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## The intersection of intimate partner violence against women and HIV/AIDS: a review

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### Abstract

The objective of this study was to review original research on the intersection of violence against women by intimate partners and risk for HIV infection and highlight opportunities for new research and programme development. Seventy-one articles presenting original, peer-reviewed research conducted with females aged 12 years and older in heterosexual relationships during the past decade (1998–2007) were reviewed. Studies were eligible for inclusion if they addressed intimate partner violence (IPV) against women and HIV/AIDS as mutual risk factors. The prevalence of IPV and HIV infection among women varies globally, but females remain at elevated risk for both IPV and sexually transmitted/HIV infection, independently and concurrently. Comparisons between sero-negative and -positive women varied by geographic region; African HIV-positive women reported higher rates of victimisation while findings were inconsistent for HIV-positive women in the USA. Studies among various populations support the existence of a temporally and biologically complex relationship between HIV risk, lifetime exposure to violence and substance use, which are further complicated by gender and sexual decision-making norms. A possible link between violence-related post traumatic stress disorder and comorbid depression on immunity to HIV acquisition and HIV disease progression warrants further investigation. Sexual risk related to IPV works through both male and female behaviour, physiological consequences of violence and affects women across the lifespan. Further physiological and qualitative research is needed on the mechanisms of enhanced transmission; prospective studies are critical to address issues of causality and temporality. Prevention efforts should focus on the reduction of male-perpetrated IPV and male HIV risk behaviours in intimate partnerships.

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## Keywords

HIV/AIDS; intimate partner violence; review

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## Introduction

Nearly half of the 40 million people living with HIV/AIDS in the world today are women and women all around the world make up the fastest growing group of persons newly infected with HIV. A critical aspect of this trend is the intersection of HIV/AIDS and violence against women (VAW) (e.g. Dunkle et al., 2004; Gielen, O'Campo, Fuden, & Eke, 1997; Greenwood et al., 2002; Maman, Campbell, Sweat, & Gielen, 2000; Relf, 2001; Wingood & DiClemente, 1997; Wingood, 2001; Wyatt et al., 2002). Although men are also victims of violence, women are disproportionately victimised by intimate partners and, therefore, most affected by this intersection. While VAW can take on many forms, such as conflict-based sexual violence and human trafficking, the focus of this paper is intimate partner violence (IPV) and the associated risk for HIV infection.

The association between IPV and HIV infection has been the focus of a growing body of research that has begun to shed light on the complexities of this intersection. Based on previous research, the following interfaces are discussed further in this paper: (1) epidemiological studies showing significant overlap in prevalence; (2) studies showing IPV as a risk factor for HIV infection among women; (3) studies showing both past and current violent victimisation increasing HIV risk behaviours; (4) studies showing violence or fear of violence from an intimate partner associated with HIV testing; (5) studies showing IPV as a risk factor for sexually transmitted infections (STIs), which increases the rate of HIV infection; (6) studies showing the difficulties of negotiating safe sex behaviour for abused partners; (7) data suggesting that various adverse health effects related to IPV compromise women's immune systems in a way that increases their risk of HIV; (8) data indicating that abusive men are more likely to have other sexual partners unknown to their wives.

As critical as it is to address the global HIV epidemic, the associated issues of IPV and gender inequality remain inadequately addressed by most policy, research and prevention and intervention initiatives in the US and globally. This paper builds on reviews by Maman et al. (2002) and Gielen et al. (2007) and extends this previous work to provide a current review of the existent domestic and international literature on the intersection of IPV and HIV, highlighting areas of new research and identifying directions for initiatives by which this complex interface can be addressed.

## Review process

Peer-reviewed articles were identified using a systematic search of three databases: Pubmed; PsychINFO; and Scopus. The search was guided by the following key words and phrases: intimate partner violence; domestic violence; relationship abuse; physical abuse; sexual abuse; HIV/AIDS; STIs; sexual risk reduction and negotiation; condom use; immune system. The search was limited to studies published in English between 1998 and 2007 and included a special focus on articles addressing prevention and intervention strategies.

Studies were included in the review if they addressed HIV/AIDS as a risk factor for IPV or addressed IPV as a risk factor for HIV/AIDS. Studies presenting original data and focusing on heterosexual relationships among populations aged 12 years and older were included. A total of 71 articles were selected for full review. All authors participated in the review, summarising and synthesising the selected articles.

## Epidemiology of the problem

IPV is defined as physical and/or sexual assault or threats thereof between married, romantically involved partners or former partners. According to the 2005 US National Violence Against Women Survey, 64% of the women who reported at least one experience of rape, physical assault and/or stalking since age 18 years were victimised by a current or former husband, cohabitating partner, boyfriend or date. In addition, one in six women have experienced an attempted or completed rape, defined as a forced or threatened vaginal, oral or anal penetration, in their lifetime (Centers for Disease Control and Prevention, 2006a). Of all women surveyed, 18% said they had been the victim of a completed or attempted rape at some time in their life, of whom 22% were younger than age 12 years and 32% were aged 12 to 17 years when they were first raped (Centers for Disease Control and Prevention, 2006a).

Globally, the lifetime prevalence of physical violence by male partners among women surveyed in 15 sites in 10 countries ranged from 13 to 61%, with most sites reporting between 30 and 50% (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2005). The prevalence of lifetime sexual violence by intimate partners ranged from 6% in Japan city to 59% in Ethiopia province. Namibia and Tanzania had lifetime sexual violence estimates of 17 and 31%, respectively (Garcia-Moreno et al., 2005). These high rates are particularly alarming in light of the HIV/AIDS epidemic and the difficulty that women often face in protecting themselves from HIV infection.

Concurrently, the number of women with HIV infection and AIDS has increased steadily worldwide. By the end of 2007, according to Joint United Nations Programme on HIV/AIDS (UNAIDS)/WHO estimates, 15.5 million women worldwide were infected with HIV/AIDS (Joint United Nations Programme on HIV/AIDS, 2008). Similarly, the Centers for Disease Control and Prevention estimated the rate of HIV cases among women was 11.5 per 100,000, with women accounting for more than 80% of all new HIV/AIDS diagnoses in 2006 (Centers for Disease Control and Prevention, 2008). HIV disproportionately affects African American and Hispanic American women. Together they represent less than 25% of all US women, yet they account for more than 79% of AIDS cases in women (National Institutes of Health/National Institute of Allergy and Infectious Diseases, 2006).

Sub-Saharan African women remain the most highly affected by the HIV epidemic. Women aged 15 years and over account for 59% of those estimated to be living with HIV/AIDS in the region (Joint United Nations Programme on HIV/AIDS, 2008). The impact on women is even more pronounced in some countries within the region. In Botswana, for example, 61% of adults living with HIV/AIDS are women (World Health Organization, 2008a); in Kenya, it is 64% (World Health Organization, 2008b). Young women aged 15 to 24 years are especially vulnerable. In South Africa, 15– 24 year old women comprise 90% of new HIV infections and infection rates are up to six times higher among young women compared to men in the same age group (Rehle et al., 2007). The impact on young women is exacerbated by the fact that the population of sub-Saharan Africa is quite young relative to other regions in the world, with 44% of the population below the age of 15 years (compared to 29% globally) (Joint United Nations Programme on HIV/AIDS, 2006).

## Prevalence of HIV and IPV

Of the emerging research that addresses the intersection of IPV and HIV, several studies specifically focused on the concurrent experiences of HIV and IPV in the US and internationally. The following section presents prevalence estimates for selected groups of women as findings frequently vary by both the definition of IPV and the study population.

### Studies comparing HIV-positive and HIV-negative women

Results from community-based studies examining the intersection of HIV and violence comparing HIV-positive and -negative women within the US have been relatively consistent. McDonnell and colleagues (McDonnell, Gielen, O'Campo, & Burke, 2005; McDonnell, Gielen, & O'Campo, 2003) found no significant difference between HIV-seropositive and – seronegative women with regard to rates of physical, sexual or emotional abuse by an intimate partner. Cohen et al. (2000) also found no significant difference between HIV-positive and HIV-negative women with regard to lifetime experience of physical or sexual IPV, although a greater proportion of HIV-negative women reported past-year IPV (21 vs. 28%, respectively). Similarly, neither El-Bassel et al. (2007) nor Burke, Thieman, Gielen, O'Campo, and McDonnell (2005) found the risk for physical or sexual violence at the hands of an intimate partner to be significantly higher among seropositive women. No population-based studies were located that examined these differences between seropositive and seronegative women.

However, studies in international settings have found the risk of IPV to be consistently higher among HIV-positive women using multivariate logistic regression. Four sub-Saharan African studies conducted in South Africa, Tanzania and Kenya (Maman et al., 2002; Dunkle et al., 2004; Fonck, Leye, Kidula, Ndinya-Achola, & Temmerman, 2005; Jewkes et al., 2006a) showed that HIV-positive women report more lifetime partner violence compared to HIV-negative women, with the greatest difference reported in Tanzania (52 vs. 29%, respectively). Again, the studies were primarily community-based, except for Jewkes and colleagues, which used cluster sampling of 70 South African communities. Differences in definitions and measurement may explain discrepancies in findings between the US and Africa; past year and multiple types of abuse are more often measured in the US while lifetime exposure to a narrower range of abuse types are more typical of African studies. In addition, higher prevalence of HIV among African women may lead to greater effect sizes in the differences between abused and non-abused women.

### Studies with HIV-positive women

Three studies, all from the US, investigated HIV-positive women's experiences of IPV as adults. Prevalence estimates of physical IPV in the past 6 months ranged from 14.0 to 19.8% (Bogart et al., 2005; Henny, Kidder, Stall, & Wolitski, 2007), while the prevalence of exposure to (physical) IPV as an adult ranged from 60 to 67% and exposure to sexual abuse during adulthood ranged from 32 to 46% (Gielen, McDonnell, Burke, & O'Campo, 2000; Henny et al., 2007). This compares with the 12 month estimate for physical assault by an intimate partner of 1.3% and total victimisation by an intimate of 1.8% reported by women surveyed in the National Violence Against Women Survey (Centers for Disease Control and Prevention, 2006a). Comparisons of this type must be made cautiously, however, given different definitions, sampling methodologies and data collection techniques. Gielen et al. (2000) investigated abuse in relation to timing of HIV diagnosis and found that 13% of women reported combined experiences of both intimate partner and other perpetrator physical and sexual abuse after learning they were HIV positive.

### Studies comparing abused vs. non-abused women

Only two studies assessed HIV prevalence and HIV risk perception among abused and non-abused women (Molitor, Ruiz, Klausner, & McFarland, 2000; Raj, Silverman, & Amaro, 2004). Molitor et al. (2000) found that women with a history of forced sex were less likely to have been tested for HIV than non-abused women, but if tested were more likely to self-report HIV infection. Raj et al. (2004) showed that abused women were significantly more likely to report high HIV risk perceptions compared to their counterparts. Other studies have investigated the prevalence of other STIs among abused vs. non-abused women (Wingood,

DiClemente, & Raj, 2000a,b; Dude, 2007). Dude (2007) reported that Ukrainian women who have been physically abused by a sexual partner, whether in the past year or less recently, were significantly more likely to report having had an STI. Similarly, Wingood and colleagues found that women who had experienced both physical and sexual violence, compared to women who reported sexual abuse alone, were more likely to have had a recent STI and to have been threatened when negotiating condom use (Wingood et al., 2000a). Overall, abused women have been found to be more likely to self-report STIs than non-abused women in a number of additional US controlled investigations (Martin et al., 1999b; Coker et al., 2002; Champion, Shain, & Piper, 2004; Laughon et al., 2007). It is noteworthy, however, that several studies have found self-reports of STIs to have low validity due to under-reporting and misclassification (Fennema, Van Ameijden, Coutinho, & Van Den Hoek, 1995; Harrington et al., 2001).

### Studies with adolescents

Adolescents make up the fastest growing group of HIV-infected persons worldwide, with half of all incident cases found in youth aged 15–24 years. In 2006, adolescent girls (13–19 years) accounted for 34% of HIV cases in their age group in the US (Centers for Disease Control and Prevention, 2006b) and AIDS diagnoses among women and adolescent girls in the US rose from 8% in 1995 to 26% in 2006 (Centers for Disease Control and Prevention, 2008). In sub-Saharan Africa, where the highest HIV prevalence rates in the world are found, women constituted 61% of all people living with HIV/AIDS, a figure that rises to 76% among young people aged 15 to 24 years (Henry J. Kaiser Family Foundation (KFF), 2006; Joint United Nations Programme on HIV/AIDS, 2007). Evidence suggests that, globally, most people become sexually active during adolescence. In the US and other high-income countries, intimate partnerships most commonly begin in the form of dating relationships (Wolfe & Feiring, 2000). In many less industrialised countries, marriage is usual in female adolescence (and puberty) and in some regions up to 50% of women are married by the age of 18 years (Haberland, Chong, & Bracken 2004). Further evidence suggests that IPV is common in dating relationships in Westernised countries, with a prevalence ranging between 6 and 46% of adolescents (Foshee et al., 1996; Ackard, Neumark-Sztaine, & Hannan, 2003; Coker et al., 2000; Glass et al., 2003; Spencer & Bryant, 2000; Valois, Oeltmann, Waller, & Hussey, 1999; Watson, Cascardi, Avery-Leaf, & O'Leary, 2001). IPV has also been described as common in early marriages (Jenson & Thornton, 2003). The dynamics of IPV may be different in dating relationships vs. early marriages, but they have never been compared cross nationally. A recent review of five population-based and one community sample US research reports of IPV, condom use and HIV risk for adolescent girls (Teitelman, Dichter, Cederbaum, & Campbell, 2007) concluded there was evidence from all six studies of a significant association of physical partner violence and inconsistent or non-condom use. Comparable studies have not been conducted in low- and middle-income countries among adolescents.

### IPV and HIV: Mutual risk factors

Several mechanisms may explain how exposure to IPV increases a woman's risk of STIs, although due to the complex nature of the two issues exact causal relationships have been difficult to ascertain. Maman and colleagues hypothesised that exposure to IPV can increase women's risk for HIV infection in three ways: (1) through forced sex with an infected partner; (2) through limited or compromised negotiation of safer sex practices; (3) through increased sexual risk-taking behaviours (Maman et al., 2000). These mechanisms may operate in tandem or individually and have particular significance for adolescent girls in sexual relationships with older men (Garcia-Moreno et al., 2005).



## Biology and forced sex

Current evidence suggests that women are biologically more vulnerable than men to contracting HIV through heterosexual encounters. Women's increased vulnerability is thought to be due to the larger surface area of mucous membrane exposed during sex in women compared to men, higher volume of fluids transferred from men to women than vice versa and the higher viral content in male sexual fluids (Joint United Nations Programme on HIV/AIDS, 2002; Turmen, 2003). Research has shown that abuse in a relationship increases the risk for STI four-fold (Campbell & Soeken, 1999; Wingood et al., 2000a,b; Koenig et al., 2004; Dude, 2007). Forced sex occurs in approximately 40 to 45% of physically violent intimate relationships and increases a woman's risk for STIs by two to 10 times over that of physical abuse alone (Campbell & Soeken, 1999; Wingood et al., 2000a). As a result of forced sex, genital injuries, such as vaginal or rectal lacerations, facilitate disease transmission (Liebschutz, Feinman, Sullivan, Stein, & Samet, 2000). Additionally, Lichtenstein and others found that abusive partners used deliberate HIV infection, lack of disclosure about known serostatus and forced injection drug use as mechanisms to control and endanger their intimate partners (Lichtenstein, 2005; Neundorfer, Harris, Britton, & Lynch, 2005).

## Sexual decision making and intimate partner violence

IPV also impairs open communication between partners regarding safe sex practices including condom negotiation, monogamy and HIV status disclosure. Kalichman and colleagues (1998) found that women with abusive partners were more likely to fear negotiating condom use, believing that her insistence may be seen as implying unfaithfulness or untrust-worthiness of either partner. Additional research has shown that a woman's fear of her partner's potentially violent reaction to suggesting condom use hinders her ability to negotiate safe sexual health practices, which is a critical component to enhancing women's health, particularly in the area of HIV prevention (Davila & Brackley, 1999; Davila, 2002; Champion et al., 2004). Additionally, this fear of violence can influence whether a woman utilises voluntary counselling and testing services (Karamagi, Tumwine, Tylleskar, & Heggenhougen, 2006).

Communication about sexual and reproductive health is also impacted by cultural norms. In the US, Davila and colleagues found that males were the primary decision makers regarding safe sexual practices, particularly among married women, who reported less ability to negotiate condom use than single/dating women (Davila & Brackley, 1999; Davila, 2002). Similarly, several studies have demonstrated the impact of relationship status and power on sexual health practices. In South Africa, Pettifor's study (Pettifor, Measham, Rees, & Padian, 2004) found that low relationship power is significantly associated with inconsistent condom use among women. In the same region, Dunkle and colleagues (2004) found that pregnant women with low relationship power are at a two-fold risk for never using a condom as compared to those women who feel they have high levels of power in the relationship.

Further, a history or diagnosis of an STI may be an initiating factor for partner violence (Gielen et al. 2000; Zierler et al., 2000; Koenig et al., 2002; Medley, Garcia-Moreno, McGill, & Maman, 2004). Studies by Maman et al. (2002) and Kiarie and colleagues (2006) found that this fear was substantiated, as HIV-positive women were up to two times more likely to experience immediate violence after disclosure than HIV-negative women. Fear of violence from an intimate partner may also serve as a barrier to HIV-positive women seeking and obtaining needed health care (Lichtenstein, 2005).

### **Intimate partner violence, substance use and HIV**

The relationship between IPV, HIV risk and substance use is particularly complex. Studies in the US have found that women exposed to abuse during childhood or adulthood are more likely to abuse alcohol and illicit substances at some point in their lives (Beadnell, Baker, Morrison, & Knox, 2000; Gilbert et al., 2000; Wingood et al., 2000a). Substance abuse, in turn, has been associated with sexual risk behaviours (Collins, Ellickson, Orlando, & Klein, 2005; El-Bassel, Gilbert, Rajah, Foleno, & Frye, 2000). Although there have been a few longitudinal studies to assess temporality between IPV and HIV risk, as well as substance use and IPV (Tucker, Wenzel, Elliott, Marshall, & Williamson, 2004; El-Bassel, Gilbert, Wu, Go, & Hill, 2005a,b), further research using different populations and settings are needed to elucidate the temporal relationship of the factors. For example, exposure (as a witness or victim) to abuse during childhood has been documented as a risk factor for victimisation by an intimate partner later in life (Tjaden & Thoennes, 2000). Viewed from a life-course perspective, the precise relationship between substance use – a known risk factor for sexual risk-taking behaviour – and IPV – a known precursor for substance use – is difficult to ascertain. Finally, STI and HIV risk may also be indirectly exacerbated by the victim's psychological trauma of violence and abuse leading to impaired decision making, substance abuse and greater risk taking (Campbell & Lewandowski, 1997; Miller, Cain, Rogers, Gribble, & Turner, 1999). In spite of the role that substance abuse plays in HIV and IPV in the USA, it is rarely considered in the HIV transmission picture in low- and middle-income countries.

### **Compromised immunofunction among abused women**

Women who experience IPV suffer a wide and well-documented range of adverse health consequences, including increased prevalence of stress, depression and chronic anxiety (Golding, 1999; Campbell, 2002; Pico-Alfonso et al., 2006). A few recent US-based studies have explored the impact of violence victimisation on immune system functioning in women. Significant associations have been found between IPV and altered red blood cell and decreased T-cell function (Constantino, Sekula, Rabin, & Stone, 2000; Brokaw et al., 2002). Further research has revealed associations between violence and hypothalamic-pituitary-adrenal axis functioning, such that women in abusive relationships had greater occurrence of altered levels of cortisol and dehydroepiandrosterone (Griffin, Resick, & Yehuda, 2005; Pico-Alfonso, Garcia-Linares, Celda-Navarro, Herbert, & Martinez, 2004; Seedat, Stein, Kennedy, & Hauger, 2003) compared to non-abused women. Other studies have found that partner violence alters neuropsychological functioning (Stein, Kennedy, & Twamley, 2002) and negatively impacts immune responses related to HSV-1 infection (Garcia-Linares, Sanchez-Lorente, Coe, & Martinez, 2004). Woods (2000) explored the interrelationship of IPV, psychopathology and immune system functioning to determine if post traumatic stress disorder (PTSD) symptoms mediate the effect of violence on cytokine levels. Their findings indicate that cytokine values were higher among women who were abused and experiencing PTSD, suggesting mediation and a partial explanation for comorbidities of mental and physical health symptoms in victims of violence.

A similar body of existent literature demonstrates a strong relationship between stress and other psychosocial factors with disease progression in HIV-infected persons. Specifically, HIV-infected people have been found to suffer from adverse mental health sequelae (including stress and depression), which, in turn, have been associated with increased morbidity (Ickovics et al., 2001) and faster progression to AIDS (Kimerling et al., 1999; Leserman et al., 1999, 2002). A rapidly growing body of literature indicates the impact of PTSD and depression on HIV biomarkers, including decreased CD4 counts and immune decrements (Boarts, Sledjeski, Bogart, & Delahanty, 2006; Delahanty, Bogart, & Figler, 2004; Sledjeski, Delahanty, & Bogart, 2005).

Despite increasing attention being paid to how stress and immune function relate to IPV and HIV, no known research has investigated the hypotheses that an association exists between abuse and reduced immunity to HIV acquisition or that IPV might be associated with increased disease progression (reduction of CD4 levels) among HIV-infected women. A striking commonality does exist, however, in the above referenced findings on IPV and immune function and HIV and immune function, namely, that the depressive episodes described in both associations have the same effects on the immune system. These findings suggest that research is warranted on the impact of violence-related PTSD and comorbid depression on immunity to HIV acquisition and disease progression in HIV-infected women.

## Male behaviour, intimate partner violence and HIV

Several studies conducted in international settings have found that male perpetrators of IPV engage in behaviour that puts their partners at greater risk for HIV. Self-reported information by women regarding their partner's behaviour within their relationship suggest that abused women report more high-risk behaviours among their partners than non-abused women (Garcia-Moreno et al., 2005). Unfortunately, few studies explore the HIV risk behaviours among perpetrators vs. non-perpetrators, as reported by men themselves. Six recent studies have addressed this gap. Although they are limited by their cross-sectional designs, limited measurement of violent behaviours, and potential under-reporting of sensitive behaviours, they consistently reflect an association between male engagement in HIV risk behaviour and perpetration of IPV.

The first study by Martin et al. (1999a) found that men who had extramarital sex were more likely to abuse their wives (physical abuse only: odds ratio (OR) = 2.03, 95% CI 1.78–4.15; sexual abuse without physical force: OR = 4.31, 95% CI 3.00–6.18; sexual abuse with physical force: OR = 6.22, 95% CI 3.98–9.72). In addition, they found that men who had STI symptoms before marriage, after marriage and currently were more likely to abuse their wives (current STIs – physical abuse only: OR = 1.77, 95% CI 1.33–2.36; sexual abuse without physical force: OR = 2.17, 95% CI 1.73–2.72); sexual abuse with physical force: OR = 2.43, 95% CI 1.73–3.42).

In a second study, Abrahams, Jewkes, Hoffmans, and Laubsher (2004) explored risk factors for male sexual IPV perpetration and found a significant association between the perpetration of sexual violence and two HIV risk behaviours: problematic alcohol use; and having more than one current partner. A third study by Dunkle et al. (2006), conducted in rural South Africa, found that perpetrators of violence are significantly more likely than non-perpetrators to have casual partners, engage in transactional sex, use drugs and alcohol and perpetrate non-IPV sexual assault. The level of risk behaviour was correlated with level of violence severity.

A multi-country study by Andersson, Ho-Foster, Mitchell, Scheepers, and Goldstein (2007) in sub-Saharan Africa similarly found that men who had multiple partners were two times more likely to also be perpetrators of violence, except in Mozambique. Lary, Maman, Katebalila, McCauley, and Mbwambo (2004) confirmed the association between partner violence perpetration and sexual infidelity in Tanzania. Finally, in Bangladesh, Silverman (Silverman, Decker, Kapur, Gupta, & Raj, 2007) found that perpetrators of physical and sexual violence were 1.8 times more likely to report both premarital and extramarital partners than their non-abusing counterparts. Those using physical violence were 1.7 times more likely to report STI symptoms or diagnosis than non-perpetrators and those perpetrators who had an STI diagnosis were somewhat less likely to disclose their infection status to their wives (OR = 1.58, 95% CI 0.93–2.70) than infected men not perpetrating physical violence. These recent data as well as findings from the WHO Multi-country Study



of Violence Against Women (Garcia-Moreno et al., 2005) provide evidence that men who perpetrate violence against their intimate partners are also more likely to engage in HIV risk behaviours than men who do not abuse their partners. This is of particular note given that data on such behaviours among male abusers are available from the perspective of the female survivors, as well as from the male abusers themselves.

## Conclusions

The research reviewed clearly indicates complex but real relationships between two epidemics threatening the health and safety of women in the US and around the world, particularly among low- and middle-income countries. The increased risk for HIV/AIDS related to VAW, particularly IPV, works through both male and female behaviour, through physiological consequences of violence and affects both adult women and adolescents. There is now evidence that all three behavioural areas proposed by Maman and colleagues (2000) are mechanisms by which the risk is increased: forced sex with an infected partner; limited or compromised negotiation of safer sex practices; and increased sexual risk-taking behaviours. Another mechanism found to be important is the increase in other STIs that accompany abuse and facilitate HIV transmission. There is beginning to be evidence of a connection between abuse-related immunocompromised states, which may have implications for both HIV infection, conversion from HIV to AIDS or AIDS-related infections such as tuberculosis. All of these connections need further investigation of the precise mechanisms of enhanced transmission in order to design effective prevention strategies. Further epidemiological studies are needed, but even more important is the need for studies that combine physiological and qualitative data with self-reported information so that these complex relationships can be better elucidated. Prospective studies are critical to address issues of causality and temporality, as almost all studies to date have been cross-sectional. Also imperative are studies that indicate how women who are being abused can protect themselves from HIV safely and, even more importantly, how to reduce IPV (e.g. Jewkes et al., 2006b; Pronyk et al., 2006). Finally, although similar risk factors for HIV and IPV have been identified among women around the world, significant differences exist in the quantity and quality of research conducted to date in various settings. Future efforts should target multiple low- and middle-income countries where the AIDS epidemic is widespread or emerging so that the effects of culture and context on the ways that HIV/AIDS risk is increased by VAW can be both better explicated and contextually understood.

## Implications for prevention

Given the evidence related to men's behaviour, efforts to prevent HIV need to focus on the reduction of male use of VAW as well as reduction of male HIV risk behaviours in intimate partnerships. The need to focus specifically on the reduction of multiple and concurrent partners to prevent HIV was one of two major recommendations at a recent meeting on preventing AIDS in high-HIV-prevalence countries in southern Africa convened by the Southern African Development Community and UNAIDS in 2006. After reviewing evidence reflecting the limited success of current HIV efforts and calls for revised HIV prevention strategies, two recommendations were made: one focused on male circumcision; and the second on the reduction of multiple and concurrent partners (Halperin & Epstein, 2007). What was missing was a recommendation about reducing violence in intimate partner relationships. Future policy and programmatic efforts must address this area of primary prevention in order to effectively reduce women's risk of HIV infection.

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