Prevalence and Correlates of Intimate Partner Violence in HIV-Seropositive Women in Serodiscordant Relationships

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Abstract

Intimate partner violence (IPV), is behavior within an intimate relationship that causes physical, sexual, or emotional harm. It is the most common form of gender based violence (GBV) and is a major public health problem, with a global and African prevalence of 30% and 37%, respectively. This was a cross-sectional analysis that enrolled HIV-seropositive women in serodiscordant relationships who were at least 18 years of age and provided a written informed consent to participate in the study. Participants were asked 13 questions adapted from the World Health Organization survey on violence against women about physical, sexual, or emotional violence in the past year, by the current partner. Correlates of IPV were assessed using standardized instruments. To estimate the association between correlates and past year IPV, univariate and multivariate logistic regression were used.

Overall, 47/159 (29.6%, 95% CI 22.9-37.2%) reported experiencing IPV in the past year. In the multivariate analysis, pregnancy (aOR 9.78, 1.98-48.26), male partner controlling behavior (aOR 3.18, 1.44-7.03), past physical violence by someone other than the current partner (aOR 3.78, 1.32-10.78) and alcohol use (minimal aOR 3.78, 1.45- 9.87, moderate/high aOR 1.12, 0.20-6.14), were associated with higher likelihood of reporting IPV in the past year.

Programs caring for HIV-positive women in serodiscordant relationships should consider screening these women for IPV. Additionally, the study identified a potential period of risk (pregnancy), an identifiable risk factor (previous violence), and potentially modifiable behaviors of women and their partners (alcohol use and partner controlling behavior) that were associated with a greater likelihood of IPV in the past year.

Background

Intimate partner violence (IPV), defined as behavior within an intimate relationship that causes physical, sexual, or emotional harm, is the most common form of gender based violence (GBV).[1-2] It is a major public health problem, with a global and African prevalence of 30% and 37%, respectively.[2] In Kenya, 20% of ever married women reported physical IPV in the past year. Additionally, sexual IPV in the past year was reported by 8% of this population.[3]

A combination of factors play a role in IPV among women as shown by prior research.[4-5] Specifically, socio-demographic factors that impact IPV include age,[6-7] education level,[6-8] and marital status.[9] In addition, women may experience IPV as a result of reproductive concerns surrounding their contraceptive use,[10] fertility desire,[10] and pregnancy.[8-11] Further, alcohol,[12-13] and substance use,[7,13-14] multiple sexual partners,[10,14-15] as well as sexually transmitted infections (STIs) are associated with IPV.[16] Beyond these, prior abuse as a child or an adult, and a controlling partner may directly impact experience of IPV.[17]

Sub-Saharan Africa remains the region most affected by HIV, with nearly 70% of the global burden of infections. In Africa, women bear a disproportionate burden of HIV infection, accounting for 57% of those infected.[18-19] Women with HIV are at increased risk of IPV, which is more frequent and severe compared to women who are seronegative.[11,15] Disclosure of HIV status to partners, especially when the partner is HIV-seronegative or does not know his status, and stigma associated with enrollment in HIV care may be additional risk factors for IPV.[10,11,15,18] Women experiencing IPV may have poor access to HIV care,[20-21] poor adherence to antiretroviral (ART) medication,[21-22] and uncontrolled viral replication.[22] The present study aimed to determine the prevalence and correlates of IPV in the past year in HIV-seropositive women in serodiscordant relationships.

Methodology

Study design

This was a cross-sectional analysis of baseline data from a parent cohort study entitled, Women's Lifecourse Events & HIV Transmission Potential: A Multidisciplinary Study (NIH R01HD072617-04). The study was conducted at Kenyatta National Hospital (KNH) in Nairobi, Kenya. Eligible participants were HIV-seropositive women in serodiscordant relationships who were at least 18 years of age and provided a written informed consent to participate in the study. Women were excluded if it was not possible to confirm the HIV status of their partners.

Recruitment and enrollment procedures

Study staff visited the KNH Voluntary Counselling and Testing Centres (VCTs), Comprehensive Care Center (CCC), and other VCTs within Nairobi. During these visits they informed the clinicians about the study, and requested referral of serodiscordant couples. Couples presenting to the discordant couples clinic were re-tested using Determine HIV rapid test kits to confirm their serodiscordant status. Subsequently, HIV-seropositive women were invited to participate in the study and were taken through consenting and enrollment procedures. Though male partners were not enrolled in the study, they were encouraged to access free follow up outpatient services offered at the clinic.

Data collection

At enrollment, women completed a standardized face-to-face interview in their preferred language (Kiswahili or English); this was conducted in a private room by trained study staff. The interview included questions on socio-demographics, reproductive health, sexual risk behaviors, and exposure to violence. Participants were asked six questions about physical violence (slapped, kicked, hit, threatened with a weapon, choked, or pushed), four about emotional violence

(insulted, intimidated, belittled, or someone they care about was threatened), and three about sexual violence (forced sex, coerced sex, forced to perform a degrading sexual act). When responding to these questions, participants were asked to focus on their current partners. Those who reported any lifetime violence by their partners were then asked whether that act of violence occurred in the past 12 months. Participants were also asked about violence since age 15 by someone other than the current partner. The interview questions about IPV and other forms of violence were adapted from the World Health Organization (WHO) survey on violence against women (VAW), an instrument that is standardized and has good internal consistency.[12,23]

Women were also asked about controlling behaviors of their current partner. Those who responded 'yes' to at least one of seven statements about controlling behavior, such as trying to restrict contact with the woman's family of birth, were considered to be exposed to controlling behaviors.

Alcohol use was assessed using the WHO alcohol use disorders identification test (AUDIT) with a score range (0-40). Scores were grouped as 0 (no drinking), 1-6 (minimal drinking), 7-15 (moderate drinking) and >15 (possible alcohol use disorder).[24] Screening for depression was conducted using the patient health questionnaire (PHQ-9) with a score range (0-27). Scores were categorized as 0-4 (none), 5-9 (mild), 10-14 (moderate), 15-19 (moderately severe) and 20-27 (severe).[25]

Following the interview, the study clinician conducted a physical examination including a speculum-assisted pelvic examination with collection of genital swabs for laboratory testing for STIs. At the end of each study visit, participants received 300 Kenyan shillings (approximately 3 US dollars) to compensate them for their transportation expenses and time.

The discordant couple clinic provided free outpatient services tailored to meet the needs of HIV-serodiscordant couples. These included risk reduction education, ART, counseling on safer conception, and STI screening and treatment.

Laboratory methods

Testing for HIV was performed using a rapid test (Determine HIV-1/2, Inverness Medical, Waltham, MA). Blood samples from study participants were tested for CD4 cell count (BD FACSCount system, BD Biosciences, Franklin Lakes, NJ), and tested to confirm HIV using HIV-1/HIV-2 3rd generation enzyme linked immunoassay [ELISA] (Abbott Molecular, Ontario). Nucleic acid amplification tests (APTIMA, Hologic/Gen Probe, San Diego, CA) were performed on clinician-collected genital swabs to detect *Neisseria gonorrhea, Chlamydia trachomatis*, and *Trichomonas vaginalis.* Finally, participants provided urine samples for B-hCG testing (QuickVue, Quidel, San Diego, CA) to confirm pregnancy.

Statistical methods

The main outcome was IPV in the past 12 months. Women were considered to have IPV if they responded 'yes' to at least one of 13 questions about acts of IPV adapted from the WHO VAW instrument.[12,23-26]

Potential correlates of past year IPV were selected for evaluation based on a review of literature. The socio-demographic characteristics included age,[6-7] years of education,[6-8] and marital status.[9] Reproductive characteristics included pregnancy (confirmed by urine B-hCG),[8-11] number of live births,[8-11] fertility desire (wants more children),[10] fertility intent (currently trying to become pregnant),[10] and use of modern non-barrier contraception (oral contraceptive pills [OCP], implant, depot medroxyprogesterone acetate [DMPA], intrauterine device [IUD], tubal ligation, and hysterectomy).[11] Participants were also asked about their partner's attitude towards a

possible pregnancy (excited, upset, would not care), and the number of sexual partners they had in the past week.[9,11,14]

Analysis

The prevalence of past year IPV was calculated with 95% confidence intervals (CIs), and an exploratory analysis of the correlates of past year IPV was conducted. Correlation matrices and graphics (e.g. scatter plots and box plots) were used to check for collinearity. To estimate the association between each correlate and past year IPV, univariate logistic regression was used. Subsequently, variables associated with past year IPV in univariate analysis ($p < 0.10$) were included simultaneously in a multivariate model to identify variables that were independently associated with IPV. Associations were presented as odds ratios (ORs) with 95%CIs. All analyses were conducted using STATA 15.0 (StataCorp, College Station, TX).

Results

Overall, 159 women were enrolled from March 2013 to March 2016. Baseline characteristics are presented in Table 1. The median age of participants was 33 years (interquartile range [IQR] 29-38), and more than two thirds of the participants had attended school for more than eight years (111, 69.8%). The majority (142, 89.3%) were currently married, and few were pregnant (10, 6.3%). While most participants reported that their partners would be excited (99, 62.3%) if they became pregnant, some reported that they would not care (33, 20.8%), and a few reported they would be upset (17, 11.3%). Partner controlling behavior (66, 41.5%) was reported by more than a third of the participants.

Overall, forty seven (29.6%, 95% CI 22.9-37.2%) women reported experiencing IPV in the past year. Of these, 32 (20.1%) reported emotional violence, 27 (17.0%) reported physical violence, and 27 (17%) reported sexual violence. A previous history of violence since the age of 15 years

by someone other than the current partner, was reported by thirty five (22%) participants. Of these, 23 (14.5%) reported previous physical violence, and 12 (7.6%) reported previous sexual violence.

Many participants (119, 74%) did not drink alcohol. Among those with any alcohol use, AUDIT scores were consistent with minimal alcohol use in 32 (20.1%) women, while 8 (5.0%) had AUDIT scores suggestive of moderate drinking or possible alcohol use disorder.

In the univariate model, pregnancy (odds ratio [OR] 6.36, 1.57-25.79), male partner controlling behavior (OR 3.73, 1.82-7.62), history of physical violence by someone other than the current partner (OR 3.73, 1.82-7.62), and alcohol use (minimal OR 3.86, 1.71-8.73, moderate/high OR 2.04, 0.46-9.11) were associated with a greater likelihood of IPV in the previous. Increasing age (OR 0.95, 0.90-0.99) was associated with a lower likelihood of IPV in the past year (Table 2).

In the multivariate analysis, pregnancy (adjusted odds ratio [aOR] 9.78, 1.98-48.26), male partner controlling behavior (aOR 3.18, 1.44-7.03), past physical violence by someone other than the current partner (aOR 3.78, 1.32-10.78) were associated with greater likelihood of IPV in the past year. Alcohol use (minimal aOR 3.78, 1.45- 9.87, moderate/high aOR 1.12, 0.20-6.14), was associated with higher likelihood of reporting IPV in the past year. This overall association was driven by the strong association between minimal alcohol use and IPV, while the association with moderate to high alcohol use was weak and not statistically significant.

Discussion

This study is among the first to examine the prevalence and correlates of IPV among HIV-seopositive women in serodiscordant relationships. Nearly 30% of women had experienced one or more types of IPV in past year (29.6%). Significant correlates of IPV included pregnancy,

controlling behaviors by the male partner, any level of alcohol use, and a history of prior violence by someone other than the current partner.

Notably, most prior studies among HIV-seropositive women in Africa have reported lifetime IPV. The present analysis focused on IPV in the past year, emphasizing that IPV is an ongoing problem for HIV-positive women in serodiscordant relationships. These data could contribute to the sparse literature regarding IPV in HIV-positive women in serodiscordant couples.

The high prevalence of past year IPV in this population was consistent with other findings among African HIV-seropositive women.[8,14-15,27-28]

In the present analysis, physical violence since the age of 15 years by someone other than the current partner was associated with a higher likelihood of past year IPV. These findings were consistent with previous African studies among HIV-seropositive women.[14,29] Women with a previous history of physical violence may have a lower self-esteem, which may increase their insecurity, predisposing them to subsequent violent relationships.[29] Alternatively, women may learn to submit to violence as punishment at an earlier age, putting them at risk for IPV.[30]

Pregnancy was associated with a greater likelihood of IPV in the past year. This was in contrast to an African multi-country study among HIV-serodiscordant couples that found no association between pregnancy and recent IPV.[15] In the multi-country study, pregnant women were followed up prospectively to assess the association, while the current study was a snapshot of the association. Thus, a bi-directional association between pregnancy and IPV was plausible in the current study and pregnancy could have led to IPV if the male partners were not ready for a child, and the women were blamed for an unwanted or unplanned pregnancy.[31-32] Alternatively, pregnancy could have been a result of IPV though sexual violence.[33] This study was not able to distinguish between the two possibilities.

The finding of an association between male partner controlling behaviors and past year IPV is consistent with other African studies associating partner controlling behavior with high likelihood of IPV.[9,31,34] Women with partners with controlling behaviors may have been victims of IPV because their partners may have been suspicious of infidelity, leading to conflict.[26] Additionally, male partners with controlling behaviors may be more likely to engage in risky behaviors such as alcohol use, and multiple sexual partners, which could have led to conflict in the relationship, resulting in IPV.[35]

Alcohol use was associated with a greater likelihood of IPV. Interestingly, this association did not increase in a stepwise manner. Minimal alcohol use, which was by far the largest category other than abstinence in this population, was significantly associated with IPV. Moderate or heavier alcohol use were uncommon, and had a smaller point estimate for association with IPV, but with very wide confidence intervals. Further study of women with moderate or heavy alcohol use is needed to better understand this population. Nonetheless, it is interesting that even minimal alcohol use by AUDIT was associated with IPV. There are several possible explanations for this finding. First, alcohol may disinhibit aggressive behavior, and may lead to IPV perpetration or victimization.[4,35] Thus, women who consume alcohol may be unable to negotiate non-violent solutions to conflict or may initiate conflict which results in IPV.[35-36] They are also more likely to be victims of IPV because their partners may perceive their behavior as inappropriate, leading to violence.[36] Additionally, they are likely to have partners who use or abuse alcohol, putting these women at a higher risk for IPV.[35] On the other hand, women who moderately/heavily used alcohol may have underreported their alcohol use, because of stigma associated with heavy alcohol use.

A bi-directional association between alcohol use and IPV is also possible. Specifically, women may have used alcohol to cope with IPV.[26-36] Longitudinal studies will be important to examine this relationship further.

A particular strength of this study is the use of questions adapted from the WHO VAW survey. This is a standardized instrument used successfully in a range of populations of women in an Africa, facilitating comparison to other studies.[12] Additionally, potential correlates of IPV were measured with validated tools such as the AUDIT score to measure alcohol use and the PHQ-9 to measure depressive symptoms.[24-25,37]

This study had some limitations. First, the parent study focus was on lifecourse events of women in HIV-serodiscordant relationships, and did not enroll male partners. Therefore, limited male partner characteristics (eg. desire for children) were collected from the female participants, excluding additional and possibly useful data from male partners. On the other hand, enrolling male partners could result in a trade-off, specifically since it is possible that women felt safer reporting IPV in a study that did not include their partners.[6] Second, there may have been underreporting of IPV due to recall bias or social desirability bias.[12,14] To address this concern, questions specific to behavior were asked to facilitate disclosure. Finally, study participants were able to access VCT and HIV care services from a national hospital within an urban setting. Therefore, these results may be most generalizable to those accessing care in large hospitals within other urban areas in Africa, especially where HIV care services are tailored towards serodiscordant couples.

In conclusion, this study identified a high prevalence of IPV in the past year among HIV-seropositive women in serodiscordant relationships. Programs caring for HIV-positive women in serodiscordant relationships should consider screening these women for IPV. Additionally, the

study identified a potential period of risk (pregnancy), an identifiable risk factor (previous violence), potentially modifiable behaviors of women and their male partners (alcohol use and partner controlling behavior) that were associated with a greater likelihood of IPV in the past year.

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Table 2: Correlates of any IPV in the past 12 months by the current partner

Variable	Any IPV n (%)or mean (sd) n=47	No IPV % (n) or mean (sd) n=112	OR (95% CI)	p-value	Wald p value	AOR (95% CI)	p-value	Wald p-value
Age	32.0 (5.2)	34.4 (7.2)	0.95 (0.90, 0.99)	0.04		0.98 (0.92, 1.05)	0.57	-
Education > 8 years	32(68.1)	79 (70.5)	0.89 (0.43, 1.86)	0.76		-		-
Currently married	45 (95.7)	97 (86.6)	3.48 (0.76, 15.86)	0.11		-		
Pregnant by B-hcg	7 (14.9)	3 (2.7)	6.36 (1.57, 25.79)	0.01		9.78 (1.98, 48.26)	0.005	-
Number of children	1.9 (1.1)	1.7 (1.4)	1.10 (0.85, 1.42)	0.48		-		-
Fertility desire	33 (70.2)	66 (58.9)	1.64 (0.79, 3.41)	0.18		-		-

Table 1: Baseline characteristic of the study sample (N=159)

Characteristics	Mean (SD) or n (%)
Age	33.7 (6.8)
Education > 8 years	111 (69.8)
Currently married	142 (89.3)
Reproductive characteristics	
Pregnant by B-hcg	10 (6.3)
Number of children	1.8 (1.3)
Fertility desire	99 (62.3)
Fertility intent	40 (25.2)
Contraceptive use (other than condoms)	39 (24.5)
condoms	82 (51.6)
Partner attitude towards pregnancy	
Would not care	33 (20.8)
Very upset	17 (11.3)
Excited	99 (62.3)
Controlling behavior	66 (41.5)
Any IPV in the past year	47 (29.6)
Any physical IPV in the past year	27 (17.0)
Any emotional IPV in the past year	32 (20.1)
Any sexual IPV in the past year	27 (17.0)
History of violence by someone other than current partner	
Any physical violence since age 15	23 (14.5)
Any sexual violence since age 15	12 (7.6)
Alcohol use by AUDIT score	
Non-drinkers	119 (74.8)
Minimal	32 (20.1)
Moderate/High	8 (5.0)
Tobacco use in past month	3 (1.9)
Drug use in past month	2 (1.3)
Depressive symptoms by PHQ-9 score >9	7 (4.4)
New sex partner(s) in past month	4 (2.5)
Any STIs (Gonorrhea, Chlamydia or *Trichomoniasis*)	5 (3.1)

Fertility intent	14 (29.8)	26 (23.2)	1.40 (0.65, 3.01)	0.39	-	-
Contraceptive use	12 (25.5)	27 (24.1)	1.08 (0.49, 2.37)	0.85	-	-

Partner attitude towards pregnancy								
Excited (ref)	28 (59.6)	71 (63.4)	1.00			1.00		-
Would not care	9 (19.1)	24 (21.4)	0.95 (0.39, 2.30)	0.37	0.04	1.97 (0.70, 5.60)	0.20	
Very upset	3 (6.4)	14 (12.5)	0.54 (0.14, 2.04)	0.01		0.61 (0.13,2.89)	0.53	
NA (currently pregnant)	7(14.9)	3 (2.7)	5.92 (1.43, 24.51)			-		
Male partner controlling behavior	30 (63.8)	36 (32.1)	3.73 (1.82, 7.62)	<0.001		3.18 (1.44, 7.03)	0.004	
Physical violence since age 15 by someone else	14 (29.8)	9 (8.0)	4.86 (1.93, 12.24)	0.001		3.78 (1.32, 10.78)	0.01	
Sexual violence since age 15 by someone else	6 (12.8)	6 (5.4)	2.59 (0.79, 8.48)	0.12		-	-	
Alcohol use								
Non-drinkers (ref)	27 (57.4)	92 (82.1)	1.0			1.0		
Minimal	17 (36.2)	15 (13.4)	3.86 (1.71, 8.73)	0.001	0.005	3.78 (1.45, 9.87)	0.006	0.02
Moderate/High	3 (6.4)	5 (4.5)	2.04 (0.46, 9.11)	0.44		1.12 (0.20, 6.14)	0.89	
Tobacco Use in Past Month	2 (4.3)	1 (0.9)	4.93 (0.44, 55.78)	0.20		-		
Drug Use in Past Month	2 (4.3)	0	No convergence	NA		-		
PHQ-9 Score >9	3 (6.4)	4 (3.6)	1.84 (0.40, 8.57)	0.44		-		
New Sex Partner(s) in Past Month	1 (2.1)	3 (2.7)	0.79 (0.08, 7.79)	0.84		-		