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**To cite this article:** Joanie Mitchell, Megan Wight, Alastair Van Heerden & Tamsen Jean Rochat (2016): Intimate partner violence, HIV, and mental health: a triple epidemic of global proportions, *International Review of Psychiatry*

**To link to this article:** <http://dx.doi.org/10.1080/09540261.2016.1217829>



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Published online: 06 Sep 2016.



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## Intimate partner violence, HIV, and mental health: a triple epidemic of global proportions

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### ABSTRACT

Intimate partner violence (IPV) is a global health problem of epidemic proportions, affecting a third of women across the globe and as many as 60% in heavily affected regions of Africa. There is strong evidence that risk of IPV is heightened in HIV-infected women, and emerging evidence linking experiencing IPV and/or HIV to a higher likelihood of experiencing mental health problems. This triple burden makes women in Africa, living in the epicentre of HIV, all the more vulnerable. In this synthesis, this study reviewed literature pertaining to the overlap of IPV, HIV, and mental health problems. It presents a series of geographical maps illustrating the heavy burden of IPV and HIV globally, and how these coincide with a growing prevalence of mental health problems in Africa. Furthermore, it presents evidence on: the association between IPV and HIV, shared risk factors, and health consequences. This synthesis sheds light on the fact that ~30% of women are affected by these three burdens concurrently, and the need for intervention is essential. Promising large scale interventions which have taken place in Africa are described, and evidence is presented in support of integrated versus targeted screening.

### ARTICLE HISTORY

Received 11 March 2016  
Revised 19 July 2016  
Accepted 23 July 2016

### KEYWORDS

Intimate partner violence; HIV; mental health; prevalence; risk factors; interventions

### Introduction

Intimate partner violence (IPV) is a global health problem of epidemic proportions, affecting a third of all women across the globe (Alhabib, Nur, & Jones, 2010; WHO, 2013). IPV is defined as physical, sexual, or psychological abuse perpetrated by a man or woman towards a partner within an intimate relationship. This includes forceful physical contact, sexual coercion, social isolation, and financial control (Krug, Mercy, Dahlberg, & Zwi, 2002; WHO, 2010). Both sexes can perpetrate or be victims of IPV. This is found in heterosexual and same-sex relationships; however, the overwhelming burden of IPV is experienced by women and perpetrated by men (WHO, 2010).

Exposure to IPV impacts negatively on women's health, including: physical, mental, and social well-being (Ellsberg, Jansen, Heise, Watts, & Garcia-Moreno, 2008). These adverse effects may be exacerbated in the presence of and interaction with other disease burdens (for example HIV and mental health problems), poverty, and stigma. There is also a

growing body of evidence linking IPV to a higher likelihood of HIV infection (Li et al., 2014).

Similarly it has been established that levels of mental health problems, in particular common mental disorders (CMD), are high in HIV-infected people and those experiencing IPV (Brandt, 2009; Lagdon, Armour, & Stringer, 2014). While existing literature has focused on the relationship of IPV to either CMD (Golding, 1999; Howard et al., 2010; Lipsky & Caetano, 2007) or to HIV (Kouyoumdjian, Findlay, Schwandt, & Calzavara, 2013; Siemienuk, Krentz, & Gill, 2013; WHO, 2004), the evidence is less robust for the connections between IPV and HIV, while considering CMD. In low- and middle-income countries (LMICs) with limited resources where integrated programming has the potential to reduce delivery costs, it is important to better understand the inter-relationship between IPV, HIV, and CMD.

The aim of this paper is to present a synthesis of current evidence on the following: the prevalence and interaction of IPV and HIV among women; how both IPV and HIV interact/overlap with a growing burden

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of CMD in Africa; risk factors and health consequences for IPV and HIV; and interventions addressing IPV in the context of HIV, including the potential for integrated interventions.

## Methods

### *Information sources and eligibility criteria*

An electronic literature search for articles published between December 1999 and December 2015 was conducted using the following databases: PubMed, MEDLINE, ScienceDirect, the Cochrane Database, EBSCOhost, PsycINFO, and Google Scholar. To be included, articles needed to be available in English, peer-reviewed, and include content on the following: IPV consequences, prevalence, risk factors, or interventions, or explore the relationship with IPV, HIV, and CMD. The reference lists of systematic reviews using multiple primary research papers were reviewed to identify any additional relevant studies. Search terms included 'intimate partner violence/domestic violence', 'HIV', 'mental health', 'health consequences', 'prevalence', 'risk factors', and 'interventions'.

### *Study selection*

A total of 739 publications were identified, and the titles and abstracts were reviewed using the reference management software, Endnote. Of these publications, 638 did not meet the criteria and were excluded based on title and abstract. A total of 113 articles were included for a detailed review and were used as sources of evidence in this synthesis.

Large scale agency websites (e.g. UNAIDS, WHO) were also scanned for relevant policy materials. The mapping exercise used the 21 Global Burden of Disease (GBD) regions to illustrate the data. Data on the percentage of HIV-related disability adjusted life years (DALYs) was sourced from the most recent 2010 GBD study (Vos et al., 2015). The GBD study provides open access data and is the largest, most comprehensive effort to date to measure epidemiological trends in disease. For the IPV prevalence rates, we used a recent meta-analytic review which presented estimates by GBD region (Devries, Mak, García-Moreno, et al., 2013).

## Prevalence

### *What are the global estimates of the prevalence of IPV?*

Using data from a systematic review and meta-analysis of IPV (Devries, Mak, García-Moreno, et al.,

2013), [Figure 1](#) shows the global lifetime prevalence of physical and/or sexual IPV, according to the GBD areas. Using data from 141 studies spanning 81 countries, the authors used meta-regression methods to estimate lifetime prevalence, adjusting for differences in study characteristics and quality. Globally, 30% (CI = 27.8–32.2%) of women aged 15 years and over have experienced physical and/or sexual intimate partner violence during their lifetime (Devries, Mak, García-Moreno, et al., 2013).

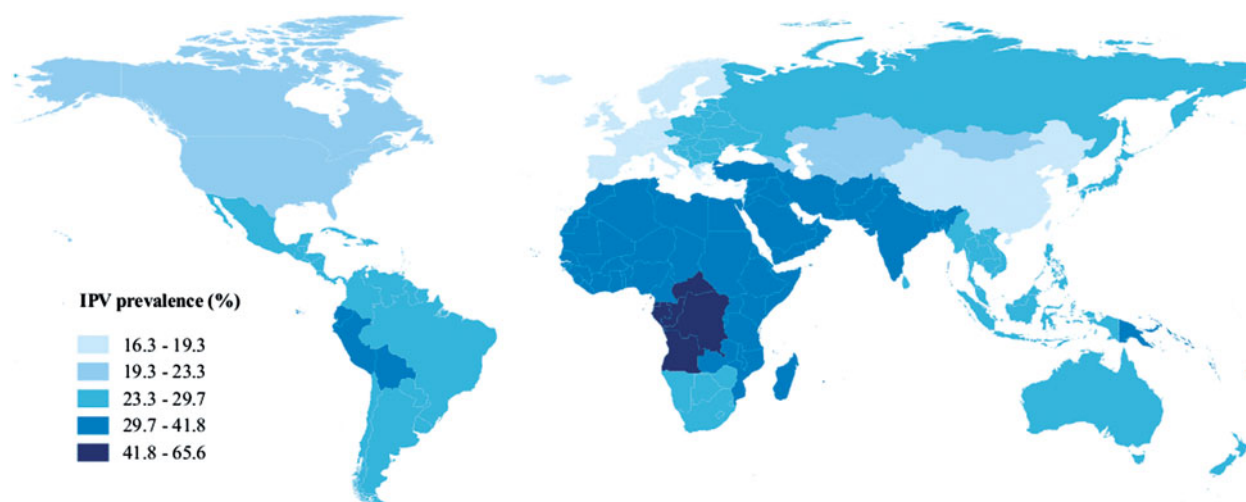
The regions with the highest measured lifetime prevalence of IPV are Central Sub-Saharan Africa (65.64%; CI = 53.57–77.71), South Asia (41.73; CI = 36.28–47.19), and Andean Latin America (40.63; CI = 34.81–46.45). The majority of the countries falling under these regions are LMICs, which is in line with the view that these countries carry a higher burden of IPV than high-income countries (HICs).

### *What are the most commonly reported categories of IPV?*

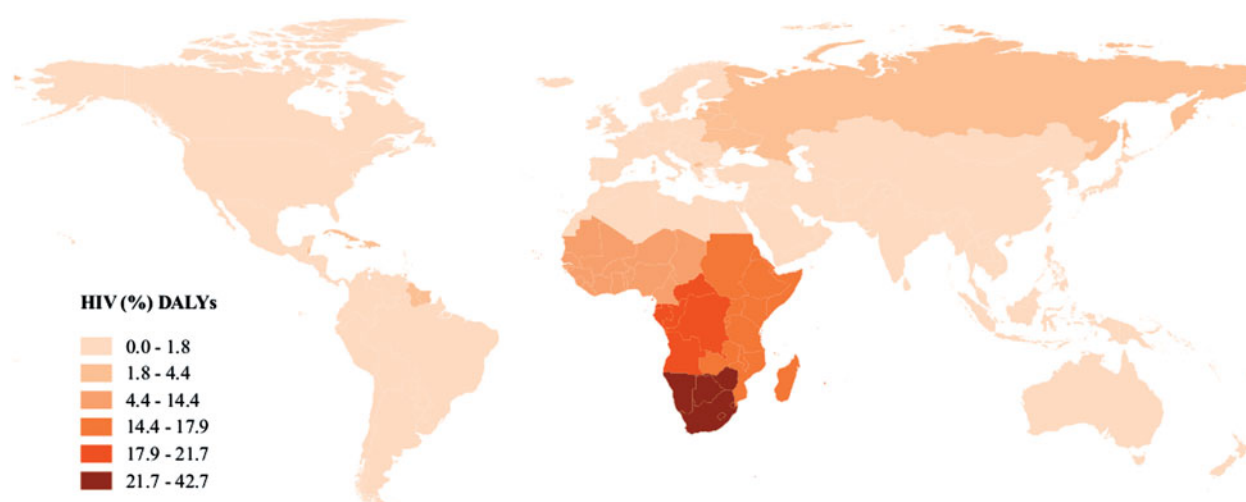
A multi-country study conducted by the World Health Organization (WHO), including data from 17 countries (seven LMICs; 10 HICs), showed that overall physical violence was more frequently reported than sexual violence, in exception of certain sites in Ethiopia, Bangladesh, and Thailand. Between 30–50% of women in most sites reported having experienced both physical and sexual violence (García-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006). Psychological abuse was also generally reported to be more common in individuals who suffered either, or both, physical and sexual IPV. Controlling behaviour varied greatly between countries (from 21–90%). This variability may be because psychological abuse is difficult to define and measure across different contexts.

### *What is the geographical overlap between IPV and HIV?*

HIV is a worldwide public health issue that disproportionately affects sub-Saharan Africa ([Figure 2](#)). A growing body of evidence shows that the HIV epidemic and the IPV burden overlap geographically. A systematic review showed that 10 studies from different regions of the world (East Africa, India, Papua New Guinea, the US, and Mexico) reported high prevalence rates of HIV in women exposed to IPV, and that HIV-infected women were more likely to have experienced multiple forms of IPV than HIV-uninfected women (Kouyoumdjian et al., 2013).



**Figure 1.** Illustrative map of the global prevalence of IPV against women aged 15 years and above, shown by GBD region. Data used to compile this map was sourced from Devries, Mak, García-Moreno, et al. (2013).



**Figure 2.** Illustrative map of DALYs (%) attributable to HIV for women aged 15–49. Data sourced from the Global Burden of Disease (GBD) study (Vos et al., 2015).

## The interaction between IPV and HIV

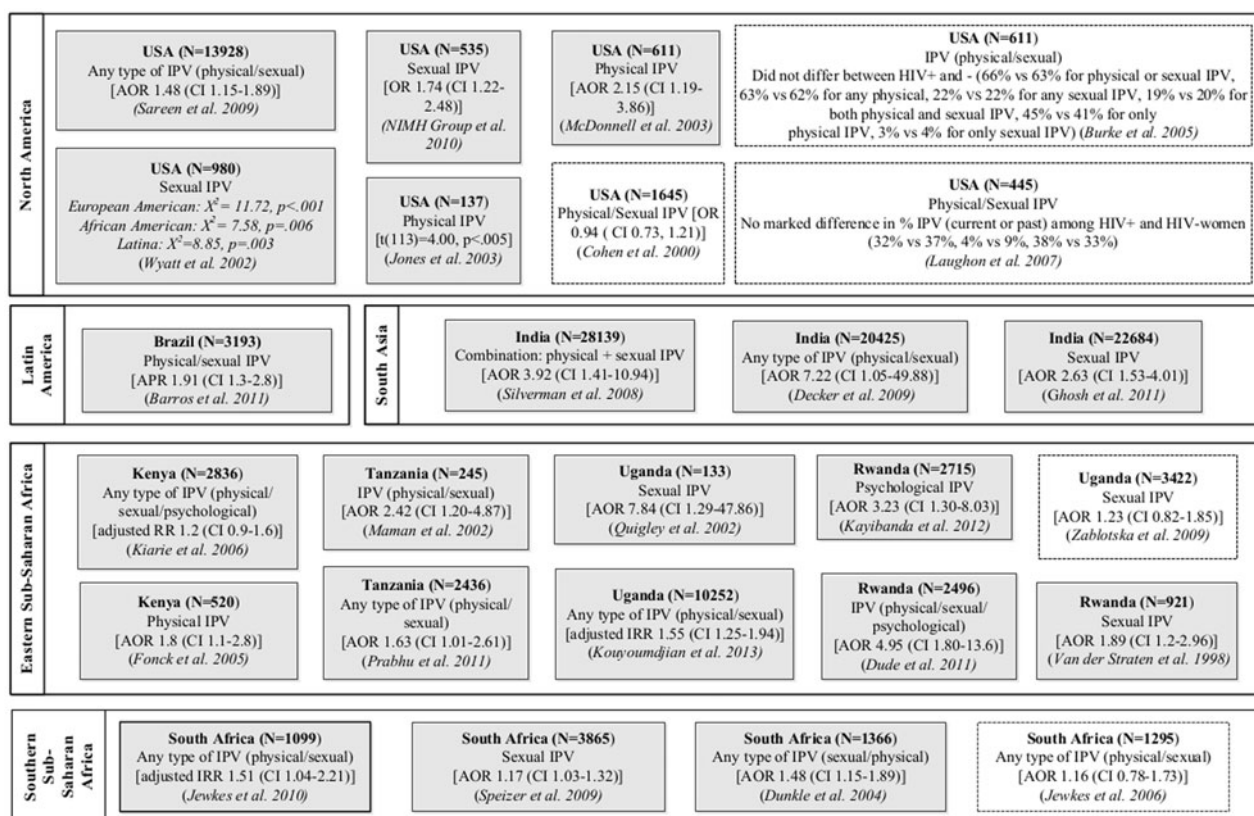
### *What evidence is there for an association?*

A recent systematic review illustrated the increasing evidence base for a significant association between IPV and HIV (Li et al., 2014). This review focused on women generally, as opposed to only high risk groups, and identified 28 related studies. Figure 3 illustrates these studies by their region of origin and includes: type of IPV, and whether a significant association to HIV was found or not.

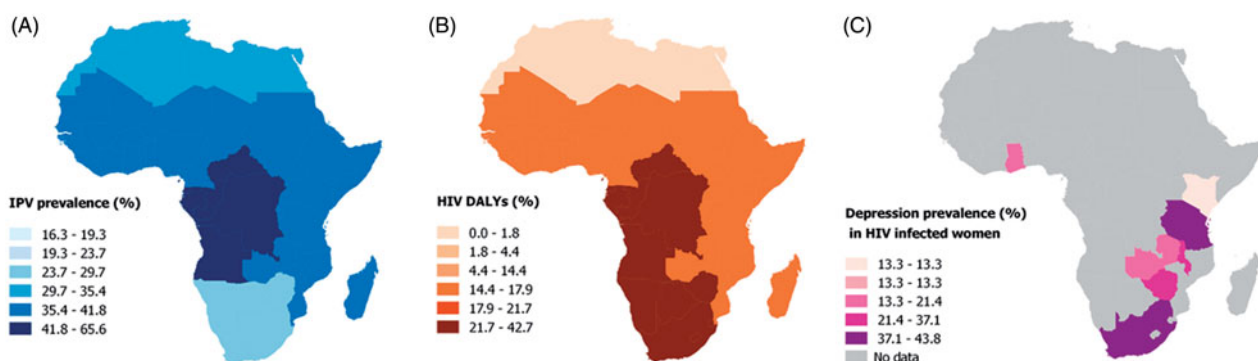
Of the 28 studies included, seven found no significant association with HIV, including two studies which analysed data from multiple sites in LMICs (Harling, Msisha, & Subramanian, 2010; Were et al., 2011). However, the majority (21/28) of the included studies found significant associations (indicated in

grey in Figure 4). Also, pooled analysis of cohort studies revealed that physical IPV (pooled RR = 1.22; CI = 1.01–1.46) and any type of IPV (pooled RR = 1.28; CI = 1.00–1.64) showed significant associations with HIV among women (Li et al., 2014). Similarly, analysis of cross-sectional studies demonstrated significant associations between physical IPV (pooled OR = 1.44; CI = 1.10–1.87), the combination of physical and sexual IPV (pooled OR = 2.00; CI = 1.24–3.22), and any type of IPV (pooled OR = 1.41; 95% CI = 1.16–1.73) and HIV in women. These results show an overall trend towards a significant association between experiencing IPV and being HIV-infected.

Similarly, most of the included studies (20/28) took place in LMICs, and it is important to note that a significant association between IPV and HIV was more



**Figure 3.** The 28 studies included in the systematic review by Li et al. (2014) examining associations between types of IPV and HIV. The grey boxes indicate significant associations, and the white boxes with dashed border indicate no significant findings.



**Figure 4.** Illustrative maps of Africa showing: (a) IPV prevalence, (b) DALYs attributable to HIV, and (c) Depression prevalence in HIV positive women.

likely to be found among women in LMICs vs HICs (Li et al., 2014). This finding is most likely driven by the higher prevalence of HIV in LMICs vs HICs.

### What are the mechanisms driving this association?

A second recent systematic review examined the relationship between IPV and HIV, exploring the mechanisms behind this relationship (Kouyoumdjian et al., 2013). A synthesis of these findings is presented below.

### IPV as the antecedent

Three hypotheses are presented for the inter-relationship between IPV and HIV, with IPV being the antecedent. The first is that sexual IPV may increase the risk of HIV infection through trauma to the vaginal or rectal mucosa. Qualitative studies describe this anecdotally (Lichtenstein, 2005), but there is a lack of quantitative evidence to support this hypothesis (Kouyoumdjian et al., 2013).

The second hypothesis proposes that IPV might increase HIV risk behaviours within an intimate

relationship, for example unprotected sex driven by a woman's inability to negotiate condom use with a violent partner. There is inconsistent evidence in the literature to support this, with some studies suggesting a significant negative association between IPV and condom use (Kalokhe et al., 2011; Lang, Salazar, Wingood, DiClemente, & Mikhail, 2007; Sa & Larsen, 2008; Silverman, Decker, Saggurti, Balaiah, & Raj, 2008), and others reporting null or inconsistent associations (Dunkle et al., 2004; Jewkes et al., 2006; Were et al., 2011).

The third hypothesis is that relative immune compromise, which could be the result of chronic stress experienced by IPV victims, may increase susceptibility to HIV infection, or result in faster progression of HIV disease once infected. However, there is minimal research supporting this hypothesis (Galvan et al., 2004; Were et al., 2011).

### *HIV as the antecedent*

Four potential pathways describing how the risk could be reversed, with HIV triggering IPV, are presented in the review by Kouyoumdjian et al. (2013). First, IPV might be a consequence of HIV disclosure; while there is some evidence to support this, quantitative studies tend to conclude that violence after disclosure is infrequent (Kiarie et al., 2006; Kissinger et al., 2003). Second, sexual IPV might be perpetrated deliberately to infect a partner; and, third, HIV infection itself might increase violent behaviour in perpetrators. There is, however, little evidence to support these two theories. The fourth pathway describes that IPV perpetrators may be more likely to take part in risky health behaviours; this association has a substantial evidence base. Having multiple sex partners was significantly linked to IPV in two studies (Abrahams, Jewkes, Hoffman, & Laubsher, 2004; Andersson, Ho-Foster, Mitchell, Scheepers, & Goldstein, 2007). There is also evidence to support associations with other HIV risk factors such as problematic drug and alcohol use, engaging in casual or transactional sex, and sexual infidelity (Campbell et al., 2008).

## **Risk factors and health consequences for IPV and HIV**

### *What are the shared risk factors?*

The risk factors for IPV are complex, and encompass: demographic, family, gender, relationship, psychological, contextual and peer-related factors (Capaldi, Knoble, Shortt, & Kim, 2012). Similarly, HIV-related risk factors span a whole range, including: biological,

social, behavioural, cultural, economic and structural (Ramjee & Daniels, 2013). Given the high geographical overlap between IPV and HIV, it seems likely that there are shared risk factors contributing to these burdens. Drawing from two reviews; one on IPV (Capaldi et al., 2012) and one on HIV (Ramjee & Daniels, 2013), several shared risk factors and how they relate to each burden are discussed.

Gender and age are prominent risk factors for both IPV and HIV, with women being disproportionately affected by both, as compared to men. Younger women in particular are vulnerable. The peak risk of IPV occurs in late adolescence and young adulthood, which is similar to HIV where women younger than 25 years face increased risk. Other demographic factors, such as socio-economic and marital status, can influence level of risk experienced. Having a lower socio-economic status or being unemployed has been shown to be predictive of IPV, similarly high poverty rates are associated with increased HIV prevalence. Furthermore, marriage has been shown to be protective against IPV victimization and HIV acquisition. This may be because marriage limits the numbers of sexual partners, and a higher number of partners is a risk factor for experiencing IPV and acquiring HIV. Specific populations, such as women who engage in transactional sex, face a heightened risk of both IPV and HIV. Gender equity is an important contributing factor, with attitudes that score low for gender equity linked to increased risk of IPV perpetration in males and reduced participation in sexual decision-making among women.

### *What are the common health consequences?*

The health impact of IPV is both wide-ranging and significant, with experience of IPV being significantly associated with self-reported poor health (Ellsberg et al., 2008), and is an important cause for loss of DALYs (Krug et al., 2002). Common health consequences of IPV include: acute injuries (Sheridan & Nash, 2007), chronic diseases (Campbell, 2002), gynaecological problems (McCauley et al., 1995), and homicide (Stockl et al., 2013). While the physical effects of HIV could manifest only some time after transmission, HIV-infected people are more susceptible to opportunistic infections and experience side-effects of chronic medication, especially if they are not virally suppressed.

While addressing the physical health of women facing these burdens is vital, there has been increasing focus on the impact of these epidemics on mental health, with both IPV and HIV being associated with

adverse mental health outcomes (Brandt, 2009; Lagdon et al., 2014). Understanding this relationship is key to designing effective interventions to alleviate the effects of IPV in vulnerable populations experiencing the burden of HIV.

### **IPV and HIV: how do these relate to mental health?**

Evidence suggests that victims of IPV carry a higher burden of mental health problems, in particular CMD, as compared to those who have not experienced IPV (Howard et al., 2014; Howard et al., 2010; Hughes et al., 2012). A recent systematic review including 41 studies, reported a higher risk of experiencing IPV in women with depressive disorders (OR = 2.77; 95% CI = 1.96–3.92), anxiety disorders (OR = 4.08; 95% CI = 2.39–6.97), and PTSD (OR = 7.34; 95% CI = 4.50–11.98), as compared to women without mental disorders (Trevillion, Oram, Feder, & Howard, 2012).

There is evidence to support a bi-directional relationship between CMD and IPV, which is summarized in a comprehensive systematic review (Devries, Mak, Bacchus, et al., 2013). It is well-established that IPV can lead to CMD. Through a meta-analysis by Devries, Mak, Bacchus, et al. (2013), significant results were found for IPV preceding depression (OR = 1.97; 95% CI = 1.51–2.48). In contrast, there is evidence that having a CMD may increase vulnerability to IPV. The meta-analysis supported this hypothesis, finding significant results for depression preceding IPV (OR = 1.93; 95% CI = 1.51–2.48).

In terms of the mechanisms driving the association between IPV leading to CMD, traumatic stress is reported to be the main driver, leading to stress, fear and isolation, increasing risk of depression, and suicide (Hyde, Mezulis, & Abramson, 2008). While less evidence exists on the causal relationship between CMD and IPV, it is proposed that experiencing CMD may influence partner selection, resulting in the choosing of partners with poor impulse control, conduct disorders, and other characteristics predisposing them to violence (Devries, Mak, Bacchus, et al., 2013).

Similarly, the HIV literature has shown higher levels of CMD among people living with HIV compared to those who are not (Brandt, 2009; Ciesla & Roberts, 2001; Collins, Holman, Freeman, & Patel, 2006). This relationship can also be bi-directional, with HIV contributing to levels of CMD, potentially through adjusting to the diagnosis and living with a chronic disease (Green & Smith, 2004). In the other direction,

experiencing a CMD could increase vulnerability to HIV infection, as it could lead to impaired judgement and unsafe sexual practises (Collins et al., 2006).

Africa is the epicentre of the HIV epidemic (Figure 1), and this continent also bears much of the burden of IPV (Figure 2). As both IPV and HIV have strong associations to increased CMD, it is highly likely that a large proportion of African women are experiencing the burden of these three public health issues concurrently.

### **IPV, HIV, and mental health burden in Africa**

While African women of child-bearing age are generally vulnerable to exposure to these epidemics, pregnant women are arguably more vulnerable. Increasingly there has been research done on IPV and CMD among pregnant women, and in particular among HIV-infected pregnant women (Devries et al., 2010; Shamu, Abrahams, Temmerman, Musekiwa, & Zarowsky, 2011; Sowa, Cholera, Pence, & Gaynes, 2015).

A systematic review examined studies on IPV among pregnant women in Africa, and proposed that this population are more at risk of IPV, as they are more likely to be in relationships than non-pregnant women (Shamu et al., 2011). Furthermore, pregnant women may be relying on a partner for financial support, which may increase vulnerability to IPV. Specific risk factors associated with IPV in pregnancy include: unplanned pregnancy, late entry into care, and inadequate antenatal care (Fanslow, Silva, Robinson, & Whitehead, 2008). This review included 13 studies for a meta-analysis, and reported an overall IPV prevalence among pregnant women to be 15.23% (95% CI = 14.38–16.08), while for individual studies prevalence rates ranged from 2–57%.

A theme which strongly emerges in the review is the threat of IPV among pregnant HIV-infected women (Shamu et al., 2011). Ten studies were included in the review which examined this association and, after adjusting for known confounders, five of these studies maintained significant associations between HIV and IPV during pregnancy. These data show that being diagnosed with HIV increases the likelihood of partner abuse amongst pregnant women by ~2-fold. Furthermore, it is well established that pregnant women are at risk of CMD, with depression having been cited as the most common complication of pregnancy (Gaynes et al., 2005). A focus on the mental health of pregnant women in LMICs is important, given high pregnancy rates and the scarcity of mental health services.

Despite a dearth of data reporting mental health estimates in Africa, a recent systematic review examining peri-natal depression in HIV-infected African women reported high prevalence rates in several African countries (Sowa et al., 2015). Figure 4c shows a map of these estimates—particularly high rates of above 40% are reported for South Africa and Tanzania. However, several studies have been done in these countries compared to other African countries with limited data. In pooled analysis, a weighted prevalence of 42.5% (95% CI = 40.8–44.3) was reported for antenatal depression, whereas a lower weighted prevalence of 30.7% (95% CI = 28.5–32.8%) was found for post-natal depression.

Depression is known to have adverse effects on HIV-related outcomes, for example there is a substantial evidence base that depression reduces adherence to anti-retroviral medication (ART) (Sin & DiMatteo, 2014). Potentially related to reduced adherence, a study which followed up women 6–8 years after birth reported that women with depression were significantly more likely to have an increased rate of disease progression (hazard ratio, HR = 1.61; 95% CI = 1.28–2.03) and 2-fold increased risk of death (HR = 2.65; 95% CI = 1.89–3.71) (Bing et al., 2001). However, this follow-up study has limited data available on the time points of the depression measures in this study.

### *Intervening in sub-Saharan Africa*

Effective interventions are essential to alleviate the load of IPV, HIV, and CMD in Africa. Despite a growing awareness of the burden of IPV in Africa, there is a lack of evidence for the most effective health system responses (Rees, Zweigenthal, & Joyner, 2014). Table 1 outlines IPV outcomes of interventions in Africa.

The majority of interventions outlined in Table 1 were based in non-healthcare settings—showing potential for influencing belief systems and, thereby, reducing IPV. For example, the community-mobilization intervention in Uganda (Abramsky et al., 2014) provides support for the strategy of involving community members as agents of change. Group sessions and education have seen successful outcomes, with the Stepping Stones Intervention in South Africa (Jewkes et al., 2008) reducing risk behaviours in men. Stepping Stones has been replicated elsewhere, such as in Tanzania, in a study involving couples (Krishnan et al., 2012), which reported more equitable attitudes towards IPV, relationship power, and sexual decision-making post-intervention. Furthermore, in South Africa

improved IPV-related outcomes have been seen: in an intervention delivering a five session integrated intervention to men (Kalichman et al., 2009); and a microfinance intervention focused on empowering women as a pathway to reduce IPV (Pronyk et al., 2006).

Considerably less research has been done on interventions within healthcare settings. This is an important field to explore as it has the potential to be more sustainable. This strategy has gained international attention, with recent WHO recommendations stipulating that IPV services should be, as far as possible, integrated into existing healthcare services and structures (WHO, 2013).

This strategy was implemented in Kenya. Victims of IPV were offered support in the form of reproductive health vouchers available at healthcare facilities, giving them access to medical services (including HIV care), psychological care, and social services. Results showed that there were many barriers to the uptake of these services (Njuki et al., 2012), mostly centred around a lack of general awareness by healthcare employees and patients regarding the vouchers and benefits, and also poor response from law enforcement services.

An intervention in South Africa used primary healthcare nurses to screen for IPV and refer to a study nurse to manage the IPV (Joyner & Mash, 2011). Results included women reporting significant mental health benefits, reduced alcohol abuse, improved relationships, increased self-efficacy, and reduced abusive behaviour. This is one of the few interventions which have reported mental health outcomes, supporting the hypothesis that addressing IPV can have positive mental health effects. However, while this intervention had positive effects, it is important to note that women were not followed up long-term, and the primary healthcare nurses who screened for IPV were not involved in managing IPV, nor were they interviewed for their views on the intervention.

The views of the healthcare providers screening and managing IPV are vital, as a small qualitative study in South Africa showed (Christofides & Jewkes, 2010). This study evaluated IPV screening by lay counsellors during voluntary counselling and testing sessions for HIV. They reported that women found it acceptable to be asked about their experiences of IPV during these sessions, but not all counsellors were willing to conduct the screening and, after a year, there was no evidence that screening had continued. This is consistent with other research in South Africa (Kim & Motsei, 2002) which showed that the view of primary healthcare nurses regarding IPV was



**Table 1.** Study outcomes of interventions addressing IPV in Africa in the context of HIV.

Reference	Location and sample	Study description	Main results
Abramsky et al. (2014)	Uganda, men and women (18–49 years) Baseline ( $n = 1583$ ) 4 years post-implementation ( $n = 2532$ )	A cluster RCT* implementing a community mobilization intervention using community activists and staff from government services employing strategies including local activism and consulting local media.	Significantly lower social acceptance of IPV and greater acceptance that a woman can refuse sex among men and women. Reduced experience of physical and sexual IPV among women in the past year.
Christofides and Jewkes (2010)	South Africa, women $n = 35$	This study implemented IPV screening by lay counsellors during voluntary counselling and testing sessions for HIV. In-depth interviews with 35 women were conducted to explore their experiences of IPV screening and counselling during a voluntary counselling and testing session.	Findings include that most women found it acceptable to be asked about their experiences of IPV during voluntary counselling and testing sessions. Women cited limited access to healthcare services as a main reason to support this screening. Not all counsellors were willing to conduct the IPV screening and, after a year, there was no evidence that screening had continued.
Jewkes et al. (2008)	South Africa, men and women (15–26 years) $n = 2776$	A cluster RCT delivering a 50-h programme partly in same-sex groups aimed to improve sexual health through participatory learning, including critical reflection, role play, and drama.	Improved risk behaviours in men: significant reduction in transactional sex and problem drinking at 1 year and a non-significant reduction in IPV perpetration at 2 years. No reduction in HIV incidence, risk behaviours in women.
Joyner and Mash (2011)	South Africa, women (mean age = 36.7 years) $n = 168$	This study evaluated an intervention which consisted of primary healthcare providers screening adult women (over a period of $\pm 8$ weeks) for a history of IPV in last 2 years and offering referral to a study nurse to discuss a safety plan including possible referral to other relevant services (health, social, legal, police).	Women reported significant benefits to their mental health, reduced alcohol abuse, improved relationships, increased self-efficacy, and reduced abusive behaviour.
Kalichman et al. (2009)	South Africa, men (mean age = 30.2 years) $n = 475$	A quasi-experimental field intervention trial which randomly assigned two communities to receive either: (a) a five session integrated intervention to simultaneously reduce GBD and HIV risk behaviours, or (b) a single 3-h alcohol and HIV risk reduction session.	The GBD/HIV intervention reduced negative attitudes toward women in the short-term and reduced violence against women in longer-term. Men in the GBV/HIV intervention also increased talking with sex partners about condoms and were more likely to have tested for HIV at follow-up.
Pronyk et al. (2006)	South Africa, women (14–35 years) $n = 1129$	Cluster RCT delivering a microfinance programme combined with a two-weekly group education on gender and HIV.	There was a significant reduction in experience of physical and sexual IPV by 55%. There was no reported effect on controlling behaviours by partners or HIV incidence.
Krishnan et al. (2012)	Tanzania, women and men (18–30 years) $n = 567$ couples	This study used data from a RCT focused on preventing sexually transmitted infections in a cohort of young Tanzanian men and women. Participants were also invited to group counselling based on the Stepping Stones model. This study examined the relationship between couples' attitudes about IPV, relationship power, and sexual decision-making, concordance on these issues, and women's reports of IPV over 12 months.	Over time, participants' attitudes tended to become more equitable and women's reports of IPV declined substantially. Multivariable logistic regression analyses suggested that inequitable attitudes and couple discordance were associated with higher risk of IPV.
Njuki et al. (2012)	Kenya, women and men $n = 97$ interviews 27 focus groups	This study draws on qualitative data obtained from interviews with health managers, service providers, and government administration officers, of their experience of the reproductive health voucher programme which launched in 2005 and aims to increase maternal and child outcomes, but also to increase the uptake of GBV recovery services for both men and women. These vouchers include access to medical services (including HIV care), psychological care, and social services.	The findings showed promising prospects for the uptake of the GBV recovery services. However, barriers to uptake include: a lack of general awareness of the GBV service vouchers; lack of understanding of the benefit package; immediate financial needs of survivors, stigma, and cultural beliefs that undermine reporting of cases or seeking essential medical services; poor responsiveness from law enforcement agencies; and low provider knowledge on GBV services.

RCT, Randomized Control Trial.

reflective of the community as a whole, acknowledging abuse against children or severe physical abuse as problematic, but normalizing violence in a relationship. However, this study was not recently conducted; thus, these findings may no longer reflect the views of communities and healthcare workers.

From the evidence, it seems that the involvement of community members of both sexes and the provision of educational sessions are vital for alleviating IPV. It is important to note that few interventions have included mental health screening or counselling, which is problematic given the high co-morbidity. Findings which show that women are open to being screened for IPV during HIV testing sessions are promising. However, it has clearly emerged that substantial training and educational sessions across IPV, HIV, and CMD would be needed for healthcare providers conducting screening. HIV testing and counselling services offer unique opportunities for integrated screening. Antenatal services also provide excellent screening opportunities, as pregnancy is a critical period for entry into HIV care for women in Africa, and pregnant women have been reported to be 4-times more likely to disclose IPV when screened than other women (O'Doherty et al., 2015).

To effectively alleviate IPV and promote mental health within an HIV-endemic community, a comprehensive approach spanning many levels of society would be needed. Government level co-operation would be needed to implement policies, and community leaders would need to educate and change belief systems. Important changes to healthcare services are necessary, with structured screening and referral protocols, linking to other services such as police and social welfare.

## Conclusions

Through this synthesis of the literature, we have demonstrated that IPV is a global health problem for women, and is of epidemic proportions. While the weighted mean global prevalence estimate of 30% may be a useful tool for policy-makers, the global mapping may be informative for researchers and practitioners working at a regional or country level, given the wide heterogeneity of prevalence. Since it is clear that some settings have significantly higher risks, practitioners are encouraged to take guidance from region level data where possible.

There are several limitations in the evidence base on IPV, and current approaches suffer from numerous difficulties, which make IPV prevalence estimates less precise. Researchers are only able to measure the

number of people willing to disclose abuse, rather than the number of people experiencing it. As such, there is a danger of under-reporting (Alhabib et al., 2010). Further to this, definitions of abuse, violence, and blame are highly variable and culturally sensitive (Krauss, 2006). Individuals experiencing abuse are also likely to justify the violence against them (Fagan & Browne, 1994). As such, it can be challenging to construct questions that can sensitively and specifically establish the presence of IPV in multiple countries and cultures.

What is clear is that physical and sexual IPV were found most commonly to affect women, particularly women of childbearing age. High rates of IPV are also frequently found to be geographically co-located with HIV and CMD epidemics, with much of this burden on Africa. However, a limitation of this synthesis is that studies on IPV, HIV, and CMD are often studied concurrently in similar settings, which makes it difficult to distinguish whether they truly co-occur or are simply frequently being studied together. Nonetheless, integrated screening and interventions may have a significant role to play in mitigating the effects of these three epidemics, especially in Africa, where prevalence appears high, risk factors are shared, and resources scarce.

An important advancement in this area is the *What Works to Prevent Violence against Women and Girls Programme*, a flagship programme from the UK Department for International Development (DFID), which has invested an unprecedented £25 million, over 5 years, to the prevention of violence against women and girls. Led by consortium director Professor Rachel Jewkes, the programme supports primary prevention efforts across Africa, Asia, and the Middle East, that seek to understand and address the underlying causes of violence, and to stop it from occurring ([www.whatworks.co.za](http://www.whatworks.co.za)).

Future research is needed in Africa to develop integrated interventions encompassing communities and individuals, involving healthcare, social services, and law enforcement, with the aim of implementing policy change. The longer term health effects of these interventions will need to be tested in controlled studies. The ongoing randomized control trial (RCT) led by Garcia-Moreno and colleagues in South Africa (DOI 10.1186/ISRCTN35969343) will provide insight into screening for IPV in antenatal services, and how a counselling intervention impacts on pregnant women experiencing violence. The trial is projected to finish in September 2016. This intervention provides information to women on local services available to them,

further research should evaluate whether women identified experiencing IPV in this trial were able to successfully link to a local service, and what barriers they faced in doing so.

When one translates the global estimate of 30% into numbers of women affected, over a billion of the 3.62 billion women and girls alive on the planet in 2016 will be affected by IPV. It is clear that far greater investments in prevention research, implementation, and services are required.


## Acknowledgements


Thank you to David Concannon for his work and input on compiling the maps. We are grateful to the Global Burden of Disease Study (GBD) 2013 and Devries, Mak, García-Moreno, et al. (2013b) for the provision and availability of data. Thank you to the Human Sciences Research Council (HSRC) for funding the open access and printing costs. We acknowledge the support of the Department of Science and Technology (DST) National Research Foundation (NRF) Centre of Excellence in Human Development at the University of the Witwatersrand towards this research activity. Opinions expressed, and conclusions arrived at, are those of the authors and are not necessarily to be attributed to the Centre of Excellence in Human Development. Ms Mitchell's salary is funded by a grant from the UK Medical Research Council (grant number: MC-PC 14096).

## Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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