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## Type and severity of intimate partner violence and its relationship with PTSD in HIV-infected women

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### Abstract

HIV has an impact on the presence and severity of both intimate partner violence (IPV) and posttraumatic stress disorder (PTSD) in infected women. However, the relationship of type and severity of IPV with PTSD in this population has not been adequately explored. We focus on the association between the type and severity of IPV and HIV status and PTSD in a sample of South African women. One hundred and sixty-nine women (114 HIV-positive and 55 HIV-negative controls), matched for geographical area, education, and socio-economic status, were recruited from HIV clinics. Clinical and demographic data were collected, including data on childhood trauma, other traumatic life events, IPV, posttraumatic stress symptoms, problematic alcohol use, and depressive symptoms. HIV-positive women had significantly more depressive symptoms, alcohol abuse, and childhood trauma exposure as well as significantly higher rates of PTSD (25.4%) when compared with uninfected women (10.9%). No significant group differences in the rate, pattern, and severity of physical, sexual, psychological, injury, and negotiation IPV were found. In logistic regression analysis, the rate and severity category of IPV did not significantly predict PTSD in HIV-positive women when childhood trauma and life events were controlled for. Our results indicate the need for screening for alcohol abuse, PTSD and depressive symptoms at HIV wellness, and ARV clinics. The high rates of PTSD in HIV-positive women indicate the need for specialized programs to manage PTSD and minimize negative sequelae in this population. These results also highlight the need for improved screening and prevention of childhood trauma and IPV both in infected and uninfected women.

### Keywords

HIV; intimate partner violence; posttraumatic stress disorder; South Africa; women

### Introduction

Intimate partner violence (IPV) includes physical and sexual violence, threats of violence, psychological and emotional abuse by an intimate partner (World Health Organization, 2013). South Africa, a middle-income country, has the highest rate of IPV in the world (Gass, Stein, Williams, & Seedat, 2011) with IPV accounting for 5.45% of the total disease and injury burden (Norman et al., 2010). It is well documented that the prevalence rate of

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IPV in South Africa is very high, with studies consistently showing high rates of violence against women and correlations with injury and adverse health outcomes such as alcohol abuse and HIV/AIDS (Campbell, 2002; Doolan, Ehrlich, & Myer, 2007; Dunkle et al., 2004; Gupta et al., 2008; Jewkes, 2002; Seedat, Van Niekerk, Jewkes, Suffla, & Ratele, 2009; Williams et al., 2007). The 1998 Demographic and Health Survey found that 13% of women had been abused by an intimate partner during their lifetime (Department of Health & Macro International, 1998). A 24.6% lifetime prevalence rate of IPV among women was reported in cross-sectional study in three South African provinces (Jewkes, Levin, & Penn-Kekana, 2002) and a study among men in the rural Eastern Cape Province found that 31.8% reported ever using physical violence against a female partner (Dunkle et al., 2006). Data from 1715 adults from the nationally representative South Africa Stress and Health Study revealed that women are significantly more likely than men to report being victimized (29.3% vs. 20.9%) (Gass et al., 2011). Despite varied estimates, these data strongly suggest that partner violence against women is highly prevalent in South Africa. High prevalence rates of IPV were also noted in other middle-income countries such as Ethiopia (70.9%) and Namibia (35.9%) (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006).

Women who are HIV-positive experience more IPV than HIV-negative women based on studies in Rwanda (van der Straten et al., 1998), Tanzania (Maman et al., 2002) and the United States. There have been several South African studies indicating an increased prevalence of IPV in HIV-positive women (Dunkle et al., 2004; Speizer et al., 2009; Jewkes et al., 2010). HIV seropositivity in women is also associated with increased severity, frequency, and type of IPV experienced (Gielen et al., 2007) and may in part be ascribed to partner disclosure of HIV status (Campbell et al., 2008; Gielen et al., 2007; Semrau et al., 2005). In women, early childhood physical and sexual abuse may further increase the risk of IPV (West, Williams, & Siega, 2000) and posttraumatic stress disorder (PTSD) (Dutton, 2009).

A meta-analysis by Machtinger, Wilson, Haberer, and Weiss (2012) in HIV-positive women found the estimated rate of IPV to be 55.3% (more than double the rate in the general population), while the estimated rate of current PTSD was 30%. The relationship between trauma/PTSD and HIV is bidirectional: HIV-positive women are affected by high rates of childhood and adult trauma and PTSD. Trauma and PTSD, in turn, predispose women to becoming infected with HIV (Machtinger et al., 2012) as these lead to high-risk sexual behaviors, substance abuse, and an inability to negotiate safer sexual practices (Kouyoumdjian, Findlay, Schwandt, & Calzavara, 2013). In South African HIV samples, PTSD is a common psychiatric disorder in HIV/AIDS patients, particularly in women exposed to sexual violence and IPV (Morris, Naidoo, Cloete, Harvey, & Seedat, 2013; Olley, Seedat, & Stein, 2006). A South African study by Morris et al. (2013) showed that sexual assault (17.4%) and transport accidents (16.9%) were the most common causes of PTSD in HIV-positive females.

In a study in South India, 14% of women with IPV met criteria for PTSD and the severity of violence and sexual coercion was correlated with the severity of PTSD (Chandra, Satyanarayana, & Carey, 2009). A study by O'Campo et al. (2006) showed that women with a history of IPV were 2.3 times more likely to develop PTSD compared to never abused

women. Another study by Neroien and Schei (2008) reported that women with histories of IPV had approximately three times the odds of meeting criteria for PTSD compared with women who did not report a history of IPV.

Despite the high burden of IPV, studies specifically focusing on the pattern and severity of IPV and its association with PTSD in HIV-infected women are lacking, particularly in low- and middle-income countries. In our study, we hypothesized that (i) HIV-positive women would have significantly more severe IPV, of all types, and higher rates of PTSD than HIV-negative women and through this relationship and (ii) IPV, in particular, physical and sexual IPV, would significantly predict PTSD in HIV-positive women, after controlling for early childhood trauma exposure and other traumatic life events.

## Methods

The present study was approved by the Health Research Ethics Committee of Stellenbosch University (Ethics reference no: N07/07/153) and was nested within a larger prospective study exploring biological and cognitive endophenotypes of HIV and childhood trauma both separately and in combination. The sample used was the same for both studies, however, neuropsychological, neuroimaging, and genetic assessments were conducted in the parent study (Jacobs et al., 2014; Malan-Müller et al., 2013; Spies, Cherner, Fennema-Notestine, Archibald, & Seedat, 2012; Spies & Seedat, 2014; Troeman et al., 2011).

## Participants

Convenience sampling was used to recruit a sample of 169 women (114 HIV-positive and 59 HIV-negative controls) from eight HIV clinics/infectious disease units within primary healthcare facilities in the Boland, Khayelitsha, and Tygerberg Eastern health districts of the Western Cape region (South Africa) between July 2008 and March 2012. Participants were recruited by two researchers. Controls were recruited once they had been for voluntary counseling and testing and a negative HIV status confirmed. The mean age of participants was 29.9 years ( $SD = 7.3$ , range 18–56 years), and the majority of HIV-positive female participants were ARV-naïve.

All assessments took place at Stellenbosch University. In order to minimize fatigue, participants were required to attend assessments on two separate occasions, not more than 7–9 days apart. At the first visit, participants underwent the following procedures: (1) a physical examination, (2) recording of vital signs and a blood draw, (3) a neuropsychiatric interview using the Mini International Neuropsychiatric Interview, M.I.N.I.-Plus (Sheehan et al., 1998), and (4) completion of a battery of self-report instruments. Bloods were drawn from participants for CD4 and CD8 lymphocyte counts and viral load measurements.

Inclusion criteria were: (i) willingness and ability to provide written informed consent, (ii) age 18 to 65 years, (iii) ability to read and write in either English or Afrikaans at the fifth grade level, and (iv) current use (or used within the past month) of any psychotropic medication (including antidepressants). Exclusion criteria comprised: (i) pregnancy, (ii) current or past history of schizophrenia, bipolar disorder, or other psychotic disorders as defined on the Mini International Neuropsychiatric Interview-Plus version 5.0 (MINI-

Plus) (Sheehan et al., 1998), (iii) current (12 month) history of alcohol or drug abuse or dependence, (iv) previous head injury, (v) demonstrated cognitive impairment on the HIV Dementia Scale, and (vi) current central nervous system disorders, infections, or neoplasms.

Afrikaans and isiXhosa are the predominant official South African languages that are spoken in the sampling area. Participants were assisted by trained researchers in the completion of self-report instruments in English, Afrikaans, or isiXhosa.

## Instruments

In the present study, the independent variable included IPV and was measured using the Conflict Tactics Scale-Revised (CTS-2) (Straus, Hamby, McCoy, & Sugarman, 1996). This scale measures the extent to which partners in a dating, cohabiting, or marital relationship engage in psychological and physical attacks on each other and their use of reasoning or negotiation in dealing with conflicts. The CTS-2 includes scales to measure victimization and perpetration in partner conflicts, namely: injury, sexual coercion, physical assault, psychological aggression, and negotiation. These items are ranked on a continuum from least to most severe. All CTS-2 scales, except the negotiation scale have sub-scales measuring two levels of severity, namely minor and severe or less severe and more severe acts within each scale. The negotiation scale consists of cognitive and emotional negotiation sub-scales. Items in each scale are classified as severe or less severe and this conceptually based classification has been supported by factor analyses. It is important to note that “minor” acts should not be interpreted as being less serious of a problem for either victims or society. In the case of the physical assault scale, the items used to score severe assault are considered more severe in the sense that they pose a greater risk of injury that would require medical attention than the items used to score minor assault. Scoring of the CTS-2 can be complex as multiple scoring techniques are possible. The most frequently used method in research is the prevalence method and was the scoring method used in the present study. A dichotomous variable (0–1) is created, with a score of 1 assigned if one or more of the violent acts in the scale were used during the referent period. This method does not differentiate on the basis of how many of the acts were used or how often each act was used. It has shown good reliability (0.79–0.95) in other studies (Straus et al., 1996).

The dependent variable included PTSD and was measured using the MINI International Neuropsychiatry Interview-Plus (MINI-Plus; Sheehan et al., 1998) and the Davidson trauma scale (DTS) (Davidson et al., 1997). The MINI-Plus is a short semi-structured clinician-administered interview that assesses for major Axis I psychiatric disorders on the DSM-IV and ICD-10. It has good inter-rater reliability (>0.75) and test-retest reliability in most categories (>0.75) (Sheehan et al., 1998). The DTS is a 17-item self-report measure of PTSD. The cut-off score of 40 was used to indicate the presence PTSD. It has good test-retest reliability (0.86) and internal consistency (0.99) (Davidson et al., 1997).

Additional variables included in analyses included childhood trauma, other traumatic life events, depressive symptomatology, and alcohol use. Childhood trauma was measured using the childhood trauma questionnaire-short form (CTQ-SF). This self-report retrospective scale comprises 28 items measuring childhood trauma. It consists of five subscales, namely: physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect in

childhood. Scores on the CTQ-SF range from 5 to 25 for each of the abuse types. Items are scored on a Likert scale (1 = “never true” to 5 = “very often true”). A total score is obtained (25 items), with the lowest possible score being 25 and the highest possible score being 125. The instrument has good test–retest reliability (0.88) and internal consistency (0.80–0.97) (Bernstein & Fink, 1998). Other lifetime traumatic events were measured using the life event checklist (LEC) (Gray, Hsu, & Lombardo, 2004). This measure assesses exposure to potentially life-threatening index traumatic events for PTSD. Higher scores are indicative of the experience of more traumatic life events. Its reliability is 0.61 and its test–retest correlation is 0.82 (Gray et al., 2004). Depressive symptomatology was assessed using the center for epidemiologic studies depression scale (CES-D; Radloff, 1977). The CES-D is a 20-item self-report scale measuring current depressive symptomatology. Scores range from 0 to 60, with higher scores indicative of more depressive symptoms. Internal reliability in the general population is 0.85 and test–retest correlation is greater than or equal to 0.40 (Radloff, 1977). Finally, alcohol use was measured using the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). The scale consists of 10 items and is used as a screening instrument for hazardous and harmful alcohol consumption. Reliability is 0.65–0.81 (Saunders et al., 1993).

### Data analysis

Data were analyzed using SPSS version 19.0 and SAS. Descriptive statistics (frequencies and means, as appropriate) were computed for demographic and clinical variables, as well as for the type and severity of IPV (CTS-2) in HIV-negative and HIV-positive patients. Chi-square tests were used to compare the severity and type of IPV and PTSD between the two groups (HIV positive and HIV negative). Student t-tests were also used to compare childhood trauma, life events, depression, and alcohol and drug use scores. In the HIV-positive group, we assessed the association of the type and severity of IPV (independent variables) on the occurrence of PTSD (dependent variable). Logistic regression was used to assess the aforementioned association with PTSD when controlling for childhood trauma exposure and other lifetime traumatic events. All tests were two-sided with the *p* value set at 0.05. Cronbach’s alpha was used to assess internal reliability of the CTS-2, DTS, CES-D, CTQ-SF, LEC, and the AUDIT.

## Results

### Demographic and clinical data

The sample consisted of 169 women of whom 114 were HIV positive and 55 HIV negative. Of the 114 HIV-positive participants, 35 (30.7%) were on ARVs. The mean age of the HIV-positive group (32.59 years, 6.94 [SD]) was significantly greater ( $p < 0.001$ ) than for HIV-negative participants (26.96 years, 7.06 [SD]). Most participants were black (65.7%), single (45.56%), unemployed (45.56%), received an income of less than \$5000 per annum (96.45%), and had an educational level greater or equal to grade 8 (63.91%). There were no significant group differences for ethnicity, marital status, income, or level of education. HIV-positive participants had a mean (SD) CD4 count of 422.8 (244.8) and a mean (SD) viral load of 92 612.8 (361 057.7) (see Table 1).

### Internal reliability

Internal consistency reliability of all measures ranged from good to excellent for all measuring instruments used in the present study and compare well with the internal reliability of these test on other similar studies. The Cronbach's  $\alpha$  coefficients were as follows: CTS-2 = 0.9, LEC = 0.835, DTS = 0.885, CES-D = 0.958, and the AUDIT = 0.824.

### Type and severity of IPV (univariate analysis)

Regarding the rate of exposure to different types and severity of IPV, chi-square analyses revealed no significant differences between HIV-positive and HIV-negative participants for psychological aggression ( $\chi^2 = 0.536, p = 0.602$ ), sexual coercion ( $\chi^2 = 0.417, p = 0.622$ ), physical assault ( $\chi^2 = 2.402, p = 0.140$ ), negotiation ( $\chi^2 = 0.012, p = 1.000$ ), or injury ( $\chi^2 = 0.753, p = 0.456$ ) (see Table 2). When considering the sample as a whole with regards to the types and severity of IPV, the number of women who had experienced psychological aggression was 113 of which 75 women experienced severe trauma, for sexual coercion 80 women were affected with six experiencing severe trauma, for physical assault 79 women were affected with 40 experiencing severe trauma, for negotiation 136 women were affected and with regards to injury, 44 women were affected.

### Childhood trauma, life events, and psychopathology

HIV-positive women had higher mean scores for all types of childhood trauma. Group differences were statistically significant for total childhood trauma ( $t = -2.410, p = 0.017$ ), childhood sexual abuse ( $t = -2.414, p = 0.017$ ), and childhood emotional neglect ( $t = -2.600, p = 0.010$ ), with significantly higher mean scores in the HIV-positive group. In addition, HIV-positive women had higher mean scores on the LEC, AUDIT, DTS, and CES-D than the HIV-negative women with statistically, significant differences for depression ( $t = -2.283, p = 0.024$ ) and alcohol use ( $t = -2.279, p = 0.024$ ), therefore, indicating significantly greater alcohol abuse and more depressive symptomatology among HIV-positive participants (see Table 3). For alcohol abuse, the mean score for HIV-positive participants was 13.1 compared to 4.06 for HIV-negative participants. With regards to depressive symptomatology, the mean score was 15.46 in HIV-positive participants compared to 9.0 in HIV-negative participants. The six most common traumatic life events reported included physical assault ( $n = 109, 61.2\%$ ), transport accident ( $n = 92, 51.6\%$ ), a life-threatening illness ( $n = 92, 51.6\%$ ), fire/explosion ( $n = 83, 46.7\%$ ), assaulted with a weapon ( $n = 79, 44.4\%$ ), and the sudden unexpected death of someone close ( $n = 76, 42.7\%$ ). The most commonly reported subtype of childhood trauma was emotional neglect ( $M = 12.38$ ), followed by emotional abuse ( $M = 10.76$ ), physical neglect ( $M = 9.92$ ), physical abuse ( $M = 9.90$ ), and sexual abuse ( $M = 7.30$ ). In the HIV-positive group, the mean score for sexual abuse was 7.92 compared with 6.02 for HIV-negative participants and 13.09 in HIV-positive women for emotional neglect compared with 10.93 for HIV-negative women. These trauma subtypes were highly co-occurrent, with no women reporting only one type of childhood trauma. Most women ( $n = 109$ ) reported experiencing three or more sub-types (64.4%).

### Group differences in PTSD

Significantly more HIV-positive women (25.4%) met criteria for PTSD on the DTS (using a cut-off score of 40), compared with HIV-negative women (10.9%) ( $\chi^2 = 4.77, p = 0.029$ ). This association was no longer significant when childhood trauma and other traumatic life events were controlled for (Table 4).

### IPV and PTSD in HIV-positive women

As HIV status was significantly associated with PTSD in bivariate analysis, for the purpose of the logistic regression we focused on the prediction of pattern and severity of IPV on PTSD status in this group. Neither IPV type nor severity was significantly associated with PTSD in uncontrolled and controlled analyses (i.e. when lifetime traumatic life events and childhood trauma were included as covariates) (see Table 5).

## Discussion

Seropositive women had significantly higher depressive scores, self-reported alcohol use, and more self-reported childhood trauma exposure. These findings are in keeping with other studies (Balla, Lischner, Pomerantz, & Bagasra, 1994; Ciesla & Roberts, 2001; Galvan et al., 2002; Whetten et al., 2006). The presence of other lifetime traumatic events was not found to be significantly different between infected and uninfected women. This contrasts with a study by Pence, Shirey et al. (2012) and may be explained, in part, by the high rates and pervasive nature of trauma exposure in the South African population as a whole.

The rates of different types of IPV as well as their severity were comparable between the groups and contrasts with findings of other studies (Gielen et al., 2007), which documented an increased prevalence and severity of IPV in HIV-positive women. Neither type nor severity of IPV was associated with PTSD in HIV-positive participants. To our knowledge, this has not been specifically examined in other studies.

The rate of PTSD was significantly higher in HIV-positive participants (rates of 25.4%) and parallels findings by Martinez, Isrealski, Walker, and Koopman (2002). When childhood trauma and other lifetime traumatic life events were controlled for, the difference in the rate of PTSD between the groups was no longer significant, indicating high rates of other traumatic life events and childhood trauma. In the South African context where we have a high prevalence of violent crimes, traumatic life events and childhood trauma are possibly more prevalent than IPV and are therefore major contributing factors to the development of PTSD in this sample of HIV-positive participants. This is evident from the range of other traumatic life events reported, which are regarded as index events for the diagnosis of PTSD, and the high co-occurrence of childhood trauma among this cohort. Differences in IPV prevalence, other traumatic life events, and PTSD in this study compared to other local and international studies may, in part, be related to methodological variations and sociocultural differences (gender roles, rates of crime and violence as well as cultural beliefs related to HIV and IPV) in South Africa. Access to a larger sample size as well as sampling from a greater geographical variation could lead to findings more in line with other similar studies. It is important to consider that the measurement of IPV type and severity may have impacted

findings in the present study. The CTS-2 is one of the most widely used measures of IPV and no other measure has approached the widespread use of the CTS-2. While the scale possesses many strengths, the scale also has limitations. One of the major limitations of the CTS-2 is that it ignores the context, meaning, and motives of IPV and as such only tells part of the story. IPV is a multidimensional and complex phenomenon that warrants the use of multiple measures, such as the use of the CTS-2 and supplementary open- and close-ended questions. Nonetheless, some respondents may simply exercise their right to withhold information on abusive experiences, regardless of the methods used to generate these data. This could speak, in part, to the lack of a significant association between the type or severity of IPV and HIV status in the present study.

Other limitations of this study include the small sample size, the use of self-report questionnaires, the use of convenience sampling, and the fact that HIV-positive participants were generally older than HIV-negative participants. This was also noted in work by Jewkes et al. (2006) and may be due to the fact that younger women were more willing to undergo voluntary counseling and testing (VCT). Convenience sampling poses a problem in that the sample may not be representative of the population and our results may not be reproducible in future studies. A small sample size can lead to an incorrect or erroneous chi-square test result.

## Conclusion

In the present study, IPV did not predict PTSD among seropositive women even though trauma, including IPV, was pervasive in both HIV-positive and HIV-negative women. This indicates a need for early screening in the South African population as a whole in order to facilitate referrals and the development of interventions. Screening for IPV should be performed by trained health professionals and should be performed in high-risk populations e.g. women receiving treatment for mental illness such as depression and PTSD, patients attending antenatal clinics, and women who are receiving pretest and posttest counseling for HIV. Once screening has been performed, these women should be provided with support as well as advice and referral to the appropriate social work or legal agency where appropriate. These women should also be offered ongoing support and follow-up as well as psychiatric or psychological input where appropriate. While this study was restricted to women, gender-specific interventions that are tailored to the needs of all perpetrators and victims of IPV are needed. Specifically, interventions should aim to reduce poverty among men, and increase educational attainment and discourage early partnering among women. Addressing alcohol abuse/dependence should be a crucial component of any violence prevention program for both genders. Our study highlights the need for screening for PTSD, depression, childhood trauma, and alcohol abuse in HIV-positive women, given their significantly higher rates in this population. Further, there is a need for better education of females regarding IPV, possibly starting at school and continuing into adulthood via outreach and media education, with early intervention and continued reinforcement as prevention IPV strategies. Childhood trauma is an important risk factor for contracting HIV and for re-victimization in adulthood (Pence, Mugavero et al., 2012), indicating a need for targeted, and developmentally timed interventions. Other social factors that are important to address include improved gender equality and economic independence of women to address the scourge of IPV.



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**Table 1.**Demographic and clinical characteristics of the sample ( $N = 169$ ).

| Variable                | Total sample | HIV positive       | HIV negative | <i>t</i> -test/ $\chi^2$ | <i>p</i> |
|-------------------------|--------------|--------------------|--------------|--------------------------|----------|
| No. of participants (%) | 169 (100%)   | 114 (67.5%)        | 55 (32.5%)   |                          |          |
| Age range               | 18–56        | 21–56              | 18–47        |                          |          |
| Mean (SD) age           | 30.76 (7.44) | 32.59 (6.94)       | 26.96 (7.01) | 4.911                    | 0.000    |
| Ethnicity               |              |                    |              | 2.013                    | 0.156    |
| Black                   | 162 (95.86%) | 111 (65.68%)       | 51 (30.18%)  |                          |          |
| Colored                 | 7 (4.14%)    | 3 (1.78%)          | 4 (2.37%)    |                          |          |
| Marital status          |              |                    |              | 4.513                    | 0.478    |
| Single                  | 119 (70.41%) | 77 (45.56%)        | 42 (24.85%)  |                          |          |
| Married                 | 33 (19.53%)  | 22 (13.02%)        | 11 (6.51%)   |                          |          |
| Living with partner     | 6 (3.55%)    | 6 (3.55%)          | 0 (0%)       |                          |          |
| Separated               | 5 (2.96%)    | 4 (2.37%)          | 1 (0.59%)    |                          |          |
| Divorced                | 5 (2.96%)    | 4 (2.37%)          | 1 (0.59%)    |                          |          |
| Widowed                 | 1 (0.59%)    | 1 (0.59%)          | 0 (0%)       |                          |          |
| Education               |              |                    |              | 1.109                    | 0.292    |
| <Grade 8                | 7 (4.14%)    | 6 (3.55%)          | 1 (0.59%)    |                          |          |
| Grade 8                 | 162 (95.86%) | 108 (63.91%)       | 54 (31.95%)  |                          |          |
| Employment              |              |                    |              | 0.073                    | 0.787    |
| Unemployed              | 113(66.86%)  | 77 (45.56%)        | 36 (21.30%)  |                          |          |
| Employed                | 56 (33.14%)  | 37 (21.89%)        | 19 (11.24%)  |                          |          |
| Income                  |              |                    |              | 0.714                    | 0.398    |
| <R40 000                | 163 (96.4%)  | 109 (95.6%)        | 54 (98.2%)   |                          |          |
| >R40 000                | 6 (3.6%)     | 5 (4.40%)          | 1 (1.8%)     |                          |          |
| Mean (SD) CD4           |              | 422.8 (244.8)      |              |                          |          |
| Mean (SD) viral load    |              | 92612.8 (361057.7) |              |                          |          |

**Table 2.**Type and severity of intimate partner violence (CTS-2) ( $N = 169$ ).

| Description of IPV                    | Total $N$ with IPV | HIV+ % ( $N$ ) | HIV- ( $N$ ) | $\chi^2$ | $p$ value |
|---------------------------------------|--------------------|----------------|--------------|----------|-----------|
| <i>Psychological aggression total</i> | 113/169            | 68.42 (78)     | 63.64 (35)   | 0.536    | 0.602     |
| Psychological aggression minor        | 107/169            | 64.04 (73)     | 61.82 (34)   | 0.079    | 0.865     |
| Psychological aggression severe       | 75/169             | 43.86 (50)     | 45.45 (25)   | 0.038    | 0.870     |
| <i>Sexual coercion total</i>          | 80/169             | 45.61 (52)     | 50.91 (28)   | 0.417    | 0.622     |
| Sexual coercion minor                 | 80/169             | 45.61 (52)     | 50.91 (28)   | 0.417    | 0.622     |
| Sexual coercion severe                | 6/169              | 1.75 (2)       | 7.27 (4)     | 3.299    | 0.089     |
| <i>Physical assault total</i>         | 79/169             | 50.88 (58)     | 38.18 (21)   | 2.402    | 0.140     |
| Physical assault minor                | 72/169             | 45.61 (52)     | 36.36 (20)   | 1.298    | 0.319     |
| Physical assault severe               | 40/169             | 25.44 (29)     | 20.00 (11)   | 0.436    | 0.101     |
| <i>Negotiation total</i>              | 136/169            | 80.70 (92)     | 80.00 (44)   | 0.012    | 1.000     |
| <i>Injury total</i>                   | 44/169             | 28.07 (32)     | 21.82 (12)   | 0.753    | 0.456     |

Note: HIV-: HIV negative participants, HIV+: HIV positive, CTS-2: Revised Conflict Tactics Scale.

**Table 3.**Childhood trauma, life events, and psychopathology ( $N= 169$ ).

|                   | HIV positive Mean (SD) | HIV negative Mean (SD) | 95% CI lower | 95% CI upper | <i>t</i> value | <i>p</i> value |
|-------------------|------------------------|------------------------|--------------|--------------|----------------|----------------|
| CTQ total         | 51.96 (20.17)          | 44.36 (16.96)          | -13.813      | -1.372       | -2.410         | 0.017          |
| CTQ subscales:    |                        |                        |              |              |                |                |
| Physical abuse    | 9.50 (6.56)            | 8.29 (5.21)            | -3.203       | 0.785        | -1.197         | 0.233          |
| Sexual abuse      | 7.92 (5.39)            | 6.02 (3.23)            | -3.459       | -0.347       | -2.414         | 0.017*         |
| Emotional abuse   | 11.11 (5.99)           | 10.05 (6.01)           | -3.002       | 0.884        | -1.076         | 0.283          |
| Emotional neglect | 13.09 (5.31)           | 10.93 (4.50)           | -3.801       | -0.520       | -2.600         | 0.010*         |
| Physical neglect  | 10.33 (4.35)           | 9.07 (3.64)            | -2.600       | -0.079       | -1.858         | 0.065          |
| LEC               | 5.31 (3.40)            | 4.33 (3.33)            | -2.074       | 0.115        | -1.767         | 0.079          |
| AUDIT total       | 13.10 (27.77)          | 4.06 (13.86)           | -16.876      | -1.208       | -2.279         | 0.024*         |
| DTS total         | 23.16 (32.80)          | 13.40 (26.08)          | -19.737      | 0.221        | -1.931         | 0.055          |
| CES-D total       | 15.46 (17.36)          | 9.60 (11.14)           | -10.921      | -0.792       | -2.283         | 0.024*         |

Note: CTQ, Childhood Trauma Questionnaire; AUDIT, Alcohol Use Disorder Identification Test; LEC: Life Events Checklist; DTS, Davidson Trauma Scale; CES-D, Center for Epidemiological Studies Depression Scale.

\* Denotes statistical significance.

**Table 4.**

The association of the different types and severities of IPV with PTSD in HIV-positive women ( $N= 114$ ).

| Description of IPV                    | PTSD $N$ Yes | PTSD $N$ No | $\chi^2$ | $p$   |
|---------------------------------------|--------------|-------------|----------|-------|
| <i>Psychological aggression total</i> | 78/114       | 36/114      | 0.152    | 0.817 |
| Psychological aggression minor        | 73/114       | 41/114      | 0.065    | 0.825 |
| Psychological aggression severe       | 50/114       | 64/114      | 0.977    | 0.388 |
| <i>Sexual coercion total</i>          | 52/114       | 62/114      | 0.281    | 0.669 |
| Sexual coercion minor                 | 52/114       | 62/114      | 0.281    | 0.669 |
| Sexual coercion severe                | 2/114        | 112/114     | 5.967    | 0.063 |
| <i>Physical assault total</i>         | 58/114       | 56/114      | 0.287    | 0.669 |
| Physical assault minor                | 52/114       | 62/114      | 1.432    | 0.282 |
| Physical assault severe               | 29/114       | 85/114      | 0.095    | 0.807 |
| <i>Negotiation total</i>              | 92/114       | 22/114      | 0.585    | 0.429 |
| <i>Injury total</i>                   | 32/114       | 2/114       | 1.050    | 0.349 |
| Injury minor                          | 31/114       | 83/114      | 0.831    | 0.471 |
| Injury severe                         | 14/114       | 100/114     | 0.083    | 0.751 |

Note: PTSD, posttraumatic stress disorder; IPV, intimate partner violence.

PTSD is calculated from the DTS with a cut-off score of 40.



**Table 5.**

Logistic regression model. Association between type and severity of IPV, PTSD when controlling for childhood trauma and traumatic life events  $N=114$  (HIV-positive women).

|                                       | <i>B</i> | Wald  | Odds ratio | 95% CI upper | 95% CI lower | <i>p</i> |
|---------------------------------------|----------|-------|------------|--------------|--------------|----------|
| PTSD (yes)                            | -0.802   | 0.301 | 0.449      | 7.863        | 0.026        | 0.583    |
| IPV                                   |          |       |            |              |              |          |
| <i>Psychological aggression total</i> | 0.210    | 0.354 | 1.234      | 2.467        | 0.617        | 0.552    |
| Psychological aggression severe       | -0.048   | 0.020 | 0.953      | 1.847        | 0.492        | 0.887    |
| Psychological aggression minor        | 0.057    | 0.027 | 1.058      | 2.091        | 0.536        | 0.870    |
| <i>Sexual coercion total</i>          | -0.238   | 0.499 | 0.788      | 1.525        | 0.408        | 0.480    |
| Sexual coercion severe                | -1.729   | 3.579 | 0.178      | 1.064        | 0.030        | 0.059    |
| Sexual coercion minor                 | -0.238   | 0.499 | 0.788      | 1.525        | 0.408        | 0.480    |
| <i>Physical assault total</i>         | 0.446    | 1.701 | 1.562      | 3.054        | 0.799        | 0.192    |
| Physical assault severe               | 0.104    | 0.063 | 1.110      | 2.505        | 0.491        | 0.803    |
| Physical assault minor                | 0.363    | 1.106 | 1.437      | 2.824        | 0.731        | 0.293    |
| <i>Negotiation total</i>              | 0.156    | 0.134 | 1.169      | 2.697        | 0.507        | 0.714    |
| <i>Injury total</i>                   | 0.219    | 0.304 | 1.245      | 2.715        | 0.517        | 0.582    |

Note: IPV, intimate partner violence; PTSD, posttraumatic stress disorder.