUS) found relations between contact PA and increased risky sexual behaviors [23], alcohol or drug abuse [23, 24], and recent mood or anxiety disorder diagnoses [24]. There is a large literature on substance use [25–33] and mental health problems [4, 34–43] as both a cause and consequence of PA; the chaotic lifestyle and impaired decision-making that can follow these psycho-social stressors may exacerbate already tense relationship dynamics [44]. However,

data from all of these studies were from the time period 1996–1998. Changes in treatment efficacy and medication availability since 1996, when life-saving antiretroviral medications (ARVs) were introduced, hinder direct comparisons between today's HIV patients and these samples. Receiving an HIV diagnosis in the 1980s and 1990s was a more dire situation than today, with a relatively short time from diagnosis to death. Today, while still stigmatized by broader society, HIV has become more of a chronic health concern than an acute issue portending rapid mortality. Thus, in this study, we aim to update and extend the current literature on PA in HIV-positive MSM.

First, we will investigate the prevalence of multiple domains of PA (physical, sexual, psychological) among HIV-positive MSM engaged with medical care. We believe this is a useful venue in which to screen patients for PA, since they are actively engaged with care and, thus, well-positioned for an intervention, if needed. We will use a standardized assessment instrument (CTS2) [45] and multiple timeframes to facilitate comparisons with previously published research in this area. While research has typically focused primarily on physical and sexual (i.e., contact) abuse because of the obvious potential for physical harm [46], recently emotional or psychological (i.e., non-contact) abuse has begun to receive consideration because of its independent associations with negative consequences [47], and thus we will include all domains of abuse for study here. We know of no evidence to imply a higher or lower prevalence of PA than the Greenwood study [6] and the HCSUS analyses [23, 24], thus, we expect comparable figures. Second, as we would expect more recent abuse to exert a greater influence on current mental and physical functioning, we will investigate the associations between the presence or absence of each domain of recent (past year) PA and markers of current mental and physical health. Given the limited literature in this area for HIV-positive MSM, in determining our hypothesis for this aim, we draw from the non-HIV literature on the consequences of PA—which supports a generalized vulnerability to adverse effects in multiple domains of functioning for abuse victims [4]. Thus, we expect that, compared with non-abused participants, HIV-positive MSM who experience each type of PA will have poorer mental and physical health across various measures.

Methods

Recruitment

Participants were recruited from two urban, outpatient, public university-affiliated HIV clinics. Case managers or a research nurse recruiter referred potential participants, who were asked about their willingness to participate in a onetime, computer-based interview study investigating "certain life experiences you may have had, and how they have affected your health and the way you feel about yourself." Patients were not told about the study's focus on PA. In this analysis, we excluded individuals ($n = 3$) who identified as male-to-female transgender (they are not technically "MSM"). Thus, of the 171 participants enrolled with complete data, we retained an analytic sample of 168 men.

Procedures

Study visits were conducted at the patient's usual clinic or at the investigators' research offices nearby. Eligible patients were actively engaged with medical care at one of the

participating HIV clinics, over 18 years old, biologically male at birth, and English-speaking. They all identified as MSM and consented to all study procedures. These included completing the survey questionnaire and allowing project staff to retrieve data from the patient's electronic medical record (EMR). All referred patients passed the initial screening, were deemed eligible, and were enrolled.

Surveys were administered via computer-assisted self-interview (CASI), permitting the use of embedded skip patterns to eliminate redundant or irrelevant questions based on prior responses. CASI maximizes time efficiency, increases confidentiality, decreases socially desirable responding, and aids in subsequent data management and analysis [48, 49]. Two research assistants extracted EMR data using a standardized form; inter-rater reliability for exact matches was 93%. Participants were paid $20 for their time and given a list of free or low-cost community resources related to PA, housing, employment and medical and mental health needs of people living with HIV/AIDS.

Measures

The interview included well-validated measures with established psychometric properties whenever possible. Items querying abuse experiences were based on behaviorally specific definitions of abuse (e.g., "My partner threw something that could hurt me"), as these tend to be more valid and yield higher rates of socially undesirable behaviors than more subjective data collection methods [50]. Relationship terminology was modified so that all questions were applicable to same-sex relationships.

Demographics—Participants were asked to indicate their age, race, income, employment, educational attainment, and living situation, as well as the gender of their sexual partners, their current relationship status, and the length of their current relationship (if presently partnered). Participants reported if they had ever received an AIDS diagnosis and if they were currently taking ARVs.

Partner Violence—The Revised Conflict Tactics Scale (CTS2) [45] was used to inquire about abusive acts that may have occurred in a relationship. For this measure, a partner was defined as, "Someone with whom you have lived or have seen often, and to whom you have felt a special emotional commitment." Responses yield ordinal frequency data for the past year (standard) and dichotomous data both for the past 5 years to align with Greenwood and colleagues [6] and for lifetime experiences. Ordinal responses to questions were summed to yield subscale scores for Physical Abuse (12 items; $\alpha = .94$), Sexual Coercion (7 items; $\alpha = .89$), and Psychological Abuse (8 items; $\alpha = .90$).

Four abuse variables were defined, all of which involved abuse victimization by a romantic or dating partner: physical abuse, sexual abuse, psychological abuse, and any of these types of abuse. These abuse variables were estimated for three different time periods, those which occurred in the past year, those which occurred in the past 5 years, and those which ever occurred. For each time period, a participant was considered to have experienced psychological abuse if he endorsed at least one of 8 psychological abuse items, physical abuse if he endorsed at least one of 12 physical abuse items, and sexual abuse if he endorsed

at least one of 7 sexual abuse items. If a participant answered affirmatively to any of these abuse items, then he was coded as reporting any abuse.

State Anxiety—Participants completed the 10-item state anxiety subscale of the State-Trait Personality Inventory (STPI) [51], in which they reported the extent to which they felt calm at the moment of the interview. Response choices range from 1 (*not at all*) to 4 (*very much so*). Items were summed to compute a total score (α = .91).

Depression—The Center for Epidemiological Study-Depression Scale (CES-D) [52] was used to measure current depressive symptomatology. Respondents rated the frequency with which they experienced 20 depressive symptoms during the past week. Response choices ranged from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). In our analyses, we used the sum of all items endorsed (α = .92).

Social Support—The 19-item Medical Outcomes Study—Social Support (MOS-SS) survey [53] was used to assess how often respondents perceive various types of support to be available when needed. Items were scored from 0 (*none of the time*) to 4 (*all of the time*). Final scores were derived by taking the sum of the 19 items endorsed (α = .97).

Suicidal Ideation—Suicidal ideation was assessed with the Passive Suicidal Behavior subscale of the Harkavy Asnis Suicide Survey (HASS) [54], a valid and internally consistent scale developed to measure suicidality in psychiatric outpatients. This subscale comprises 14 questions about the frequency of suicidal ideation measured on a scale of 0 (*never*) to 4 (*all the time*). The original measure uses a 2-week time-frame but in this study, we modified the timeframe to "since your HIV diagnosis" (α = .96).

Stigma—Participants indicated the frequency with which they had negative or discriminatory experiences related to their HIV-positive status, using 11 items that were based on previously published scales [55]. Response choices ranged from 1 (*never*) to 6 (*about daily*). Cronbach's alpha in the present sample was 0.88.

Avoidant Coping—The Brief COPE [56] was used to assess the frequency with which respondents used a variety of strategies to cope with "living with HIV." Items inquired about the frequency of behaviors (thoughts and overt actions) the participant had employed to respond to a given stressor; response choices ranged from 0 (*I have not done this at all*) to 4 (*I have done this a lot*), since the HIV diagnosis. We combined 10 relevant items to create an Avoidant Coping subscale (α = .89).

Substance Use—Frequency of alcohol use (in terms of the average number of drinking days per week) in the past year was measured with the Daily Drug-Taking Questionnaire (DDTQ) [57]. Additionally, respondents were asked about any crystal methamphetamine use during the past year [58].

Health-related Quality of Life—Health-related quality of life (HRQOL) and perceptions of health status were measured by the Medical Outcomes Study—HIV Health Survey (MOS-HIV)[59]. Specific response choices varied based on question type but most were

Likert-scale ratings about frequency of problems or degree of functional impairment within the past 4 weeks. We included items from all Physical Health subscales and excluded all items from the Mental Health and Cognitive Functioning subscales due to redundancy with other measures. In total, we included 19 items in our composite measure (α = .76).

Patient–Provider Relationship—Participants completed two measures, a five-item general communication measure[60], and a four-item HIV-specific communication measure that included items about alcohol, drug use, and sexual behaviors, to assess the quality of the patient-provider relationship (α = .95).

HIV Medication Adherence—Based on evidence indicating that a "past 30 days" time-frame for a self-report measure may more accurately reflect true adherence [61], here we report the proportion of the sample that endorsed 100% ARV adherence during that timeframe.

Electronic Medical Record Data—Results of the most recent viral load (HIV-1 PCR RNA) and CD4 tests were extracted from participants' EMR at the end of the study period. This allowed the research team to record the results closest in time to the study visit, whether the blood draw occurred before or after the day the self-report measures were filled out. On average, the blood draw was 30.4 days (SD = 27.7, range 0–118) away from the study visit. In the analyses, we used both variables as continuous (viral load was log-transformed) measures.

Analyses

Given that this was a cross-sectional survey, we report point prevalence of abuse and consider the factors related to abuse as correlates of abuse. We described the 168 individuals comprising the analytic sample in terms of age, race, ethnicity, monthly income, employment status, educational attainment, living situation, transmission risk category, sexual orientation, relationship status (& length of time with current partner, as applicable), current ARV status, AIDS diagnosis, and in terms of various mental health factors and measures of physical health and functioning. We report the percentage of the overall sample for categorical variables (e.g., Hispanic/Latino, yes vs. no), and the mean and standard deviation for continuous variables (e.g., age in years).

To evaluate our first aim, we estimated prevalence of the four different abuse variables (psychological, physical, sexual, and any of these types of abuse) as the percent of the overall population for three different time periods (past year, past 5 years, and ever). To evaluate our second aim, we examined associations between individuals who endorsed each of the four different past year abuse variables and those who did not, using as outcomes a variety of demographic indicators and measures of mental and physical health. Differences were tested using chi square tests for categorical variables and t-tests for continuous variables [62]. Fisher's Exact Test was used for contingency tables where at least one cell had an expected count of <5. Differences were considered significant if $P < 0.05$. Percentages and means (standard deviations) reported in the tables are for the subgroup represented in that column (e.g., for the 17 individuals who reported psychological abuse in

the past year). Only significant differences are highlighted for each abuse variable in the "Results" section. All analyses were conducted in SAS (version 9.2, SAS Institute, Inc., Cary NC).

Results

Characteristics of the Sample

As seen in Table 1, the mean age of the sample was 44.0 years (SD = 8.4). Participants were predominately White/European-American (63.1%), non-Hispanic ethnicity (87.4%), low income (46.4% earned $738 per month), currently unemployed (75.0%), educated (57.7% had attained education beyond high school), and lived in their own apartment (70.2%). Most of the men (75.0%) received some form of public assistance from the state or federal government. The majority (61.9%) reported having sex with both men and women in their lifetime. Over one-third (36.9%) were presently partnered, with 69.4% of these men reporting their current relationship lasting longer than 1 year. Most were on HAART (81.0%) and met criteria for clinical AIDS (63.1%). Descriptive statistics for physical and mental health characteristics are displayed in Table 2.

Prevalence of Partner Abuse by Timeframe

The majority of the sample reported experiencing some PA, including 54.2% in the past year, 65.5% in the past 5 years, and 78% ever being abuse (see Table 3). The most prevalent form of PA was psychological abuse, with half of the respondents reporting psychological abuse in the past year (50.6%) and nearly three-quarters of respondents reporting ever having experienced psychological PA (73.2%). Physical was second most prevalent of PA (19.0% in past year; 38.1% ever), followed by sexual abuse (17.3% in past year; 30.4% ever) and HIV-specific abuse (10.1% in past year; 15.5% ever).

Demographic, Psychosocial, and Health-Related Correlates of Past-Year Partner Abuse

As seen in Table 4, compared to those with no report of past year physical PA, respondents reporting physical PA were on average 7 years younger (38.8 years vs. 45.3 years; $t(168) = 4.2$, $P < .001$) and were more likely to report a non-White race (51.7% vs. 28.7%; $\chi^2(1, N = 168) = 5.7$, $P = .02$), be low income ($738/month; 78.1% vs. 39.6%; $\chi^2(1, N = 168) = 15.4$, $P < .001$), not live in their own home (48.4% vs. 23.9%; $\chi^2(1, N = 168) = 7.4$, $P < .01$), and report having sex with both men and women in their lifetime (78.1% vs. 59.0%; $\chi^2(1, N = 168) = 4.1$, $P = .04$). In terms of mental and physical health (see Table 5), compared to men not reporting physical PA, those who reported past year physical PA were also more likely to report methamphetamine use (46.9% vs. 25.2%; $\chi^2(1, N = 168) = 5.9$, $P = .02$) and powder cocaine use in the past year (0.6 vs. 0.1; $t(168) = -1.5$, $P < .001$), and had higher average scores on measures of anxiety (2.4 vs. 1.8; $t(168) = -4.1$, $P < .001$), depressive symptoms (26.2 vs. 18.4; $t(168) = -3.2$, $P < .01$), suicidal ideation (1.0 vs. 0.6; $t(168) = -2.5$, $P = .01$), stigma (2.0 vs. 1.6; $t(168) = -2.3$, $P = .02$), and avoidant coping (1.3 vs. 0.9; $t(168) = -3.9$, $P < .001$). Men who reported past year physical PA also reported lower HRQOL (3.0 vs. 3.2; $t(168) = 2.0$, $P = .05$) than men not reporting past year physical PA.

Men who reported sexual PA in the past year were on average 3.7 years younger (40.9 years vs. 44.6 years; $t(168) = 1.99$, $P < .05$) than men who did not report sexual PA in the past year, and were more likely to report non-White race (53.6% vs. 28.5%; $\chi^2(1, N = 168) = 6.58$, $P = .01$) and be low income (<\$738, 65.5% vs. 43.1%; $\chi^2(1, N = 168) = 4.84$, $P = .03$). In terms of mental and physical health, participants who reported recent sexual PA had a higher score on the stigma measure (2.0 vs. 1.6; $t(168) = -2.43$, $P < .02$).

Similar to the findings for other types of abuse, men reporting psychological PA in the past year were more likely to be low income (54.8% vs. 39.0%; $\chi^2(1, N = 168) = 4.13$, $P = .04$) and younger (42.2 years vs. 45.7 years; $t(168) = 2.66$, $P < .01$) than men not reporting psychological PA in the past year. Compared to individuals not reporting recent psychological abuse, men reporting such abuse were more likely to live with someone else (51.8% vs. 36.3%; $\chi^2(1, N = 168) = 4.02$, $P = .04$) and were presently partnered (50.0% vs. 24.7%; $\chi^2(1, N = 168) = 11.26$, $P < .001$). There were no differences on the mental and physical health measures.

Finally, men who reported any PA in the past year (psychological or physical or sexual) were more likely to be younger (42.3 years vs. 46.0 years; $t(168) = 2.77$, $P = .006$), live with someone else (52.8% vs. 33.8%; $\chi^2(1, N = 168) = 5.95$, $P = .01$), and presently partnered (51.1% vs. 21.3%; $\chi^2(1, N = 168) = 15.5$, $P < .001$) than men reporting no PA of any type in the past year. Additionally, men reporting any type of PA in the past year had higher average scores on the measure of depression (21.7 vs. 17.6; $t(168) = -2.15$, $P = .03$) versus those who reported no past year PA.

Discussion

In one of the only published reports to focus specifically on PA in HIV-positive MSM, we found high proportions of the sample reporting abuse. Specifically, the men in our sample reported past year physical PA (19%), sexual PA (17%), and psychological PA (52%). Further, over half (55%) of the men reported at least one experience with PA victimization in the past year. Our data update previously published findings about PA in HIV-positive outpatients collected in the 1990s [6, 21, 23, 24], before the widespread rollout of ARVs and before living with HIV was more akin to managing a chronic illness.

Many MSM living with HIV possess multiple stigmatized identities (HIV status, possibly a gay/bisexual identity, possibly a racial or ethnic minority identity) and may be especially vulnerable to interpersonal abuse perpetrated by individuals who purport to care for them [22]. The high prevalence of PA we discovered in our clinic sample is alarming, and indicates the importance of systematic screening for all patients in HIV care settings—including men—despite common perceptions that only women are victims and men are only perpetrators. We know from other published reports that standardized health care screening often omits questions about PA victimization [63] despite victim support for such efforts [64]. It appears, then, that provider-focused interventions are needed that aim to increase screening efforts and more successfully triage victims into services [65].

We measured the presence of PA across several timeframes to facilitate comparisons with other published work. For the most common measure of PA currently used, the CTS2 [45], participants are asked about their PA experiences during the past year. However, the best population-level estimates for MSM come from Greenwood [6] and colleagues, who used a 5-year timeframe. Here we used both. Each of our 5-year findings is comparable to, or higher than, the figures reported by Greenwood and colleagues for their HIV-positive respondents: they found 39% endorsing any PA (vs. 66% in our sample), 22% endorsing physical PA (vs. 29% in our sample), 5% endorsing sexual PA (vs. 22% in our sample), and 34% endorsing psychological PA (vs. 61% in our sample). It is possible that our higher figures are an artifact of our screening for a wider variety of experiences that employs more questions (i.e., the full CTS2 subscales compared to their use of a more abbreviated version). The prevalence in our sample is more similar to the figures obtained in a small survey [66] (*n* = 55) of HIV-positive MSM in Ohio. Those authors used the full subscales of the CTS2 as well, but only a 6-month timeframe, and only enrolled men who were currently in relationships. We have no reason to believe that our clinic patients are at particular risk of experiencing PA and, thus, these high prevalence figures are especially concerning.

We found that the likelihood of reporting one or more domains of PA was associated variously with sociodemographic characteristics, including younger age (3–7 years younger), identifying as non-White, having an extremely low income (<$738/month), not living independently, reporting lifetime sexual behavior with both men and women, and being partnered at present. Across studies, younger age has been consistently associated with PA experiences in various populations [6, 21, 24, 67, 68], as it was in our sample. This finding has been theorized to be related to the trend in the general population for aggression to recede over time. Racial and ethnic differences in the PA literature have been inconsistent [24, 69–76]. We were reluctant to collapse various racial categories into a single variable but did, given the small number in each racial group and our limited sample size. Here we found that participants who endorsed recent physical or sexual PA were more likely to endorse a non-White race. Our findings differ from Greenwood [6], who found no racial differences, and from Zierler [21], who found Latino ethnicity to be associated with PA victimization. Clearly, equivocal results across studies require further investigation. In Greenwood's study, in a large sample of urban MSM, the authors found PA victimization to be related to education and not race; we found the opposite pattern. The poorest half of participants was more likely to endorse physical, psychological, or any PA in the past year. It is possible that these individuals have basic needs that remain unmet in their present lives, consistent with the literature citing poverty as a risk factor for both HIV and PA [8, 56]. Impoverished men may be more dependent on partners or potential partners for shelter (consistent with our housing finding), food, or transportation to medical facilities. The stress of simply surviving with few alternatives may cause the men to engage in risky behaviors or to remain engaged with unsupportive or violent social networks, consistent with the finding that men with partners were more likely to endorse having experienced any PA in the past year.

Numerous studies have reported adverse mental [3, 77] and physical [3, 4] health correlates of PA in various populations, but few findings pertain specifically to HIV-positive MSM. It is possible that this group of men is uniquely vulnerable to negative mental health effects of

PA because of homophobia or anti-HIV attitudes of the perpetrator [78]. In this sample, one notable psychosocial correlate of any recent PA is current depressive symptoms. Men reporting any past year PA reported significantly greater frequency of depressive symptoms on the CES-D (any, 21.7 vs. 17.6; physical, 26.2 vs. 18.4). However, in this sample, the majority of participants would likely meet criteria for a major depressive episode, given that the clinical cutoff is 16 for the general population [52] and 18 for medical samples—with our sample's mean nearly 20. Comparable findings were not available in other published work on PA in HIV-positive MSM. Another noteworthy finding is a 25% higher score on the HIV stigma scale reported by men who report either physical or sexual PA. Given that all men were living with HIV, it is interesting that victims of contact abuse felt the stigma of their diagnosis more strongly. It is possible that the individuals in the men's social network are less accepting of their HIV status and, thus, the men more acutely feel the weight of their 'difference.' For HIV stigma, also, there were no published reports examining this variable in relation to PA for HIV-positive MSM.

It was past year physical PA that was most consistently associated with indicators of poorer psychosocial functioning—anxiety, depression, suicidal ideation, HIV stigma, avoidant coping, recent crystal meth and cocaine use, and lower HRQOL. Anxiety, depression, and suicidal thinking frequently co-occur and can be considered markers of generalized distress, and finding significant associations with HIV-positive MSM who have experienced abuse replicates results from the general PA literature. The stimulant findings are notable, also, and may provide valuable information about the context in which the physical PA occurs. There are commonly reported associations between substance use and PA in a variety of populations [25, 26], and it could be that the use of illegal drugs are an antecedent (giving the partners an additional topic for disagreement) or a consequence (as a dysfunctional coping strategy) of recent physical PA. Men who reported physical PA, compared to those who did not, also endorsed more impairment on the HRQOL scale, which is a composite measure of physical health and functioning related to their HIV disease. Thus, there may be additional, acute, injury-related physical ailments these men face, in addition to living with HIV and potentially other chronic, comorbid conditions. Men who have experienced physical PA appear to be at the greatest risk of mental and physical health problems and, thus, HIV care providers must be especially keen to assess recent physical PA, or threats of PA, in their patients—including MSM.

Some interesting 'non-findings' emerged from these analyses as well. Past year psychological PA, despite being the most frequently reported domain of PA, had no psychosocial or health-related correlates; and past year sexual PA was associated only with the measure of HIV sigma. Typically in the interpersonal abuse literature, sexual violence has the most negative consequences associated with it. It is possible that including both sexual coercion and forced sex in the same variable dilutes some of the explanatory power— that is, if we had included only the rape items, a different pattern of correlates may have emerged. Further, it is possible that the psychological PA was unrelated to psychosocial factors because other factors (non-partner hate crimes or discrimination experiences) or other domains of PA (many participants endorsing physical or sexual PA also endorsed psychological PA) better accounted for distinctions in mental and physical health. Further, no differences were observed between abused and non-abused men for alcohol use, social

support, or most of the other health-related variables: chart-extracted viral load or CD4 count, patient-provider relationship, and medication adherence. All of the patients included in this study were receiving comprehensive HIV care, and these findings would likely be different if our sample consisted of HIV-positive MSM recruited from another venue. It is possible that access to HIV specialists across disciplines (medical, nursing, pharmacy, mental health) providing high-quality care can mitigate some of the impact of abusive experiences on physical health. It also may be that, for the HIV health-related indicators, the relations with PA are indirect. Individuals who experience PA may have negative mental health sequelae that, in turn, are associated with poorer physical health. This notion of interpersonal abuse exerting indirect effects on health has begun to be explored in recent cross-sectional work [79]. It is also possible that men experiencing PA might adaptively cope with distress related to their abuse by focusing on aspects of their lives that they can control, e.g., taking their medications and remaining appropriately engaged with their medical care providers.

Limitations are inherent in any single research study. Reporting on solely cross-sectional associations precludes us from making any inferences about causality. Recruiting participants at medical centers means that we may be missing the most disenfranchised individuals, such as homeless men or chronic substance abusers, for example, who have disengaged with medical care. Our sample included a relatively high proportion of White men; thus, we were unable to examine specific racial group differences. Also, PA was measured with solely self-report measures and violence victimization is a stigmatized behavior; thus, our findings may underestimate the true prevalence in this population, and a different pattern of associations might emerge from a community-recruited sample. Using the CTS2, while allowing cross-study comparisons, omits information about the context in which the PA occurred or the relationship dynamics that precipitated PA onset. Also, it is possible that the psychological PA subscale of the CTS2 is overly sensitive, given the large proportion of the sample that screened in for that type of abuse. Finally, there were other constructs that are of interest (e.g., PTSD, whether the current relationship partner has been abusive, etc.) but that were not assessed or not assessed adequately in the present sample.

Additional longitudinal work that replicates our findings, as well as tests a model of indirect effects, is sorely needed to inform future intervention development efforts. Given the state of current knowledge about PA in HIV-positive MSM, we believe that our work both makes a contribution and highlights the need for additional, ongoing work in this area. Other open research questions include any information about how, and how often, providers working with all HIV-infected individuals screen for PA, especially in younger patients who appear to be at the greatest risk; studies examining the role of serostatus in PA victimization and perpetration, e.g., are HIV-positive men partnered with HIV-negative men at increased risk; and pilot testing interventions aimed at preventing HIV-PA, increasing provider screening, or improving PA victims' coping skills. Interventions might also include components of structural support, for example, the creation of male- or HIV-focused shelters for individuals who would like to leave violent relationships but who lack the monetary resources to live independently (a reliable correlate of PA across studies). Most likely, collaborative efforts with clients, providers, and public health officials will be needed to address PA in a

comprehensive manner. Given the extent of PA and its deleterious effects, work on such interventions cannot begin too soon.

Acknowledgments

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Table 1

Sociodemographic characteristics of total sample ($N = 168$)

Characteristic	*n*	% of sample
Age (M, SD)	156	44.0 years (8.4)
Race		
White/Euro-American	106	63.1
Black/African-American	29	17.6
More Than One Race	13	7.9
American Indian/Alaskan Native	10	6.1
Unknown	7	4.2
Ethnicity		
Latino/Hispanic	21	12.5
Non-Latino/Hispanic	145	87.4
Income		
$738 per month	78	46.4
>$738 per month	88	52.4
Employment		
Employed (full-time or part-time)	31	18.5
Unemployed	126	75.0
Educational attainment		
High school graduate/GED/fewer years of schooling	70	41.7
Some college/AA degree/tech school/Bachelor's/graduate degree	97	57.7
Living situation		
Living in own home/apartment	118	70.2
In your life, have you had sex with…?		
Only men	62	36.9
Both men and women	104	61.9
Relationship status		
Presently partnered	62	36.9
Among those with partners, length of time with partner		
1 year	18	29.0
>1 year	43	69.4
Taking medications		
Currently taking HAART	136	81.0
AIDS Diagnosis		
Ever been told you have AIDS	106	63.1

Table 2

Mental health and health-related characteristics for total sample (N = 168)

Characteristic	*n*	Mean (*SD*)	%
Mental health			
Anxiety	168	1.9 (0.7)	
Depression	165	19.8 (12.6)	
Social support	167	2.4 (1.1)	
Suicidal thoughts	167	0.7 (0.8)	
Stigma	167	1.7 (0.8)	
Avoidant coping	167	0.9 (0.6)	
Alcohol use (days of use/past week)	167	1.7 (1.9)	
Methamphetamine use (past year)	49		28.7
Powder cocaine use (days of use/past week)	167	0.2 (0.8)	
Health-related			
Health-related quality of life (HRQOL)	167	3.2 (0.5)	
Relationship with provider	167	38.2 (7.5)	
Antiretroviral adherence (100% adherent/past 30 days)	67		50.0
Viral load ($\log_{10}$ of copies/ml)	154	2.4 (1.4)	
CD4 count (cells/ml)	165	401.1 (221.1)	

Table 3

Abuse victimization (*N* = 168)

	Physical		Sexual		Psychological		Any	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Past year	32	19.0	29	17.3	85	50.6	91	54.2
Past 5 years	49	29.2	37	22.0	103	61.3	110	65.5
Ever	64	38.1	51	30.4	123	73.2	131	78.0

Table 4

Demographic Correlates of Past Year Partner Abuse (N = 168)

Characteristic	Physical			Sexual			Psychological;			Any		
	Yes (n = 32) %	No (n = 136) %	t-test	Yes (n = 29) %	No (n = 139) %	t-test	Yes (n = 85) %	No (n = 83) %	t-test	Yes (n = 91) %	No (n = 77) %	t-test
Age (M, SD)	38.3 (7.9)	45.3 (8.0)	$4.2^{**} \chi^2$	40.9 (7.7)	44.6 (8.4)	$1.9^{*} \chi^2$	42.2 (8.0)	45.7 (8.5)	$2.6^{*} \chi^2$	42.3 (8.0)	46.0 (8.5)	$2.8^{**} \chi^2$
Race												
White/Euro-American	48.3	71.3	5.7^{*}	46.4	71.5	6.6^{*}	63.0	71.4	1.3	64.4	70.4	0.7
Ethnicity												
Latino/Hispanic	18.8	11.2	1.3	20.7	11.0	2.1	16.5	8.6	2.3	16.5	8.0	2.7
Income												
$738 per month	78.1	39.6	15.4^{**}	65.5	43.1	4.8^{*}	54.8	39.0	4.1^{*}	52.2	40.8	2.2
Employment												
Employed (full-time or part-time)	80.0	80.3	0.0	16.0	20.5	0.3	20.0	19.5	0.0	19.1	20.6	0.1
Educational attainment												
High school diploma/GED or fewer years of schooling	46.9	40.7	0.4	48.3	40.3	0.6	43.5	40.2	0.2	40.7	43.4	0.1
Living situation												
Has own home/apartment	51.6	76.1	7.4^{*}	71.4	71.5	0.0	67.9	75.3	1.1	65.6	78.7	3.5
In your life, have you had sex with…?												
Only men	21.9	41.0	4.1^{*}	27.6	39.4	1.4	31.8	43.2	2.3	33.0	42.7	1.7
Both men and women	78.1	59.0		72.4	60.6		68.2	56.8		67.0	57.3	
Relationship status												
Presently partnered	50.0	34.6	2.6	48.3	35.3	1.7	50.0	24.7	11.3^{**}	51.1	21.3	15.5^{**}
Taking medications												
Currently taking HAART	92.6	93.3	0.0	90.9	93.6	0.2	95.8	90.7	1.5	96.1	90.0	2.1
AIDS diagnosis												
Ever been told you have AIDS	56.7	64.1	0.8	48.3	66.2	3.3	58.8	67.5	1.4	58.2	68.8	2.0

$^{*}P < 0.05,$

**
$P < 0.01$

Table 5

Psychosocial and health-related correlates of past year partner abuse (N = 168)

Characteristic	Physical			Sexual			Psychological			Any		
	Yes (n = 32) %	No (n = 136) %	t-test	Yes (n = 29) %	No (n = 139) %	t-test	Yes (n = 85) %	No (n = 83) %	t-test	Yes (n = 91) %	No (n = 77) %	t-test
Health-related (M)												
HR-QOL	3.0	3.2	2.0*	3.2	3.2	0.5	3.1	3.3	1.6	3.1	3.3	1.9
Relationship with provider	36.5	38.6	1.4	35.6	38.7	2.1	37.4	38.9	1.3	37.6	38.8	1.0
Antiretroviral adherence (100% adherent/past 30 days)	44.0	51.4	0.4	50.0	50.0	0.0	48.5	51.5	0.1	46.6	54.1	0.8
Viral load ($\log_{10}$ of copies/ml)	2.6	2.3	−1.0	2.1	2.4	0.9	2.4	2.3	−0.3	2.4	2.3	−0.0
CD4 count (cells/ml)	372.5	408.0	1.0	419.8	397.2	−0.5	417.2	384.4	−1.0	418.9	379.8	−1.2
Mental health (M)												
Anxiety	2.4	1.8	−4.1**	2.1	1.9	−1.5	2.0	1.9	−0.9	2.0	1.9	−1.1
Depression	26.2	18.4	−3.2**	19.6	19.9	.12	21.4	18.2	−1.7	21.7	17.6	−2.2*
Social support	2.4	2.4	0.2	2.4	2.4	0.2	2.5	2.3	−0.9	2.5	2.3	−1.3
Suicidal thoughts	1.0	0.6	−2.5*	0.8	0.6	−1.0	0.7	0.6	−0.7	0.7	0.6	−0.9
Stigma	2.0	1.6	−2.3*	2.0	1.6	−2.4*	1.7	1.6	−0.1	1.7	1.6	−0.2
Avoidant coping	1.3	0.9	−3.9**	1.1	0.9	−1.7	1.0	0.9	−1.5	1.0	0.9	−1.5
Alcohol use (days of use/past week)	2.1	1.6	−1.5	1.8	1.7	−0.5	1.7	1.7	0.0	1.6	1.7	0.2
Powder cocaine use (days of use/past week)	0.6	0.1	−1.5**	0.6	0.1	−1.62	0.3	0.2	−1.1	0.3	0.2	−1.0
Methamphetamine use (past year)	46.9	25.2	χ^2 5.9*	34.5	28.3	χ^2 0.5	31.8	26.8	χ^2 1.35	30.8	27.6	χ^2 0.2

*
$P < 0.05$,

**
$P < 0.01$