Association between intimate partner violence & HIV/AIDS: Exploring the pathways in Indian context

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Background & objectives: Violence against women cutting across diverse socio-economic classes is an under-recognized human rights violation in the world. This analysis was undertaken to examine the prevalence along with predictors of intimate partner violence (IPV) and its association with HIV/AIDS and sexually transmitted infections (STIs) in Indian ever-married women.

Methods: The data obtained from 2005 to 2006 third round of National Family Health Survey-3 (NFHS-3) were used in this study. Analyses were conducted on ever-married women by linking individual women data including violence information and HIV test results.

Results: The analyses indicated all forms of violence to be prevalent in India. The prevalence of lifetime IPV reported was 35.3 per cent. Multivariate analysis using logistic regression identified younger age of women, higher number of children, low level of education of women as well as her partner, working status of women, higher spousal age, rural residence, alcohol consumption by husband, childhood witness of violence among parents, nuclear household and lower standard of living to be positively associated with the experience of IPV by the women (P<0.05). HIV-positive status of women, as well as women from high HIV prevalent State, were at increased odds of IPV (P<0.05).

Interpretation & conclusions: Significantly higher reporting of HIV/STIs by women experiencing IPV hints at new pathways that link violence and HIV. Further, our analysis showed a high prevalence of IPV in India.

Key words: HIV/AIDS - human immunodeficiency virus - predictors - variance inflation factor - violence against women

Violence against women cutting across diverse socio-economic classes is an under-recognized human rights violation in the world. The data from the worldwide literature suggest that intimate partner violence (IPV) is almost a universal phenomenon existing in all communities. The prevalence of both physical and sexual violence against women within marriage has been increasingly documented in India, but information regarding its correlates and health consequences are scant. There are a several factors that complicate the issue in India, as in other countries such as lack and denial of access to economic, political and social resources, vulnerability to indigenous oppressive institutions of caste, religion, traditional
family structures, non-democratic political structures and dowry system. Studies conducted in India suggest that about 50 per cent of women experienced at least one of the violent behaviours at least once in their married life. Preventing violence against women is considered as a way to contribute to achieving the millennium development goals (MDGs). As noted by the United States Centers for Disease Control and Prevention, to prevent violence against women, it is crucial to understand the circumstances, and the risk and protective factors that influence its occurrence.

Violence can have direct consequences for women’s health and can increase woman’s risk of future ill health. Documented effects include delayed prenatal care, inadequate weight gain, increased smoking and substance abuse, sexually transmitted infections (STIs), vaginal and cervical infections, kidney infections, miscarriages and abortions, premature labour, foetal distress and bleeding during pregnancy. The literature emphasizes the linkages between the experience of IPV and both fatal and nonfatal outcomes for women and their children. Increased prevalence of STI/HIV may reflect greater likelihood of STI/HIV exposure in abused women, rendering IPV a risk marker for their male partners’ STI/HIV infection.

This study was, therefore, undertaken to provide a comprehensive analysis of the prevalence of different forms of violence in ever married Indian women and its associated risk factors with emphasis to linkage with HIV. The primary objective was to estimate the prevalence of IPV in terms of physical, sexual and emotional violence in ever married Indian women and to identify various predictors of IPV. The secondary objective was to determine the association between IPV and proportion of HIV/AIDS and self-reported STIs.

**Material & Methods**

For this study the data obtained from 2005 to 2006 third round of National Family Health Survey (NFHS-3), a representative sample of households throughout India, were used. Data on 69,704 ever married women who were interviewed for IPV taking precautions, in keeping with the World Health Organization’s ethical and safety recommendations for research on IPV, were analysed. For these analyses, only ever married women were included since the outcome of interest is lifetime IPV experience. NFHS-3 tested 102,946 men and women for HIV of whom 52,855 were women. Of the total number of women tested for HIV, 57 per cent (n=30,033) were interviewed for IPV module. The two files were then merged.

The NFHS-3 volume 1 reports that the baseline characteristics such as age, residential, educational, religious, caste/tribe and wealth index distributions of the subsample of women who completed the IPV module and HIV testing were virtually identical to the entire NFHS-3 sample of eligible women, hence baseline characteristics were not tested. The key dependent variables of interest in this analysis were lifetime experience of various forms of violence. Ever-married women were asked a series of questions on the experience of physical, emotional and sexual violence based on a modified version of the revised Conflict Tactics Scale. A ‘yes’ response to one or more of items (a) to (g) in the appendix constitutes evidence of physical violence, while a ‘yes’ response to items (h) or (i) constitutes evidence of emotional violence and a ‘yes’ response to items (j) or (l) constitutes evidence of sexual violence. A dichotomous variable IPV was constituted as evidence of IPV if the women experienced either of physical and/or sexual and/or emotional violence.

The various correlates or predictor variables considered were women’s characteristics, husband’s characteristics, union characteristics and intergenerational effect in terms of violence in childhood. These variables were drawn from literature on women’s experience of IPV. The presence of HIV and self-reported presence of STIs was also recorded. In the NFHS-3 survey all women who ever had sexual intercourse were asked whether they had sexually transmitted diseases (STDs), genital sore/ulcer and vaginal discharge in the past 12 months. The HIV status of the women in IPV module of NFHS-3 was determined by linking and merging the IPV data with HIV data for each women of NFHS-3.

**Statistical analysis:** The prevalence of various forms of violence is described with 95 per cent confidence interval (CI), and the associations are expressed in terms of odds ratio (OR). Multivariate analysis using logistic regression was adopted to predict IPV as well as other types of violence. As the prevalence of HIV/AIDS was high in six States namely- Andhra Pradesh, Karnataka, Maharashtra, Manipur, Nagaland, and Tamil Nadu and moderate/low in other States, the regression models were adjusted for the prevalence of the States in predicting IPV. Results are shown in terms of OR with OR of >1 implying risk factor and
<1 as protective factor. Four logistic regression models were run with the outcome variable as physical, sexual or emotional violence alone as well as for physical and/or sexual and/or emotional violence. Multicollinearity in the variables predicting violence was detected by tolerance and variance inflation factor (VIF). VIFs exceeding four was considered as a sign of multicollinearity requiring correction. The model was rerun after testing for multicollinearity. All these analyses were carried out using SPSS 22.0 (SPSS Inc., Chicago, USA) at 0.05 level of significance.

Results

The socio-demographic variables are depicted in Table I. Table II gives the experience of violence by ever-married Indian women along with 95 per cent CI. The analysis of ever-married women revealed that 35.3 per cent (24,394) women respondents experienced IPV with 95 per cent CI of 34.80-35.51.

The results of multivariate analysis using logistic regression are given in Table III. The analysis showed four models to predict the dependent outcome variable based on independent predictors. Age at first marriage was removed from the analysis as it indicated strong collinearity with marital duration.

Physical and/or emotional and/or sexual violence: Younger age of women, higher number of children, low level of education of women as well as her partner, working status of women increased the odds

| Table I. Distribution of various sociodemographic factors as per residence, National Family Health Survey-3, 2005-2006 |
|---------------------------------------------------------------|
| Sociodemographic characteristics       | Rural | Urban | Total     |
| Mean±SD age of respondent in yr (n=69,704) | 31.4±8.22 | 32.5±7.83 | 31.9±8.07 |
| Mean±SD age of husband in yr (n=65,619)   | 35.9±11.95 | 36.7±11.26 | 36.2±11.66 |
| Respondents education, % (n)            |        |        |          |
| No education                             | 51.2 (20,052) | 24.9 (7595) | 39.6 (27,647) |
| Primary                                 | 17.2 (6756) | 13.4 (4016) | 15.4 (10,772) |
| Secondary                               | 28.9 (11,280) | 45.6 (13,957) | 36.2 (25,237) |
| Higher                                   | 2.7 (1055) | 16.5 (4988) | 8.8 (6043) |
| Husband’s education, % (n)              |        |        |          |
| No education                             | 30.1 (11,792) | 13.6 (4147) | 22.9 (15,939) |
| Primary                                 | 18.3 (7179) | 11.8 (3610) | 15.5 (10,789) |
| Secondary                               | 43.7 (17,118) | 50.7 (15,492) | 46.8 (32,610) |
| Higher                                   | 6.7 (2640) | 23.2 (7088) | 14.0 (99,728) |
| Respondents working status, % (n)       |        |        |          |
| Working                                  | 51.1 (9492) | 31.0 (20,024) | 43.8 (29,516) |
| Not working                              | 48.9 (21,068) | 69.0 (19,119) | 56.2 (40,187) |
| Husband’s working status, % (n)         |        |        |          |
| Working                                  | 98.1 (38,318) | 98.0 (29,872) | 98.1 (68,190) |
| Not working                              | 1.8 (700) | 1.9 (593) | 1.8 (1293) |
| Husband drinks alcohol, % (n)           |        |        |          |
| Yes                                      | 38.3 (14,917) | 36.0 (10,985) | 37.1 (25,902) |
| No                                       | 61.7 (24,002) | 63.9 (19,511) | 62.9 (43,513) |
| Type of family, % (n)                    |        |        |          |
| Nuclear                                  | 56.5 (22,112) | 60.9 (18,557) | 58.4 (40,669) |
| Joint                                    | 40.5 (15,635) | 36.5 (11,203) | 38.4 (26,838) |
| Standard of living, % (n)                |        |        |          |
| Low                                      | 31.5 (12,134) | 7.8 (2350) | 21.1 (14,484) |
| Medium                                   | 36.5 (13,977) | 24.4 (7331) | 31.2 (21,308) |
| High                                     | 28.4 (10,798) | 65.1 (19,399) | 44.5 (30,197) |
of experiencing IPV by women (Table III). In addition, higher spousal age, rural residence, nuclear household and lower standard of living were positively associated with the experience of IPV by the women (P<0.05). Women whose husbands did not consume alcohol did not experience IPV. Women who witnessed their father beat their mother were also at higher risk of experiencing violence. HIV-positive status of women as well as women from high HIV prevalent State are at increased odds of IPV (P<0.05).

Physical violence only: The correlates associated with women experiencing physical violence were similar to IPV except HIV status of women. HIV-positive status of women was not found to be associated with physical violence, however, analysis showed that women from high HIV prevalent State were at increased odds of physical violence (P<0.05).

Emotional violence only: The results were similar to physical violence except that residence and household structure were not associated with women experiencing emotional violence (Table III).

Sexual violence only: All the correlates considered in the analysis were significant in predicting sexual violence except residence, household structure and husband’s education level (Table III). HIV-positive status of women, as well as women from high HIV prevalent States, showed strong association with women experiencing sexual violence with increased odds of 1.71 and 2.42, respectively (P<0.05) (Table III).

Association of violence with STIs and HIV: Table IV depicts the percentage of women by HIV status and women who reported having STDs, genital sore/ulcer and genital discharge in the 12 months preceding the survey. NFHS-3 indicated that 0.28 per cent of adults age 15-49yr were infected with HIV. The HIV prevalence rate was 0.22 per cent for women (95% CI=0.23-0.33)\(^2\). When the association of violence with HIV was studied, it revealed that higher percentage of HIV-positive women reported experiencing violence as compared to women who never experienced violence. Overall, a total of 786 women (1.1%) reported having STD, 1415 (2.0%) reported having genital sore/ulcer and 5941 women (8.5%) reported having genital discharge in the past 12 months. Higher percentage of women experiencing violence reported STIs. The odds of reporting STIs with the exposure of violence were calculated. The OR was significant and equal to 2.20 (95% CI=0.91-2.56) of having STD for women reporting IPV. Similarly, significantly higher proportion of women experiencing IPV reported genital sore/ulcer (OR=3.02, 95% CI=2.71-3.37) and genital discharge (OR=2.55, 95% CI=2.41-2.69).

Discussion

The past two decades have seen an increase in both international attention and programmatic efforts towards developing interventions to prevent and respond to violence against women. The 2010 Global Burden of Disease Study ranks IPV as 5\(^{th}\) in years of life lost as a result of disability for women\(^1\). Our analysis showed a high prevalence of violence against women in India (35.3%). Other studies overestimated lifetime prevalence of IPV in the range of 20-50 per cent\(^2,19\). WHO multi-country study\(^1\) on IPV in 10 countries estimated physical violence in the range of 13-61 per cent and sexual violence at 6-59 per cent. Our findings corroborated with the studies carried out in both developed and developing countries\(^16,19-23\).

The findings from our study demonstrated some key predictors associated with IPV, such as younger age of women, higher number of children, low level of education of women as well as her partner, working status of women, alcohol consumption by husband, higher spousal age, rural residence, nuclear household and lower standard of living. Studies conducted worldwide have attempted to explain several of these
Table III. Logistic regression with adjusted odds ratio and 95 per cent CI dependent variable: Physical and/or emotional and/or sexual violence, physical violence only, emotional violence only and sexual violence only

| Variables                          | Exp β (95% CI) | Frequency (n) |
|------------------------------------|----------------|---------------|
|                                    | Physical and/or emotional and/or sexual violence | Only physical violence | Only emotional violence | Only sexual violence |
| Age of the respondent (yr)         |                |               |
| 15-19'                             | 1.00'          | 1.00'         | 1.00'                  | 1.00'                  | 1239               |
| 20-24                              | 1.14 (0.99-1.33) | 1.26 (1.08-1.47) | 0.94 (0.77-1.15)      | 0.85 (0.66-1.09)      | 4540               |
| 25-29                              | 1.13 (0.97-1.31) | 1.21 (1.04-1.42) | 1.03 (0.85-1.26)      | 0.78 (0.60-1.01)      | 6364               |
| 30-34                              | 1.03 (0.88-1.20) | 1.12 (0.96-1.31) | 0.97 (0.79-1.19)      | 0.71 (0.55-0.92)      | 6131               |
| 35-39                              | 1.01 (0.86-1.19) | 1.11 (0.94-1.32) | 0.98 (0.79-1.22)      | 0.67 (0.50-0.88)      | 4928               |
| 40-44                              | 0.92 (0.77-1.11) | 0.97 (0.81-1.18) | 0.95 (0.75-1.21)      | 0.58 (0.42-0.80)      | 3600               |
| 45-49                              | 0.87 (0.72-1.05) | 0.93 (0.76-1.13) | 0.84 (0.65-1.08)      | 0.53 (0.37-0.75)      | 2523               |
| Total number of children           |                |               |
| No children                        | 1.00'          | 1.00'         | 1.00'                  | 1.00'                  | 2579               |
| 1-2 children                       | 1.32 (1.18-1.46) | 1.33 (1.19-1.48) | 1.17 (1.01-1.35)      | 1.03 (0.85-1.25)      | 13,051             |
| 3-4 children                       | 1.59 (1.42-1.78) | 1.66 (1.48-1.87) | 1.25 (1.07-1.46)      | 1.21 (0.99-1.48)      | 9669               |
| 5+ children                        | 2.03 (1.79-2.31) | 2.18 (1.91-2.49) | 1.31 (1.10-1.55)      | 1.38 (1.10-1.73)      | 4026               |
| Education of the respondent        |                |               |
| No education                       | 1.00'          | 1.00'         | 1.00'                  | 1.00'                  | 11,454             |
| Primary                            | 0.99 (0.90-1.10) | 1.02 (0.92-1.13) | 1.03 (0.90-1.18)      | 1.21 (1.01-1.45)      | 4587               |
| Secondary                          | 0.74 (0.67-0.82) | 0.75 (0.68-0.83) | 0.83 (0.72-0.95)      | 1.00 (0.90-1.20)      | 10,704             |
| Higher                             | 0.35 (0.30-0.42) | 0.35 (0.29-0.41) | 0.43 (0.34-0.55)      | 0.59 (0.42-0.83)      | 2580               |
| Working status of the respondent   |                |               |
| Not working                        | 1.00'          | 1.00'         | 1.00'                  | 1.00'                  | 16,136             |
| Working                            | 1.29 (1.22-1.36) | 1.25 (1.18-1.32) | 1.39 (1.30-1.50)      | 1.36 (1.23-1.51)      | 13,189             |
| State                              |                |               |
| Low HIV prevalent                  | 1.00'          | 1.00'         | 1.00'                  | 1.00'                  | 12,383             |
| High HIV prevalent                 | 1.25 (1.19-1.32) | 1.16 (1.10-1.23) | 1.21 (1.12-1.30)      | 2.42 (2.19-2.68)      | 16,942             |
| HIV status of women                |                |               |
| HIV negative'                      | 1.00'          | 1.00'         | 1.00'                  | 1.00'                  | 29,186             |
| HIV positive                       | 1.22 (1.09-1.75) | 1.15 (0.80-1.64) | 0.84 (0.53-1.32)      | 1.71 (1.02-2.85)      | 139                |
| Husband’s characteristics           |                |               |
| No education                       | 1.00'          | 1.00'         | 1.00'                  | 1.00'                  | 6601               |
| Primary                            | 1.15 (1.06-1.25) | 1.15 (1.05-1.25) | 1.08 (0.97-1.21)      | 1.17 (1.01-1.35)      | 4447               |
| Secondary                          | 0.99 (0.92-1.07) | 0.94 (0.88-1.02) | 0.90 (0.82-1.00)      | 1.09 (0.95-1.24)      | 13,907             |
| Higher                             | 0.84 (0.75-0.95) | 0.77 (0.68-0.87) | 0.75 (0.63-0.89)      | 1.01 (0.80-1.27)      | 4168               |
| Husband’s working status           |                |               |
| Not working                        | 1              | 1             | 1                      | 1                      | 397                |
| Working                            | 0.97 (0.78-1.21) | 1.05 (0.84-1.31) | 0.77 (0.59-1.01)      | 0.87 (0.59-1.27)      | 28,911             |

Contd...
| Variables | Physical and/or emotional and/or sexual violence | Only physical violence | Only emotional violence | Only sexual violence | Frequency (n) |
|-----------|-----------------------------------------------|-----------------------|------------------------|---------------------|--------------|
| Alcohol use |                                               |                       |                        |                     |              |
| No        | 1.00*                                          | 1.00*                 | 1.00*                  | 1.00*               | 11,197       |
| Yes       | 2.47 (2.35-2.60)                               | 2.51 (2.38-2.64)      | 2.19 (2.05-2.35)       | 2.48 (2.25-2.73)    | 18,128       |
| Marital duration |                                       |                       |                        |                     |              |
| 0-4 yr    | 1.00                                           | 1.00                  | 1.00                   | 1.00                | 21,826       |
| 5 or more yr | 1.02 (0.93-1.12)                               | 1.03 (0.94-1.12)      | 1.05 (0.92-1.19)       | 1.03 (0.86-1.24)    | 7499         |
| Union characteristics |                                     |                       |                        |                     |              |
| Gender difference in age (yr) |                                           |                       |                        |                     |              |
| 0-4*      | 1.00                                           | 1.00                  | 1.00                   | 1.00                | 10,855       |
| 5-9       | 0.84 (0.75-0.94)                               | 0.81 (0.72-0.90)      | 0.52 (0.45-0.58)       | 0.56 (0.47-0.66)    | 11,321       |
| 10-14     | 0.75 (0.66-0.84)                               | 0.70 (0.62-0.79)      | 0.51 (0.44-0.59)       | 0.56 (0.45-0.68)    | 3706         |
| 15+       | 0.81 (0.68-0.96)                               | 0.78 (0.66-0.93)      | 0.60 (0.49-0.74)       | 0.73 (0.55-0.97)    | 964          |
| Husband younger |                                             |                       |                        |                     |              |
| 0.76 (0.68-0.85) | 0.73 (0.66-0.82) | 0.51 (0.45-0.57) | 0.57 (0.48-0.68)       | 652                 |
| Gender difference in education |                                           |                       |                        |                     |              |
| Equally educated* | 1.00                                           | 1.00                  | 1.00                   | 1.00                | 4414         |
| Wife more educated | 1.01 (0.92-1.10)                              | 0.99 (0.89-1.08)      | 1.07 (0.94-1.21)       | 0.90 (0.75-1.07)    | 6830         |
| Wife less educated | 1.06 (0.97-1.16)                              | 1.02 (0.94-1.12)      | 1.33 (1.00-1.28)       | 0.99 (0.84-1.18)    | 6614         |
| Household characteristics |                                       |                       |                        |                     |              |
| Type of residence |                                           |                       |                        |                     |              |
| Urban* | 1.00                                           | 1.00                  | 1.00                   | 1.00                | 13,717       |
| Rural    | 0.91 (0.86-0.97)                               | 0.83 (0.78-0.88)      | 0.93 (0.86-1.00)       | 0.98 (0.88-1.09)    | 15,608       |
| Household structure |                                       |                       |                        |                     |              |
| Nuclear | 1.00                                           | 1.00                  | 1.00                   | 1.00                | 17,466       |
| Joint    | 0.91 (0.86-0.97)                               | 0.88 (0.83-0.94)      | 0.83 (0.76-0.91)       | 1.02 (0.92-1.12)    | 10,983       |
| Household standard of living |                                     |                       |                        |                     |              |
| Low*     | 1.00                                           | 1.00                  | 1.00                   | 1.00*               | 6065         |
| Medium   | 0.86 (0.80-0.92)                               | 0.88 (0.82-0.94)      | 0.83 (0.76-0.91)       | 0.89 (0.79-1.01)    | 9452         |
| High     | 0.63 (0.58-0.65)                               | 0.62 (0.57-0.68)      | 0.69 (0.62-0.77)       | 0.63 (0.54-0.74)    | 12,932       |
| Intergenerational characteristics |                                      |                       |                        |                     |              |
| Did women witness violence in childhood |                                           |                       |                        |                     |              |
| No*      | 1.00                                           | 1.00                  | 1.00                   | 1.00                | 2417         |
| Yes      | 1.49 (1.32-1.73)                               | 1.58 (1.47-1.69)      | 1.70 (1.55-1.85)       | 1.38 (1.24-1.53)    | 2608         |

Source: Ref 12

*Reference category, *significant at 0.05 level of significance. (i) Gender difference in age is (husband’s age - wife’s age), if difference is negative it is categorized as husband younger and if difference is positive further categorized into husband elder to wife by (0-4), (5-9)… 5+ years; (ii) gender difference in education is (husband’s years of education - wife’s years of education); (iii) as per NFHS-3, primary education implies 1-5 standard, secondary education implies 6-12 standard and higher education implies >12 standard; (iv) nuclear households are households comprising a married couple or a man or a woman living alone or with unrelated children (biological, adopted or fostered) with or without unrelated individuals. CI, confidence interval; NFHS-3, National Family Health Survey 3
factors and their interplay with violence against women\textsuperscript{3,24,25}.

IPV and HIV are hypothesized to have critical intersections, and women’s vulnerability to HIV may be influenced by violence caused by culturally accepted gender inequalities\textsuperscript{26}. The finding of our study about a significant positive association between HIV status and IPV in married women in general population in India hints towards new pathways that link violence and HIV. It suggests that the pathways do not rely almost exclusively on higher risk behaviours, but IPV in married women may also be an independent risk factor for HIV. Our analysis showed HIV-positive status of women as well as women from high HIV prevalent State to be positively associated with experiencing sexual violence with increased odds. Our study also showed an association between violence and STIs. Dunkle and Decker\textsuperscript{27} have suggested a possible intersection of IPV with HIV infection. HIV transmission risk is higher in the presence of other STIs and when exposed to sexual secretions and/or blood\textsuperscript{28}. IPV is an important correlate of a wide range of adverse reproductive health outcomes for women, including STIs\textsuperscript{25}. However, much of the evidence pertains to the developed world and draws heavily on data from patients at STI clinics or women in IPV shelters\textsuperscript{29}, leaving largely unanswered the question of whether the positive IPV-STI association is equally applicable to women in the general population of developing countries. Our study analysis provides the association in general population at a national level for India.

While the evidence is not conclusive, research suggests that violence limits women’s ability to negotiate condom use\textsuperscript{30,31}. Violence or fear of violence has also been implicated as a barrier to disclosure of HIV status among those women who do seek testing. For many women worldwide, the threat of violence exacerbates their risk of contracting HIV. Studies show the increasing links between violence against women and HIV and demonstrate that HIV-infected women are more likely to have experienced violence and those women who experience violence are at higher risk for HIV\textsuperscript{32,33}. A systematic review and meta-analysis on association between IPV and HIV pooled results of 28 studies indicated that physical IPV [pooled relative risk (RR) (95% CI): 1.22 (1.01, 1.46)] and any type of IPV [pooled RR (95% CI): 1.28 (1.00, 1.64)] were significantly associated with HIV infection among women\textsuperscript{34}. Our findings support arguments that partner violence increases women’s risk of HIV and STIs.

Limitations of the current study included the inability to establish a temporal relationship based on the cross-sectional nature of the data. There could be recall and information bias as STIs were self-reported and retrospective. Because of the sensitivities attached with violence, it was possible that women underreported their experience owing to social desirability bias. To conclude, our data analysis indicated all forms of violence against women to be prevalent in India. This study also showed a significant association between HIV/STIs and IPV.

| Experience of violence perpetuated by husband | HIV status\textsuperscript{*} | Percentage of self-reported STIs in the past 12 months |
|-----------------------------------------------|-----------------------------|-----------------------------------------------|
|                                               | HIV positive | HIV negative | STD\textsuperscript{*} | Genital sore/ulcer\textsuperscript{*} | Genital discharge\textsuperscript{*} |
| Physical and/or emotional and/or sexual violence |            |                          |                      |                                |
| Ever experienced                              | 50.0 (72)   | 37.4 (1167)   | 53.9 (424)   | 61.4 (869)   | 55.9 (3320)   |
| Never experienced                             | 49.3 (71)   | 62.6 (18,712) | 34.9 (23,897)| 34.6 (23,465)| 33.1 (21,003)|
| Physical violence                             |            |                          |                      |                                |
| Ever experienced                              | 45.8 (66)   | 34.0 (10,162)  | 49.4 (388)   | 55.3 (782)   | 49.8 (2957)   |
| Never experienced                             | 53.5 (77)   | 66.0 (19,718)  | 30.6 (20,985)| 30.3 (20,605)| 29.1 (18,418)|
| Emotional violence                            |            |                          |                      |                                |
| Ever experienced                              | 18.1 (26)   | 14.2 (4254)    | 25.4 (199)   | 30.8 (436)   | 25.4 (1506)   |
| Never experienced                             | 81.9 (118)  | 85.8 (25,627)  | 14.0 (9582)  | 13.8 (9349)  | 13.1 (8276)   |
| Sexual violence                               |            |                          |                      |                                |
| Ever experienced                              | 12.5 (18)   | 6.9 (2062)     | 14.0 (110)   | 21.5 (304)   | 18.4 (1091)   |
| Never experienced                             | 87.5 (126)  | 93.1 (27,817)  | 8.3 (5649)   | 8.0 (5454)   | 7.4 (4663)    |

\*Significant at 0.05 level with all the forms of violence. STD, sexually transmitted disease
contributing considerably to women’s vulnerability to HIV and STIs.

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Conflicts of Interest: None.

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