

# Intimate partner violence among HIV-serodiscordant couples in Durban, South Africa

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**Background.** South Africa (SA) has a high prevalence rate of intimate partner violence (IPV) and HIV, both of which can be exacerbated further by HIV serodiscordancy in the couple dyad. Further exploration of the discordancy sidedness in known mediating factors, such as alcohol abuse risk and post-traumatic stress (PTS), is required.

**Objectives.** To investigate the extent of and gender differences in IPV, alcohol abuse risk and PTS symptoms among HIV-serodiscordant couples in Durban, SA, and to analyse these further with regard to female HIV serostatus.

**Methods.** A cross-sectional analysis of data on 30 serodiscordant couples was conducted at the point of enrolment into a pilot study of an HIV risk reduction intervention. The statistical procedure for a dependent small sample was applied to examine gender differences in IPV, alcohol use and PTS symptoms among HIV-serodiscordant couples.

**Results.** The woman was HIV-positive in 18 (60.0%) of the 30 serodiscordant couples enrolled. Exposure to IPV differed significantly between men (28.6%) and women (89.3%) (proportional difference  $-0.61$ , 95% confidence interval (CI)  $-0.82 - -0.39$ ). The Wilcoxon signed-rank test showed that PTS symptom scores differed significantly between men (median 22, interquartile range (IQR) 23) and women (median 44, IQR 28) ( $p=0.03$ ). When the above analysis was stratified by female HIV serostatus, significant gender differences were found in IPV and PTS in the couples where the woman was HIV-positive. There were no significant gender differences for alcohol abuse risk.

**Conclusions.** The findings demonstrated high levels of IPV in HIV-serodiscordant couples and a significant gender difference in mental health risk such as PTS in such relationships, particularly where the woman was HIV-positive. HIV intervention programmes should address gender-based violence and inequity among heterosexual couples.

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Intimate partner violence (IPV) is an extensive social and health challenge that cuts across ethnic, cultural and socioeconomic boundaries.<sup>[1,2]</sup> IPV in South Africa (SA) is an important public health issue that requires urgent attention. A national epidemiological study estimates that 50.3% of female homicides were from IPV.<sup>[3]</sup> Another major study conducted in SA, a country with one of the highest burdens of HIV infection in the world,<sup>[4]</sup> reported IPV to be an important influence on women's risk of HIV infection.<sup>[5]</sup>

Research from the USA has shown that women who experience IPV report increased risk-taking behaviours for HIV acquisition/transmission.<sup>[6,7]</sup> While this evidence suggests that IPV and gender inequity may be risk factors for HIV infection, very few studies in SA have explored the extent of gender differences in IPV in serodiscordant relationships. In these relationships, one partner is infected with HIV while the other is not, a situation that is very common in sub-Saharan Africa.<sup>[8]</sup> In discordant couples, the HIV-negative member is at extremely high risk of HIV infection; age-adjusted rate ratios can be as high as 12 for men and 106 for women compared with their counterparts in relationships where both partners are HIV-negative.<sup>[9]</sup>

Discordant relationships are subject to several challenges, particularly increased stress among individuals who are told that they

are HIV-positive. Sources of conflict may include how the illness was acquired, the possibility of transmission to the uninfected partner, and concerns about procreation.<sup>[10]</sup> Although the exact figures are not known, there are many cases of previously peaceful relationships that became abusive after HIV status disclosure.<sup>[11]</sup>

IPV encompasses various forms of physical, verbal and emotional abuse.<sup>[12-14]</sup> According to the Centers for Disease Control and Prevention in the USA, IPV is defined as 'physical, sexual, or psychological harm by a current or former partner or spouse'.<sup>[12]</sup> Few studies have examined the perceptions of those involved in partner violence to understand why the violence occurred. Insight into the perceptions of both male and female perpetrators and victims can provide measures of risk factors, such as demographic and victim characteristics, and personal and cultural factors associated with HIV transmission. However, there is evidence to suggest a correlation between IPV, post-traumatic stress disorder (PTSD) and alcohol abuse risk.<sup>[15]</sup>

## Objectives

To investigate the extent of and gender differences in IPV, alcohol abuse risk and post-traumatic stress (PTS) symptoms among HIV-serodiscordant couples in Durban, SA, and to analyse these further with regard to female HIV serostatus.

## Methods

### Sample

The data were obtained using a cross-sectional, baseline research questionnaire administered to individuals enrolling into an HIV risk reduction trial that aimed to recruit 30 serodiscordant couples. The study took place in Durban. Data collection and analysis commenced in August 2016, with 30 serodiscordant couples ( $N=60$  participants) being enrolled by the end of November 2017.

### Referral patterns

The study participants were patients attending private healthcare facilities who were referred to a specialist psychiatrist by health professionals who had agreed to refer patients seeking clinical advice, specifically general practitioners, clinical psychologists and specialists in various clinical disciplines. The healthcare providers were approached individually with a brief of the study protocol and provided with information leaflets to distribute to potential participants. After a screening process carried out by the principal investigator, only the eligible serodiscordant couples were recruited to participate.

### Ethical considerations

Participants were included in the study if they were serodiscordant, had been together for >3 months, had disclosed their HIV status to their partner, and were self-identified heterosexuals aged  $\geq 18$  years. Potential participants were excluded if their status was not disclosed to the partner, if they were seroconcordant, or if they were not willing to participate in research. Participants were informed of the procedures, benefits and potential risks of taking part in this study, and provided informed written consent for the interviews, focus group discussions and blood sample collection. Ethical approval was obtained from the University of KwaZulu-Natal's Biomedical Research Ethics Committee (ref. no. 166/15).

### Measures and assessments

Serodiscordance was confirmed with the most recent enzyme-linked immunosorbent assay HIV test result,<sup>[16]</sup> taken not more than 3 months prior to enrolment for the HIV-negative partner. Participants who had been tested more than 3 months previously were retested following voluntary testing and counselling as part of the study. At first contact, participants were screened for eligibility by the principal investigator, and were then asked to complete a detailed questionnaire comprising sociodemographics, relationship characteristics, general health and quality of life, sexual abuse, alcohol abuse risk and PTS. The questionnaire was completed by each participant individually in the presence of the principal investigator and took an average of 60 minutes.

### Measures

- **Sociodemographic characteristics.** Participants answered 20 sociodemographic questions on age, level of education, profession, medical insurance and clinical details.
- **Relationship characteristics** included the length of the relationship, marital status, number of children and living arrangements.
- **Intimate partner violence** was measured by the 19-item revised Conflict Tactics scale (CTS),<sup>[17,18]</sup> which established both a history and recent experiences of abuse. Participants were asked whether a current or previous partner had hurt them verbally, physically or sexually in any way. For this study, the CTS was adapted to address violence experienced since the age of 18. If participants answered yes, they were classified as having experienced adult abuse.

- **Alcohol abuse risk.** Participants were screened for lifetime alcohol dependence using the CAGE criteria<sup>[19]</sup> (cutting down, annoyance by criticism, guilty feelings and eye-openers), with alcohol problems being denoted by CAGE scores  $\geq 2$ .
- **PTS** was screened for using the PTSD Checklist (civilian version), a 17-item self-report measure reflecting *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV) symptoms of PTSD in relation to generic 'stressful experiences' that can be used with any population. This version was used because symptom endorsements were not attributed to a specific event.<sup>[20,21]</sup> A total PTS symptom severity score was calculated by summing the scores (range 17 - 85) from each of the 17 items.

### Statistical analysis

Two analyses were conducted using Stata 15 (StataCorp, USA). The first examined the participants' sociodemographic and clinical details using descriptive statistical methods. For the categorical variables, the numbers and percentages were reported, while for the continuous variables, medians and interquartile ranges (IQRs) were reported, given the small sample size. The second analysis examined gender differences in IPV, alcohol abuse risk and PTS symptoms among HIV-serodiscordant couples, which were further analysed with regard to female HIV serostatus. For categorical outcome variables, we reported the difference in dependent proportions, with significant differences being examined using the asymptotic McNemar test and the McNemar mid- $p$  test.<sup>[22]</sup> For continuous outcome variables, significant gender differences in the median score were examined using the Wilcoxon signed-rank test.

## Results

The first analysis examined the participants' sociodemographic and clinical details (Table 1). In the 30 serodiscordant couples enrolled, 18 (60.0%) of the women were HIV-positive. Approximately half of the male and female participants had been in the current relationship for >5 years, and most were employed with grade 12 and a higher qualification.

The second analysis examined gender differences in IPV exposure, alcohol abuse risk and PTS outcome (Table 2). Overall ( $N=30$  couples) there were significant gender differences in IPV and PTS symptoms, but not in alcohol use. Exposure to IPV differed significantly between men (28.6%) and women (89.3%) (dependent proportional difference 0.61, 95% confidence interval (CI)  $-0.82 - -0.39$ ). The Wilcoxon signed-rank test showed median PTSD symptom scores to be significantly different between men (22, IQR 23) and women (44, IQR 28) ( $p=0.03$ ).

The analyses also examined gender differences in IPV exposure, alcohol abuse risk and PTS outcome based on female HIV serostatus (Tables 3 and 4). Again we found significant gender differences in IPV and PTS symptoms, but not in alcohol use, where the woman was HIV-positive (Table 3). However, where the woman was HIV-negative, we only found significant gender differences in IPV, and not in alcohol use or PTS symptoms (Table 4).

## Discussion

The objective of this study was to investigate the extent of and gender differences in IPV, alcohol abuse risk and PTS symptoms among HIV-serodiscordant couples, and to analyse these further with regard to female HIV serostatus. We found significantly higher levels of IPV and PTS symptoms among women than among men in the HIV-serodiscordant couples, but no gender differences in alcohol abuse risk. When the analysis was stratified based on female HIV

**Table 1. Demographic and clinical characteristics of HIV-serodiscordant couples stratified by female HIV serostatus\***

	Couples (N=30)		Couples with HIV-positive women (N=18)		Couples with HIV-positive men (N=12)	
	Women, n (%)	Men, n (%)	HIV-		HIV-positive men, n (%)	HIV-negative women, n (%)
			positive women, n (%)	negative men, n (%)		
<b>Demographic characteristics</b>						
Age category (years), n (%)						
18 - 29	4 (13.3)	3 (10.0)	3 (16.7)	2 (11.1)	1 (8.3)	1 (8.3)
30 - 49	23 (76.7)	22 (73.3)	15 (83.3)	14 (77.8)	8 (66.7)	8 (66.7)
50 - 64	3 (10.0)	5 (16.7)	0	2 (11.1)	3 (25.0)	3 (25.0)
Educational attainment, n (%)						
Grade 8	3 (11.5)	4 (14.3)	2 (12.5)	2 (11.8)	2 (18.2)	1 (10.0)
Grade 12 and higher (highest level of education attained)	23 (88.5)	24 (85.7)	14 (87.5)	15 (88.2)	9 (81.8)	9 (90.0)
Employment status, n (%)						
Unemployed	6 (20.7)	2 (7.1)	3 (17.7)	1 (5.9)	1 (9.1)	3 (25.0)
Employed full/part time	23 (79.3)	26 (92.9)	14 (82.4)	16 (94.1)	10 (90.9)	9 (75.0)
Married, n (%)						
No	15 (50.0)	14 (46.7)	12 (66.7)	11 (61.1)	3 (25.0)	3 (25.0)
Yes	15 (50.0)	16 (53.3)	6 (33.3)	7 (38.9)	9 (75.0)	9 (75.0)
Separated from spouse, n (%)						
No	23 (85.2)	24 (85.7)	14 (87.5)	15 (83.3)	9 (90.0)	9 (81.8)
Yes	4 (14.8)	4 (14.3)	2 (12.5)	3 (16.7)	1 (10.0)	2 (18.2)
Married to study partner, n (%)						
No	12 (41.4)	12 (40.0)	10 (58.8)	10 (55.6)	2 (16.7)	2 (16.7)
Yes	17 (58.6)	18 (60.0)	7 (41.2)	8 (44.4)	10 (83.3)	10 (83.3)
Length of relationship with study partner (years), n (%)						
≤5	15 (50.0)	14 (46.7)	8 (44.4)	8 (44.4)	6 (50.0)	6 (58.3)
>5	15 (50.0)	16 (53.3)	10 (55.6)	10 (55.6)	6 (50.0)	5 (41.7)
<b>Clinical characteristics</b>						
Alcohol abuse risk, n (%)						
No	22 (95.7)	23 (79.3)	13 (92.9)	14 (77.8)	9 (81.8)	9 (100.0)
Yes	1 (4.3)	6 (20.7)	1 (7.1)	4 (22.2)	2 (18.2)	0 (0.0)
Trauma symptomatology, median (IQR)						
	40 (28)	22 (23)	42.5 (12)	21 (18)	33.5 (27.5)	37 (39.6)
Exposure to IPV, n (%)						
No	3 (10.7)	21 (70.0)	1 (5.9)	12 (66.7)	9 (75.0)	2 (18.2)
Yes	25 (89.3)	9 (30.0)	16 (94.1)	6 (33.3)	3 (25.0)	9 (81.8)

IQR = interquartile range; IPV = interpersonal violence.  
 \*The figures for some variables do not add up to the total for the column, owing to missing values.

serostatus, we found gender differences in PTS symptoms in the serodiscordant couples where the woman was HIV-positive, but not in women who were HIV-negative. Our study highlights the high levels of IPV in women overall, as well as differences in mental health challenges according to female HIV serostatus.

**Gender and IPV**

In the context of HIV serodiscordance, it appears that there is a direct risk of the non-infected partner becoming infected when IPV is present.<sup>[23]</sup> IPV is generally perpetrated by male partners, most often a spouse or someone emotionally close to the woman, and a study has even reported that some HIV-positive males deliberately infect their HIV-negative partners.<sup>[11]</sup> In this SA sample, the overwhelming majority (94.1%) of the HIV-positive women reported IPV – a higher figure than that for the HIV-negative women, although this difference was not statistically significant, possibly owing to the small sample size. Other studies support similar findings, with

Shuaib *et al.*<sup>[24]</sup> in Uganda reporting that HIV-positive women in discordant relationships were at a higher risk of sexual violence than those who were uninfected or in negative concordant unions.

**Gender and PTS**

In this study, we included screening for PTSD symptomatology as a possible consequence of previous or ongoing exposure to IPV and for its long-term effects on the mental health of the participants. We found significantly higher levels of PTSD in women, specifically those who were HIV-positive, which highlights the need to screen and address trauma symptoms in other populations of serodiscordant couples during couples voluntary counselling and testing. Previous intervention studies on serodiscordant couples have demonstrated a decrease in HIV transmission protective behaviours in couples where one or both partners had clinically significant symptoms of PTSD.<sup>[25]</sup> These findings suggest that the success of sexual risk reduction interventions may be attenuated and compromised by the presence of

**Table 2. Comparison of clinical characteristics of HIV-serodiscordant couples (N=30)**

	Female IPV+	Female IPV-	Total		
Male IPV+	8	0	8	Male IPV+ proportion	0.29
Male IPV-	17	3	20	Female IPV+ proportion	0.89
Total	25	3	28	Difference in proportion	-0.61 (95% CI -0.82 - -0.39)
				Asymptotic McNemar test	<i>p</i> <0.01
				McNemar mid- <i>p</i> test	<i>p</i> <0.01
	Female CAGE+	Female CAGE-	Total		
Male CAGE+	1	5	6	Male CAGE+ proportion	0.26
Male CAGE-	0	17	17	Female CAGE+ proportion	0.04
Total	1	22	23	Difference in proportion	0.22 (95% CI 0.01 - 0.43)
				Asymptotic McNemar test	<i>p</i> =0.03
				McNemar mid- <i>p</i> test	<i>p</i> =0.03
Male median PTS score	22 (IQR 23)			Wilcoxon signed-rank test	<i>p</i> =0.03
Female median PTS score	40 (IQR 28)				

IPV = intimate partner violence; + = positive; - = negative; CI = confidence interval; CAGE criteria<sup>[19]</sup> used to screen for alcohol abuse risk; PTS = post-traumatic stress; IQR = interquartile range.

**Table 3. Comparison of clinical characteristics in 18 couples in which the woman was HIV-positive (N=18)**

	Female IPV+	Female IPV-	Total		
Male IPV+	5	0	5	Male IPV+ proportion	0.29
Male IPV-	11	1	12	Female IPV+ proportion	0.94
Total	16	1	17	Difference in proportion	-0.65 (95% CI -0.93 - -0.36)
				Asymptotic McNemar test	<i>p</i> <0.01
				McNemar mid- <i>p</i> test	<i>p</i> <0.01
	Female CAGE+	Female CAGE-	Total		
Male CAGE+	1	3	4	Male CAGE+ proportion	0.29
Male CAGE-	0	10	10	Female CAGE+ proportion	0.07
Total	1	13	14	Difference in proportion	0.21 (95% CI -0.07 - 0.50)
				Asymptotic McNemar test	<i>p</i> =0.08
				McNemar mid- <i>p</i> test	<i>p</i> =0.13
Male median PTS score	21.0 (IQR 18)			Wilcoxon signed-rank test	<i>p</i> =0.02
Female median PTS score	42.5 (IQR 12)				

IPV = intimate partner violence; + = positive; - = negative; CI = confidence interval; CAGE criteria<sup>[19]</sup> used to screen for alcohol abuse risk; PTS = post-traumatic stress; IQR = interquartile range.

**Table 4. Comparison of clinical characteristics in couples in which the woman was HIV-negative (N=12)**

	Female IPV+	Female IPV-	Total		
Male IPV+	3	0	3	Male IPV+ proportion	0.27
Male IPV-	6	2	8	Female IPV+ proportion	0.82
Total	9	2	11	Difference in proportion	-0.55 (95% CI -0.93 - -0.16)
				Asymptotic McNemar test	<i>p</i> <0.01
				McNemar mid- <i>p</i> test	<i>p</i> <0.02
	Female CAGE+	Female CAGE-	Total		
Male CAGE+	0	2	2	Male CAGE+ proportion	0.22
Male CAGE-	0	7	7	Female CAGE+ proportion	0.00
Total	0	9	9	Difference in proportion	0.22 (95% CI -0.16 - 0.60)
				Asymptotic McNemar test	<i>p</i> =0.16
				McNemar mid- <i>p</i> test	<i>p</i> =0.25
Male median PTS score	33.5 (IQR 27.5)			Wilcoxon signed-rank test	<i>p</i> =0.72
Female median PTS score	37.0 (IQR 29.5)				

IPV = intimate partner violence; + = positive; - = negative; CI = confidence interval; CAGE criteria<sup>[19]</sup> used to screen for alcohol abuse risk; PTS = post-traumatic stress; IQR = interquartile range.

physical or sexual trauma histories and residual mental health issues, such as PTSD.

### Gender and alcohol abuse risk

Most studies correlate IPV with alcohol use, but very few have examined its prevalence or impact in serodiscordant relationships. Our results show that only 20.7% of participants (both male and female) reported alcohol use. However, social desirability bias, non-disclosure and under-reporting of alcohol use could have been responsible for these low rates, as a common symptom of alcoholism is denial.<sup>[26]</sup> Further studies are needed to examine the prevalence of alcohol use in serodiscordant couples and its role in IPV.

### Study limitations

Our study had a number of limitations. Firstly, the small cross-sectional study sample makes generalisation difficult, and some questions regarding the temporal sequence of events await further research. Secondly, the study sample was drawn from a private practice setting and may not be generalisable to the majority of the SA population, who use public sector facilities. Finally, our clinical sample may not be fully representative of HIV-serodiscordant couples, particularly those who are not aware of their serodiscordant status.

### Conclusions

Notwithstanding the limitations of this study, we have provided insight into certain aspects of IPV, alcohol use and PTS among HIV-serodiscordant couples. HIV counselling and testing should support capacitation to address issues related to gender inequity for couples who are HIV-discordant, especially where the woman is HIV-positive. Policies, interventions and programmes for HIV prevention must address these risk factors and allocate appropriate resources.

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**Author contributions.** SM conceived the study. GEW contributed to the conception and design of the study. AT did the statistical analysis. SM and AT drafted the article. All authors provided critical input to the writing of the article. The publication of the article was approved by all authors.

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**Conflicts of interest.** None.

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