



Published in final edited form as:

Trauma Violence Abuse. 2013 April ; 14(2): 168–185. doi:10.1177/1524838012470034.

Intimate Partner Violence among Men Who Have Sex with Men: A Systematic Review

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Abstract

This article presents results from a systematic review of the literature on intimate partner violence (IPV) among US men who have sex with men (MSM). From 576 reviewed studies, a total of 28 met inclusion criteria and were included in the analysis. The population characteristics of each study, definitions of IPV, prevalences of different forms of IPV, and statistically tested correlates of IPV are summarized for each study. The results indicate that all forms of IPV occur among MSM at rates similar to or higher than those documented among women, although data on perpetration rates of IPV are scant, and consensus as to IPV correlates among MSM is absent. This review also finds significant limitations the reviewed literature, notably the lack of a standardized, validated definition of IPV among MSM; use of unspecific recall periods for IPV; a lack of attention to non-physical, non-sexual forms of IPV; and near-universal use of cross-sectional, convenience samples of urban MSM. Researchers should develop and validate a MSM-specific definition of IPV, use more rigorous epidemiological methods to measure IPV and its effects, and clarify the mental and physical health outcomes associated with both receipt and perpetration of IPV.

Introduction

Intimate Partner Violence

In the past several decades, violence writ large, but particularly intimate partner violence, has come to be a priority for public health research and intervention. As a subset of interpersonal violence, intimate partner violence (IPV) is generally defined as occurring between spouses or other intimate partners, and encompasses multiple domains of violent behavior (e.g., physical, sexual, psychological, financial, stalking). IPV is understood to be prevalent in all communities, cutting across demographic lines and geographic borders, and emerging evidence indicates that its health effects are universal (WHO, 2002). Several large, meta-analytic studies of IPV using research across diverse communities (Campbell, 2002; Coker, 2007; Coker et al., 2002; Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006; Plichta, 2004; P. Tjaden & Thoennes, 2000) have found that IPV is linked to several areas of excess morbidity and mortality, and indeed may be a significant underlying phenomenon in many areas of ill health, including adverse mental health outcomes (Golding, 1999), acute

physical trauma and injury (Coker, Smith, Bethea, King, & McKeown, 2000; P. Tjaden & Thoennes, 2000), sexually transmitted infections (Augenbraun, Wilson, & Allister, 2001; Bauer et al., 2002), chronic pain and self-reporting poor health (Coker et al., 2002), suicidal ideation (Afifi et al., 2009), and homicide (Campbell et al., 2003; Lund & Smorodinsky, 2001; Schafer, Caetano, & Clark, 1998). Despite the recent increase in IPV research, fundamental methodological issues still plague IPV studies, including a lack of definitional uniformity (Plichta, 2004; Saltzman, Fanslow, McMahon, & Shelley, 2002), overuse of cross-sectional samples (Ellsberg, Heise, Peña, Agurto, & Winkvist, 2001), and use of unspecific, insensitive measures (Bonomi et al., 2006; Skogan, Statistics, & Affairs, 1981). The body of IPV literature is critiqued less often, however, for focusing nearly exclusively on IPV that occurs in male-female dyads (Letellier, 1994). While some researchers have begun to address male victims of IPV, even then the emphasis has tended to fall on female-perpetrator/male-victim IPV (Kimmel, 2002; Magdol et al., 1997). IPV among gay, bisexual, and other men who have sex with men (MSM) has been, comparatively, vastly under-researched. It is therefore that this systematic review of the literature of IPV among MSM will synthesize and clarify the body of evidence regarding partner violence among MSM: first, to critique the current literature and elucidate areas for future research and cohesion of effort, and second, to highlight the paucity of research in this area.

Men Who Have Sex with Men (MSM)

The term “men who have sex with men” (MSM) was coined during the emergence of the HIV/AIDS epidemic by public health researchers who sought to distinguish sexual orientation from sexual risk behaviors, particularly behaviors that placed individuals at increased risk for HIV infection. Since its coinage, “MSM” has been applied to all areas of public health research as a term that includes gay- and bisexual-identified men in addition to non-gay, non-bisexual identified MSM. Recently, Young & Meyer (2005) criticized the indiscriminate use of the term MSM, as its usage can elide the complex dynamics of sexual orientation and gender identity, and can remove from the sexual minority individual his power to name himself (Young & Meyer, 2005). Furthermore, Young & Meyer (2005) argue that overuse of the term MSM posits that sexual behavior occurs in a vacuum, and takes an ahistorical view of sexual minority communities and lesbian, gay, bisexual, and transgendered (LGBT) civic life (Young & Meyer, 2005). While these criticisms are still salient (as will be further discussed), the term “MSM” is used in this report as a way of identifying research on partner violence among all types of MSM, including those who engage in long-term, committed, emotional and sexual relationships with other men, but for a variety of reasons deliberately eschew the identities “gay” or “bisexual” in lieu of other sexual identities (e.g., same gender-loving, twin-spirit, queer, down-low, pansexual) or even a lack of sexual identity (Hennen, 2008; Wolitski, Jones, Wasserman, & Smith, 2006). IPV that occurs among these non-gay-non-bisexual-identified MSM is still of concern to the public health community; hence, this systematic review will summarize research on IPV among multiple identity groups within the umbrella group of MSM.

It is only recently that intimate partner violence (IPV) among LGBT persons has become a focus of research, as part of larger trend of the growth of LGBT-centered research in response to the historical exclusion of LGBT persons from public health research (Boehmer,

2002; Renn, 2010). This historic blind spot can be most clearly seen in the WHO World Report on Violence and Health (2002). Published in 2002, this synthesis of research of all forms of violence, including IPV, only briefly mentions that IPV occurs among same-sex couples before presenting a comprehensive summary of male-batterer/female-battered violence and its health effects (WHO, 2002). A year prior, Relf (2001) published a non-systematic review and critique of literature on male-male battering and its possible correlation with HIV infection; this study was seminal for both its evidence-based postulation of a link between IPV and HIV infection among MSM and for its demonstration of the lack of rigorous research on IPV among MSM (Relf, 2001). Murray and Mobley (2009) furthered the field by conducting a thorough examination of epidemiological methods used by researchers examining same-sex IPV. Although the study only included studies published before 2007, included studies that measured violence in multiple LGBT populations, 109 and did not include studies in which LGBT persons were a subset of larger samples, the authors were still able to demonstrate the lack of rigor in studies of IPV among LGBT persons (Murray & Mobley, 2009).

It has been more than a decade since the publication of Relf's literature critique, and although there has been a significant increase in the number of studies focusing on same-sex IPV from the seven studies included in Relf's article (Relf, 2001), there has not been a subsequent review of the literature, despite the especially substantial increase in literature on IPV among MSM. The purpose of this study is to clarify and summarize the current body of knowledge regarding IPV among MSM as part of a response to calls for more rigorous research on same-gender IPV (McClennen, 2005). Systematic reviews of literature are recognized in the scientific community as being warranted (Weed, 1997), particularly in newer fields of study where reviews of current research provide opportunity for cohesion of efforts. Although systematic reviews, unlike meta-analyses, do not provide pooled estimates of risk, systematic reviews can serve to summarize and clarify the body of scientific knowledge regarding a specific research question, and can elucidate gaps in the current literature (Stroup et al., 2000). As will be demonstrated through this systematic review, a meta-analytic pooled prevalence estimate of IPV among MSM is currently inappropriate given the paucity of data on male-male IPV, and the demonstrable problems with uses of myriad recall periods, population characteristics, and definitions of violence. The results of this review will present practitioners and researchers with a clear picture of the current state of the literature, including areas in need of further research and clarification.

Methods

Literature Search

A systematic review of the literature was conducted using previously described methodology (Bero et al., 1998; Cook, Mulrow, & Haynes, 1997; Mulrow, Cook, & Davidoff, 1997; Weed, 1997). The search strategy used included electronic database searches, hand searches of journals, and snowball searches of citation lists of relevant articles in order to find all eligible articles (Greenhalgh & Peacock, 2005; Wright, Brand, Dunn, & Spindler, 2007). Articles were included in the review if the following criteria were met: (1) published in a peer-reviewed journal after 1990; (2) written in English; (3)

consisted of original research; (4) used a population drawn from the US and US Territories; (5) included MSM in the population as a separate group for analysis; (6) used a sample with no one under 15 years of age; (7) measured IPV; (8) measured violence beyond childhood sexual abuse; (9) did not use a specific sub-population (e.g., injection drug users); (10) reported IPV as a prevalence and/or correlates of IPV; and (11) used a sample size over 50 persons. Searches of internet index database MEDLINE were conducted in September - October 2011 using the following terms: “MSM violence,” “MSM ‘intimate partner violence,’” “(((abuse) NOT drugs) NOT substance) AND MSM,” “MSM domestic violence,” and “homosexual violence.” The electronic searches resulted in 555 unique articles for consideration. Hand searches were conducted of the *Journal of Homosexuality*, *Journal of Victims and Violence*, and *Journal of Interpersonal Violence* for years 1990-2011, and the *Journal of Injury and Violence*, *AIDS Behavior*, and *American Journal of Public Health* for years 2009-2011, resulting in 11 unique articles. Snowball searching of citation lists of relevant articles resulted in ten unique articles. A detailed summary of the inclusion criteria, including the numbers of articles not meeting each criterion, is provided in Table 1.

Data Collection

When provided, a study's population size, age, racial composition, inclusion criteria, location, and sampling method were extracted. For reporting both receipt of IPV and perpetration of IPV, the specific type of violence (e.g., sexual violence, physical violence), the definition(s) used in the measurement tool, and the recall period(s) for the reporting of violence were recorded from all studies. For studies testing associations between IPV and possible demographic and health correlates, the directionality of the finding (protective/ antagonistic) was recorded, as well whether or not the correlation was statistically significant.

Results

From the 576 appraised studies, a total of 28 met all inclusion criteria and were analyzed (Table 1) (Alexander, 2002; Balsam, Rothblum, & Beauchaine, 2005; Bimbi, Palmadessa, & PhD, 2008; Bogart et al., 2005; Conron, Mimiaga, & Landers, 2010; Craft & Serovich, 2005; Feldman, Ream, Díaz, & El-Bassel, 2007; Friedman, Marshal, Stall, Cheong, & Wright, 2008; Ghanem et al., 2011; Greenwood et al., 2002; Houston & McKirnan, 2007; Kalichman et al., 2001; Kalichman & Rompa, 1995; Kennamer, Honnold, Bradford, & Hendricks, 2000; Klitzman, Greenberg, Pollack, & Dolezal, 2002; Koblin et al., 2006; Pantalone, Schneider, Valentine, & Simoni, 2011; Relf, Huang, Campbell, & Catania, 2004; Rhodes, McCoy, & Wolfson, 2009; M. Ross, Rosser, & Neumaier, 2008; Rothenberg et al., 2000; R Stall et al., 2003; Stephenson, Khosropour, & Sullivan, 2010; P Tjaden, Thoennes, & Allison, 1999; Toro-Alfonso & Rodríguez-Madera, 2004; Turell, 2000; Waldner-Haugrud, Gratch, & Magruder, 1997). Sample size, age, race, location, sampling method, population inclusion criteria, and definition of violence used for each study are summarized in Table 2.

All studies were cross-sectional. The majority of the studies (54%) used convenience samples, often from gay pride events or gay community groups; the remainder of studies used venue-based sampling methods (14%), random/probability-based sampling methods (18%), or were sub-samples from larger studies (14%). Sample sizes ranged from $N=51$ (Craft & Serovich, 2005) to $N=2881$ (Greenwood et al., 2002), with a median sample size of $N=292$ (Bogart et al., 2005). The populations across studies were racially diverse, with 43% of studies using samples with $\geq 50\%$ non-White men. The inclusion criteria for the studies varied widely, with eight studies (29%) including only gay- and/or bisexual-identified MSM, three studies (11%) including only HIV-positive men, three studies (11%) including only men with current male partners, and three studies (11%) including men with a history of recent sexual activity with men. Three studies (11%) did not report the inclusion criteria for the sample. Five studies (18%) used national samples, two of which were web-based samples, while the majority of studies ($n=16$, 58%) sampled urban-based MSM.

Across the 28 studies, 16 different definitions of violence were used in various combinations by different researchers. Ten studies (36%) used definitions of violence that were unique to the study or did not provide a reference to a validated scale. Among studies that used validated scales, the Revised Conflicts Tactics Scale (RCTS) was used in four studies, the Sexual Experiences Survey (SES) was used in three studies, the Conflicts Tactics Scale (CTS) was used in two studies, the Psychological Maltreatment of Women Scale (PMWI) was used in one study, the Women's Experience with Battering (WEB) scale was used in one study, and the Center for Disease Control and Prevention (CDC) definition of violence was used in one study. For studies where validated scales were used, authors frequently reported modifying those scales to use gender-neutral or MSM-specific language.

Reporting receipt of IPV is summarized by recall period in Table 3. All but one study reported prevalence rates of at least one form of violence among MSM for at least one recall period. Nine different recall periods were used by various researchers, ranging from a six-month recall period (one study) to a lifetime recall period (12 studies). Two studies did not specify their recall periods, and two studies used a non-temporal recall period (i.e., violence within the current relationship). Across all recall periods, the reported prevalence for receipt of any IPV ranged from 29.7% (Waldner-Haugrud et al., 1997) to 78.0% (Pantalone et al., 2011). The most frequently reported measurement of violence was receipt of physical IPV (22 studies), which ranged from 11.8% (Stephenson et al., 2010) to 45.1% (Craft & Serovich, 2005). When measured separately (16 studies), receipt of sexual IPV ranged from 5% (Greenwood et al., 2002) to 30.7% (Balsam et al., 2005). Psychological IPV was comparatively less measured (six studies), ranging from 5.4% (Rothenberg et al., 2000) to 73.2% (Pantalone et al., 2011), while other forms of violence (e.g., verbal, financial) ranged from 20.6% (Houston & McKirnan, 2007) to 83% (Turell, 2000).

The prevalence of violence perpetration was measured by only nine studies, which used a combined five different recall periods (Table 4). Reporting perpetration of any IPV against a partner was measured only by Wong et al. (2010), who reported a prevalence of 12.0% for adulthood recall, and by Welles et al. (2011), who reported 35.9% prevalence for lifetime recall (Welles, Corbin, Rich, Reed, & Raj, 2010; Wong, Weiss, Ayala, & Kipke, 2010). Perpetration of physical IPV was measured by eight studies, with prevalence rates ranging

from 3.6% (Stephenson et al., 2010) to 39.2% (Craft & Serovich, 2005). Rates of perpetration of sexual IPV also showed significant variance, ranging from 0.7% (Stephenson et al., 2010) to 27.5% (Craft & Serovich, 2005). Perpetration of psychological violence was only measured by one study (78.4% (Craft & Serovich, 2005)), and emotional violence was measured by two studies, ranging from 29.8% (Kennamer et al., 2000) to 48.0% (Toro-Alfonso & Rodríguez-Madera, 2004).

The results of statistical testing between demographic and health risk factors and IPV outcomes are summarized in Tables 5-6. Only risk factors that were tested by at least two studies are included in this summary, including whether or not the potential risk factor was found to have a statistically significant correlation to the IPV outcome. The most commonly tested demographic correlates of violence across all studies were age, race/ethnicity, income/socio-economic status, education, and HIV status; however, these associations also feature the least agreement across studies. For example, five studies (Greenwood et al., 2002; Koblin et al., 2006; Pantalone et al., 2011; M. Ross et al., 2008; R Stall et al., 2003) found significant associations between age and experience of any IPV, while four studies used similar tests and found this relationship to not be statistically significant (Feldman et al., 2007; Houston & McKirnan, 2007; Kalichman et al., 2001; Rothenberg et al., 2000).

Very few studies have assessed the correlation between health outcomes and IPV (Table 6). The exception to this is the correlation between substance use and receipt of any IPV, an association found to be significant by six studies (Houston & McKirnan, 2007; Klitzman, Pope Jr, & Hudson, 2000; Koblin et al., 2006; Relf et al., 2004; Rothenberg et al., 2000; R Stall et al., 2003) and not significant by only one (Pantalone et al., 2011). The associations between IPV and HIV risk-taking behaviors are comparatively less researched, being assessed by only eight studies (Braitstein et al., 2006; Feldman et al., 2007; Houston & McKirnan, 2007; Kalichman et al., 2001; Kalichman & Rompa, 1995; Relf et al., 2004; Rothenberg et al., 2000; R Stall et al., 2003), although these findings suggest experiencing IPV may modify risk for HIV infection through increased sexual risk-taking in the form of unprotected anal intercourse (UAI).

Discussion

The study of IPV among same-sex couples is in its infancy. Fewer than 30 studies met inclusion criteria for this systematic review despite use of best-evidence article-finding methods to capture all eligible research. Nonetheless, there is evidence that research on IPV among MSM is increasing: one-third of studies analyzed were published in the previous three years. The nascence of this field provides a unique opportunity for collaboration, synthesis of effort, and uniformity of measurements. However, the findings of this systematic review point to several key areas in need of attention from researchers if such synthesis and collaboration is to be achieved.

1. There is a lack of consensus as to the definition of partner violence among MSM

Fundamental to the issue of uniformity is the question of what constitutes IPV among MSM. This systematic review of the literature finds that, to date, there is no agreed-upon definition of IPV among MSM. Among these 28 studies, researchers have used, in various

combinations, sixteen different definitions and measurement tools of violence. In twelve studies, the measurement of violence used was not attributed to any validated tool to measure violence. Even in situations where authors used validated scales, they often reported using modified versions of these scales in order to make such measurements applicable to MSM, as all of the scales used were originally developed using samples of women. It remains unstudied whether such measures of violence have similar sensitivity and specificity for MSM, or if violence among male-male couples takes on possible additional domains not found in opposite-sex couples, for example, using threats of exposing a partner's same-sex sexual behavior (“outing him”) as a method of control. Additionally, this lack of definitional agreement prevents comparison of violence prevalence rates across studies, and likely contributes to the considerable range of IPV prevalences found in different populations. This problem is not unique to the field of same-sex IPV research; issues with definitional uniformity in heterosexual IPV research have been previously documented (Saltzman et al., 2002). In 2002, the CDC published a comprehensive report on IPV that included uniform IPV definitions applicable to both heterosexual and same-sex partnerships (Saltzman et al., 2002). Additional research is needed to determine if these definitions accurately reflect the typologies of partner violence found in MSM, and then to incorporate a universal and appropriate definition of MSM partner violence into future research efforts.

2. The recall periods used to measure partner violence have a wide range, and frequently do not control for instances of Childhood Sexual Abuse

Comparison of IPV prevalences across studies is further hampered by use of a wide range of recall periods for IPV. Of particular concern are studies in which the recall period of violence was not specified or where an effective lifetime recall period was used, as such recall periods would necessarily fail to control for instances of Childhood Sexual Abuse (CSA). Emerging evidence indicates that MSM's sexual experiences before the age of 16 are not universally viewed as non-consensual, even in cases where the sexual partner is five or more years older than the respondent (S. Arreola, Neilands, Pollack, Paul, & Catania, 2008; S. G. Arreola, Neilands, & Diaz, 2009). Such findings are in conflict with legal frameworks that posit that consenting to sexual activities before a certain age of majority, varied by geography and jurisdiction, is not possible (i.e., statutory rape). Thus, it remains unknown whether or not MSM would consider sexual experiences before an age of majority as occurring with “partners,” and therefore whether or not such potential “partnerships” would be categorized as possibly containing IPV. This possible misclassification is of particular concern for young MSM, who, based on the specific recall period of a given questionnaire, may report nonconsensual childhood sexual abuse as IPV, or visa-versa. This possible misclassification can be seen most clearly in research by Wong et al. (2010), who documented that when clearly defined recall periods were used, young MSM (aged 18-21 years) reported higher rates of lifetime sexual assault (23%) compared to sexual IPV after the age of 18 (12%); simply measuring lifetime sexual assault would have likely failed to identify this difference (Wong et al., 2010). Separation of IPV from CSA is critical, given both the higher rate of CSA reported by MSM compared to men who do not have sex with men (Holmes & Slap, 1998; Rothman, Exner, & Baughman, 2011) and the similar but unique health effects of CSA survivorship when compared to IPV (S. G. Arreola, Neilands,

Pollack, Paul, & Catania, 2005; Holmes, Foa, & Sammel, 2005; Mimiaga et al., 2009; O'leary, Purcell, Remien, & Gomez, 2003; Paul, Catania, Pollack, & Stall, 2001; R Stall et al., 2003). Thus, now that the preponderance of the evidence indicates that MSM are at heightened risk for experiencing IPV over their lifetimes, researchers should use recent recall periods to measure IPV (i.e., one to five years), and control for instances of CSA when measuring violence among young MSM. Additionally, history of CSA should be assessed for men experiencing or perpetrating IPV, as there is a lack of literature addressing the association between CSA and IPV in adulthood among MSM specifically.

3. Physical and sexual violence are frequently measured, while all other forms of violence (e.g., psychological, financial, stalking) are infrequently measured

The most commonly measured form of IPV among all studies was receipt of physical violence from a partner, often to the exclusion of other forms of violence. Only five studies reported receipt of psychological violence, and yet fewer reported prevalences for experiencing emotional violence (four studies), financial violence (one study), threats of violence (one study), verbal violence (one study), or “non-physical” violence (one study). Despite this paucity of data, these published estimates indicate that these forms of psychological violence are reported more commonly among MSM compared to physical and sexual IPV. This gap in the literature is especially disconcerting given emerging evidence that indicates that psychological IPV may be as strongly correlated with adverse mental and physical health outcomes as physical IPV (Coker, Smith, Bethea, et al., 2000; P Tjaden et al., 1999). However, as the majority of the literature addressing the health effects of violence has been drawn from samples of women, additional research is needed to determine if these sequela are the same among MSM.

4. Perpetration of partner violence is rarely measured

Only nine of the 28 studies measured perpetration of partner violence, and, similar to measurement of the receipt of violence, physical violence perpetration is the most frequently measured form. Presently, data are insufficient to draw many conclusions regarding the nature of perpetration of IPV against MSM; however, all studies have found that perpetration of IPV is reported less frequently than the receipt of IPV, a finding that is consistent with patterns of IPV reporting among heterosexual populations (Anderson, 2002). The lack of literature on the perpetration of IPV among MSM has several explicit effects. First, the occurrence of battering, in which IPV is repeatedly frequently and cyclically over the course of a relationships (Cattaneo & Goodman, 2005; Coker, Smith, McKeown, & King, 2000; McCauley et al., 1995), cannot be assessed. Second, it remains unknown to what extent MSM experiencing partner violence also perpetrate violence against their partners, a relationship documented in about half of battered women (Anderson, 2002). Third, without data as to the nature of perpetration of IPV among MSM, risk factors for IPV perpetration cannot be assessed, and IPV interventions will be less able to identify persons at risk for IPV perpetration or re-perpetration. Fourth, the health effects of IPV perpetration, such as adverse mental health outcomes, cannot be assessed. In order for the phenomenon of IPV among MSM to be addressed, IPV must be understood as occurring in dyads. Recognition and intervention among both persons experiencing IPV and persons perpetrating IPV is paramount to addressing partner violence.

5. The separation of female-perpetrated violence and male-perpetrated violence is inconsistently delineated for bisexual-identified MSM and men who have sex with men and women (MSMW)

The erasure of bisexuality from the scientific literature and criticism of the use of the term “MSM” have been discussed previously (Yoshino, 2000; Young & Meyer, 2005); MSM IPV research has not escaped this bias. Of the 25 studies that specified population inclusion criteria, four studies (Alexander, 2002; Feldman et al., 2007; Friedman et al., 2008; Rhodes et al., 2009) included only self-identified gay men, and four studies (Bimbi et al., 2008; Bogart et al., 2005; Conron et al., 2010; Toro-Alfonso & Rodríguez-Madera, 2004) included only MSM who identified as gay or bisexual, to the exclusion of other non-gay, non-bisexual identifying MSM. In only one study (Conron et al., 2010) were IPV measures separately reported for gay-identified and bisexual-identified MSM, with gay-identified MSM reporting a significantly higher prevalence of receipt of both physical and sexual IPV over their lifetimes compared to bisexual-identified MSM (Conron et al., 2010). It remains unknown what proportion of IPV reported by MSM is IPV involving female partners, either for receipt of IPV or perpetration of IPV. While this issue applies especially to bisexual-identified MSM, to some degree it may also apply to gay- and homosexual-identified MSM, as discordance between sexual orientation and sexual behavior has been observed across diverse populations (Lever, Kanouse, Rogers, Carson, & Hertz, 1992; Pathela et al., 2006; M. W. Ross, Essien, Williams, & Fernandez-Esquer, 2003). In general, there have been very few comparisons of health outcomes for gay-identified, bisexual-identified, and non-gay-non-bisexual-identified MSM, and existing evidence is in dispute (Harawa et al., 2008). For example, while some analyses have demonstrated that non-gay-identified MSM report more frequent drug use compared to gay-identified MSM (Agronick et al., 2004), others have found the opposite (UNAIDS, 2010). Thus, when measuring IPV in same-sex male relationships, future research efforts should determine the sex/gender of perpetrators of IPV against MSM as part of a larger effort to describe the typologies of IPV among MSM, and should consider the possible effects of sexual orientation on partner violence.

6. All studies use cross-sectional data, preventing conclusions of causality

The paucity of prospective studies measuring IPV has been previously documented, and is a shortcoming that applies to all areas of violence research, not only to IPV research among MSM (WHO, 2002). The few prospective studies that do exist have tended to use cohorts of children to demonstrate the increased risk of perpetrating IPV among persons witnessing IPV in childhood (Ehrensaft et al., 2003; Farrington, 1989; Kitzmann, Gaylord, Holt, & Kenny, 2003; Lansford et al., 2002; Simons, Lin, & Gordon, 1998; Straus, Gelles, & Smith, 1995; Widom, 1989; Yates, Dodds, Sroufe, & Egeland, 2003), or have focused on specific groups at heightened risk for receipt of IPV, such as pregnant women (Kaye, Mirembe, Bantebya, Johansson, & Ekstrom, 2006; Koenig et al., 2006; Ludermir, Lewis, Valongueiro, de Araújo, & Araya, 2010), female sex workers (Shannon et al., 2009), and survivors of CSA (Loh & Gidycz, 2006; Noll, 2005; Williams, 1994). While the 28 studies synthesized here have begun to examine correlative risk factors for receipt of IPV, the absence of prospective data means that casual pathways for male-male IPV cannot be assessed. For example, though emerging evidence links receipt of IPV and HIV seropositivity, it remains unknown whether experiencing IPV places MSM at heightened risk for HIV seroconversion,

or if being HIV positive instead increases risk for experiencing IPV (Feldman et al., 2007; Greenwood et al., 2002; R Stall et al., 2003; Stephenson, Rentsch, Salazar, & Sullivan, 2011). Longitudinal research with MSM from all areas of public health, particularly longitudinal studies of HIV/AIDS, should incorporate questions on IPV in order to better understand IPV risk factors among MSM.

7. Nearly all studies use convenience samples of urban MSM

The majority of studies (60%) used convenience samples to determine the prevalence of IPV among MSM, while only our studies used venue-based sampling methods. While venue-based sampling, a derivative of time-space sampling, does not eliminate sampling bias, it allows for randomization in sample recruitment, enable researchers to evaluate systematic bias in the sample, and is considered a more rigorous method of sampling compared to convenience sampling (Muhib et al., 2001). An additional six studies used probability-based sampling methods, and subsamples of national probability samples have twice been used (Bogart et al., 2005; P Tjaden et al., 1999). To date, no data on IPV among MSM have been published from a large, national, probability-based sample. This lack of epidemiologic rigor hampers the generalizability of findings. Because a minority of studies (six) (Balsam, Lehavot, & Beadnell, 2011; Bogart et al., 2005; Stephenson et al., 2010; Stephenson et al., 2011; P Tjaden et al., 1999; Waldner-Haugrud et al., 1997) have measured IPV among MSM using national samples, the ability to compare prevalences of IPV across geographic contexts is limited. Based on the results of this systematic review, no study of IPV among MSM has yet compared the experience of IPV of MSM in different areas of the US or from different contexts, such as rural MSM versus urban MSM. Furthermore, the majority of studies (57%) used urban-based samples of MSM, with the most commonly-sampled cities being New York City (eight studies), Los Angeles (five studies), and Chicago (four studies). Only four studies used sampling frames that would otherwise include non-urban MSM (Conron et al., 2010; Craft & Serovich, 2005; Rhodes et al., 2009; Toro-Alfonso & Rodríguez-Madera, 2004). While very few studies have been published regarding the mental or physical health of rural MSM, the existing data does suggest that rural MSM may be especially affected by stressors such as homophobia and stigma (Preston et al., 2004) and may have more difficulty accessing health services, especially HIV prevention services (Preston, D'Augelli, Cain, & Schulze, 2002). Given this, there is a pressing need to include non-urban MSM all areas of public health research, including research on IPV.

8. There is a lack of consensus in the correlates of IPV among MSM

The literature is in dispute regarding the associations between IPV, demographic factors, and health factors. It remains unknown whether or not patterns of IPV among MSM reflect known patterns among heterosexual populations (Coker et al., 2002). This lack of agreement could be the result of several factors stemming from the scattershot approach to IPV research among MSM, including the variety of recall periods used to measure violence. Of particular importance is the emergence of evidence connecting IPV and sexual risk-taking in the form of unprotected anal intercourse among MSM, as MSM both in the US and worldwide continue to be disproportionately affected by HIV (Baral, Sifakis, Cleghorn, & Beyrer, 2007; Centers for Disease Control and Prevention HIV among Gay, 2010). Similarly, the associations between substance abuse, alcohol abuse, and IPV strengthen

evidence for the theory of syndemics among MSM, in which high prevalences of multiple poor health outcomes exist simultaneously and compound and confound each other (R. Stall, Friedman, & Catania, 2008; R Stall et al., 2003). Though there is more agreement in the literature as to these correlates, the magnitude of these associations remains unknown. More research is therefore needed to determine the explicit health effects of both experiencing IPV and perpetrating IPV among MSM.

Conclusion

The emergent evidence reviewed here demonstrates that IPV – psychological, physical, and sexual – occurs in male-male partnerships at alarming rates. Despite the use of multiple recall periods, varied definitions of partner violence, and diverse populations recruited through various sampling methodologies, all 28 studies included in this review documented rates of IPV that were similar to or higher than rates of IPV observed in populations of women (WHO, 2002). Currently, there is insufficient evidence to conclude much beyond this documented high rate of IPV among MSM. The limitations of the studies reviewed here hamper generalizability and make claims of causality imprudent, especially given the cross-sectional nature of all studies reviewed.

This review has several limitations stemming from its methodology. Although best-evidence techniques were used to capture all articles meeting inclusion criteria, it is possible that studies meeting the inclusion criteria were not recognized. Furthermore, the inclusion criteria eliminated studies that measured IPV among certain subsets of persons and in cases where IPV was confounded by childhood sexual abuse. Considering the higher rate of CSA reported by MSM, the summarized prevalences of partner violence presented here may be artificially low. In addition, limitations in the studies included would necessarily be transferred into the conclusions of this review. The lack of consensus in the studies reviewed also prevented the calculation of pooled prevalence estimate, a statistic that could potentially serve as proxy in light of the absence of a national, probability-based sample of IPV among MSM.

The scattershot approach to IPV research among MSM has created a body of literature that is lacking in several aforementioned key areas. Nonetheless, the observed high prevalence of receipt of IPV found among MSM in these studies warrants further rigorous research, particularly regarding the health effects of receipt of IPV and perpetration of IPV, as part of a larger effort to understand and address the syndemic psycho-social, behavioral, and health processes that continue to cause increased harm to all LGBT persons, including MSM.

Implications for Practice and Research

Practice

- MSM should be screened for IPV in healthcare settings, potentially during routine testing for HIV, even when there are no outward signs of physical or sexual trauma.

Research

- A primary priority for future research should be the development and validation of a MSM-specific definition of IPV, one built off of existing definitions of IPV derived from women.
- A large, national study using probability-based sampling methodology is warranted in order to determine a more precise estimate of IPV experience and perpetration among MSM.
- Researchers should be more rigorous in their measurements of IPV; that is, quantitative tools should control for childhood sexual abuse, specify a recent recall period, measure all forms of IPV including receipt of IPV and perpetration of IPV, and determine the sex/gender of IPV perpetrators.
- Longitudinal, prospective studies should incorporate modules on IPV among MSM in order to determine the casual pathways of male-male IPV.
- Future research should focus on clarifying risk factors for and mediators of IPV among MSM.
- Research is needed in order to develop and test health interventions to prevent IPV among MSM.

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Key Points Of Review

- There currently exists no published research using a probability-based national sample to measure either receipt of IPV or perpetration of IPV among MSM.
- Multiple forms of IPV are prevalent among MSM; non-physical forms of violence are generally reported more commonly than either physical or sexual forms of violence.
- Consensus is lacking as to the definition of partner violence among MSM; IPV among MSM has been historically measured using definitions of violence derived from and validated on women.
- The prevalence of battering revictimization remains unknown, as does how frequently persons experiencing partner violence concurrently perpetrate violence against their partners.
- The literature is in dispute regarding the correlates of IPV among MSM, and a lack of longitudinal, prospective data hampers efforts to identify risk factors for either receipt of IPV or perpetration of IPV. However, the preponderance of data indicates a link between substance abuse and receipt of IPV.

Table 1

Exclusion criteria for systematic review, including the number of studies not meeting each criterion.

Inclusion Criterion	Number not meeting criterion	Articles Remaining
Published after 1990 in a peer-reviewed journal Article must be published in 1990 or afterwards in a peer-reviewed journal	0	576
Written in English Article must be written in English	15	561
Research Article must be the product of original research, therefore excluding systematic reviews, meta-analyses, expert opinions, journalistic articles, etc.	132	429
US and Territories Population The population must be drawn from the United States or its Territories	81	348
MSM Population at least in part The population must include men who have sex with men, and MSM must be analyzed as separately delineated group within the study	156	192
No one <15 years old No member of the sample may be younger than 15 years old in order to avoid childhood sexual abuse misclassification bias	23	169
Intimate Partner Violence Measured Intimate Partner Violence, broadly defined, must be measured. A variety of terms may be used for IPV, such as domestic violence, violence victimization, partner abuse, etc. are eligible. The violence measured must be relationship violence, to the exclusion of, for example, homophobic attacks.	75	94
Measure IPV apart from Childhood Sexual Abuse The study must not be focused solely on childhood sexual abuse.	56	38
Use of non-specific population The study population must not be a specific population, such as injection drug users, or persons accessing domestic violence assistance resources	4	34
Report IPV as a prevalence and/or correlates of IPV IPV must be reported as a prevalence and/or associations between IPV and unprotected anal intercourse specifically among MSM must be reported.	2	32
Sample size over 50 The sample size of MSM must be over 50 persons regardless of the size of the entire study population	4	28

Table 2

Description of 28 studies included in review.

Year	1 st Author	n	Age (mean or distribution)	Race	Location	Sampling Method	Inclusion Criteria	Violence Definition
2011	Ghanem	212	33.8	White: 72% Black/AA: 3.3% Hispanic: 19% Other: 5%	San Diego, CA	Convenience sample of clinical sample of men referred to HIV care clinics	≥18; documented early/acute/recent HIV infection	Unique
2011	Stephenson	528	27	White: 84%	National (Web-based)	Convenience sample from Facebook banners shown to males ≥18 years, reporting in a relationship, reporting interest in men, reporting US residence	≥18; male; report at least 1 male sex partner in past year; currently have a male sex partner	RCTS
2011	Balsam	214	38.7	White: 90.0% Black/AA: 1.9% Latino: 2.9% Bisexual: 1.5% Native Amr.: 1.2% Other: 1.1%	National	Convenience sample from advertisements in <i>Greyhound Pages</i> , internet groups, email advertisements, flyers at LGBT religious organizations	≥18; gay; index participants and/or their siblings in sibling study	M-SES
2011	Pantalone	168	44	White: 63.1% Black/AA: 17.6% Multiple: 7.9% Native Amr.: 6.1% Unknown: 4.2%	“two urban, outpatient, public university-affiliated HIV clinics”	Clinical sample referred by case managers or research nurses	≥18; biological male at birth; English-speaking; identified as MSM; actively engaged in medical care at study clinic(s)	RCTS
2011	Welles	128	18-25: 25% 26-35: 27% 36-45: 26% ≥46: 21%	Black/AA: 100%	Boston	Convenience sample at five medical clinics in African American neighborhoods	≥18, African American, two sex partners in past 12 months	Unique
2010	Stephenson	402	18-24: 68% 25-29: 21% 30-35: 11%	White: 48% Black: 15% Latino: 37%	National (Web-based)	Convenience sample, recruitment via MySpace banner advertisements, follow-up subset of larger study	≥18; <36; sex with a man in the past year, MySpace user	WHO
2010	Wong	526	20.1	White: 37% Black: 24% Latino: 39%	LA county	Venue-based stratified sampling, Subset of Healthy Young Mens study	≥18; <21; MSM and/or gay/bisexual; White, Black, or Latino-Mexican; residing in LA County for 6 months	WEB
2010	Conron	926	18-33: 29.2% 34-39: 49.7% 50-64: 21.1%	White: 82.1% Black/AA: 4.8% Latino: 9.0% A/PI: 3.2% Other: 1.0%	Massachusetts	Aggregated 2001-2008 Massachusetts Behavioral Risk Factor Surveillance surveys (telephone land-line random digit dialing of geographically stratified areas)	≥17; <65; self-report as gay/bisexual	Unique

Year	1 st Author	n	Age (mean or distribution)	Race	Location	Sampling Method	Inclusion Criteria	Violence Definition
2009	Rhodes	206	20.7	White: 79% Black/AA: 7% Hispanic: 2% A/PI: 4% Other: 7%	North Carolina	Stratified random cross-sectional samples of undergraduate university students	Gay; university student	Unique
2008	Friedman	1383	32.5	White: 77.1% Black/AA: 3.9% Latino: 10.8% A/PI: 5.5% Native Amr.: 2.5% Other: 0.2%	Four cities	Subset of Urban Men's Health Study, telephone interviews via disproportionate and adaptive sampling	≥18; <40; self-identify as gay	Unique
2007	Houston	817	33	White: 22% Black/AA: 51% Latino: 16% Other: 10%	Chicago	Targeted multi-frame sample: Black Gay Pride, Latino clubs, street fairs	≥18; MSM	M-CTS
2007	Bimbi	652	38.8	White: 63.1% Black/AA: 9.7% Latino: 14.5% A/PI: 5.9% Other: 6.8%	New York City	Convenience sample from LGBT community events	≥18; self-identify as gay, bisexual, or queer	Unique
2007	Feldman	912	31.2	Latino 100%	Miami, NYC, Los Angeles	Venue-based sample of Latino gay venues	Gay; Latino	Unique
2006	Koblin	539	15-18: 38% 19-22: 62%	White: 12% Black/AA: 24% Latino: 41% A/PI: 6% Multi: 17%	New York City	Venue-based sample from MSM-frequented public places	≥15;<23;MSM	Unique
2005	Bogart	292	38.8	White: 70.1% Black/AA: 11.8% Latino: 14.4% Other: 3.7%	National	Multistage national probability sample	≥18; HIV-positive; accessing health care; self-identified gay/bisexual; sex in a close relationship within six months previous	Unique
2005	Balsam	264	38.7	White.: 90.0% Black/AA: 1.9% Latino: 2.9% Biracial: 1.5% Native Amr.: 1.2% Other: 1.1%	National	Convenience sample from advertisements in <i>Gay/low Pages</i> ; internet groups, email advertisements, flyers at LGBT religious organizations	≥18; gay; index participants and/or their siblings in sibling study;	M-PMWIRCTS M-SES
2005	Craft	51	40.47	White: 54.9% Black/AA: 43.1% Other: 2.0%	Midwest	Convenience sample from longitudinal research participants, attendees to HIV workshops and conferences	≥18; HIV-positive; currently or within 12 months in an intimate relationship with another man	RCTS

Year	1 st Author	n	Age (mean or distribution)	Race	Location	Sampling Method	Inclusion Criteria	Violence Definition
2004	Toro-Alfonso	199	29	Latino 100%	Puerto Rico	Convenience sample from services and organization that offer services to gay men	≥18; gay/bisexual; Puerto Rican living in Puerto Rico; ever in a committed relationship	M-SES
2004	Relf	2124	39.5	21% "of color"	San Francisco, Los Angeles, NYC, Chicago	Probability-based, disproportionate sampling telephone interviews	≥18; sexual contact with male since 14 yrs old OR bisexual OR homosexual/gay	Unknown
2003	Stall	2881	18-29: 20% 30-39: 39% 40-49: 25% 50-59: 10% Over 59: 6%	White: 79% Black/AA: 4% Latino: 9% A/PI: 8% Native Amr.: 3%	San Francisco, Los Angeles, NYC, Chicago	Probability-based, disproportionate sampling telephone interviews	≥18; sexual contact with male since 14 yrs old OR bisexual OR homosexual/gay	M-CTS
2002	Klitzman	733	40.5	White: 80.5% Black/AA: 3.9% Latino: 7.7% A/PI: 2.4% Native Amr.: 2.4% Other: 0.4%	New York City	Subset of Urban Mens Health Study, telephone interviews via disproportionate and adaptive sampling	≥18; gay/bisexual OR sex with man after 14 years old	Unique
2002	Greenwood	2881	18-29: 20% 30-39: 39% 40-49: 25% 50-59: 10% Over 59: 6%	White: 79% Black/AA: 4% Latino: 9% A/PI: 8% Native Amr.: 3%	San Francisco, Los Angeles, NYC, Chicago	Probability-based, disproportionate sampling telephone interviews	≥18; sexual contact with male since 14 yrs old OR bisexual OR homosexual/gay	M-CTS
2001	Kalichman	595	33	White: 71% Black/AA: 21% Latino: 3% Other: 5%	Atlanta	Convenience sample of gay pride event	Unspecified	M-SES
2000	Turell	227	Not reported for MSM only	MSM only	Houston	Convenience sample through gay community groups and clinics, local book stores, community centers, women's centers	Unspecified	Unique
2000	Nieves-Rosa	273	31	Latino: 100%	New York City	gay venues, snowballing	≥18; Latin American ancestry connected to Colombia, Dominican Republic, Mexico, or Puerto Rico; ≥10 sexual experiences with men; ≥1 sexual experience with a man in the past 12 months	Unique
1999	Tjaden	66	40.5	White: 77%	National	Subsample of national probability sample (National Violence Against Women survey)	≥18; current cohabitation with a male partner	CTS
1997	Waldner-Haugrud	165	32	White: 100%	National	Snowball sampling	Unspecified	M-CTS

Year	1 st Author	n	Age (mean or distribution)	Race	Location	Sampling Method	Inclusion Criteria	Violence Definition
1995	Kalichman	196	37.1	White: 58% Black/AA: 31% Hispanic: 7% Other: 4%	“Moderate sized city in the Midwest US”	Convenience sample of STD clinics, gay bars, businesses, media	“Homosexually active men”	SES

“AA” refers to African American, “A/PI” refers to Asian/Pacific Islander, and “CTS” refers to the Conflicts Tactics Scale, which may be either “Modified” (M) or “Revised” (R). M-SES = Modified Sexual Experiences Survey. WHO = World Health Organization. WEB = Women’s Experience of Battering Scale. PMWI = Psychological Maltreatment of Women Scale.

Table 3

Reporting of receipt of violence by recall period (%). Studies appear on more than one line-item if they measured violence through different recall periods. Blank table cells were not measured or not reported.

Year	1 st Author	Any IPV	Physical	Sexual	Psychological	Other [#]
<i>Within current relationship</i>						
2011	Stephenson		22.3	9.8		33.1 ^E
2011	Welles		33.6	28.1		
<i>Six-month recall</i>						
2005	Bogart		16.7			
<i>One-year recall</i>						
2011	Pantalone	54.2	19.0	17.3	50.6	
2010	Stephenson		11.8	7.3		
2005	Craft		45.1	33.3	72.5	
<i>Five-year recall</i>						
2011	Pantalone	65.5	29.2	22.0	61.3	
2008	Feldman	46.2				
2007	Bimbi		20.2			34.9 ^N
2002	Greenwood	39	22	5	34	
<i>Fifteen-year recall</i>						
2000	Nieves-Rosa			12		
<i>Adulthood recall</i>						
2010	Wong		23	23		41 ^E
2007	Feldman	52	33	10	45	
2005	Balsam		39.9	30.7, 23.3*, 11.8**		
2004	Toro-Alfonso		24	25		40 ^E
2001	Kalichman		39.0	20.3		
<i>Lifetime recall</i>						
2011	Pantalone	78.0	38.1	30.4	73.2	
2011	Ghanem		22.2			

Year	1 st Author	Any IPV	Physical	Sexual	Psychological	Other [#]
2011	Balsam			12.0**		
2011	Welles	44.5				
2010	Conron		31.2 ⁺ , 2.7 ⁺⁺	18.9 ⁺ , 15.3 ⁺⁺		
2009	Rhodes		13.0			
2007	Houston	32.4	19.2	18.5		20.6 ^V
2006	Koblin	36.9	23.4			32.2 ^T
2000	Nieves-Rosa	51.0	35.0		33.0	
1999	Tjaden		23.1		5.4	
1997	Waldner-Haugrud	29.7				
1995	Kalichman			29.0 [*] , 6.0 ^{**}		
<i>Unspecified recall</i>						
2000	Turell		44.0	12.0		83.0 ^E , 37.0 ^F
2002	Kalichman		21.8			

Sexual = sexual,

* coerced sex,

** forced sex.

[#] Other:

^E Emotional,

^V Verbal,

^T Threats of violence,

^F Financial,

^N Non-physical.

⁺ Gay Men

⁺⁺ Bisexual Men

Table 4

Reporting of perpetration of violence by recall period (%)

Year	1 st Author	Any IPV	Physical	Sexual	Psychological	Other [#]
<i>Within current relationship</i>						
2011	Stephenson		19.9	8.9		29.8 ^E
2011	Welles		33.0	21.9		
<i>Six-month recall</i>						
2005	Bogart		16.3			
<i>One-year recall</i>						
2010	Stephenson		3.6	0.7		
2005	Craft		39.2	27.5	78.4	
<i>Adulthood recall</i>						
2010	Wong	12.0				
2004	Toro-Alfonso		26.0	14.0		48.0 ^E
<i>Lifetime recall</i>						
2011	Ghanem		7.6			
2011	Welles	35.9				
2009	Rhodes		9.0			

[#] Other:

^E Emotional

Table 5

Results of statistical testing of possible demographic correlates of violence and result of testing. Studies in which a possible demographic correlate was tested against the outcome of a certain form of partner violence are enumerated, including whether or not the possible correlate was found to be statistically significant. Demographic correlates are listed if tested by at least two studies. Demographic correlates without findings are untested in the 28 studies reviewed.

	Any IPV		Physical IPV		Psychological/Emotional IPV		Sexual IPV		
	Significant	Not significant	Significant	Not significant	Significant	Not significant	Significant	Not significant	
Age	Welles 2011 Pantalone 2011 Koblin 2006 Stall 2003 Greenwood 2002	Houston 2007 Feldman 2007 Kalichman 2001 Nieves-Rosa 2000	Pantalone 2011 Greenwood 2002	Feldman 2007	Pantalone 2011 Greenwood 2002	Stephenson 2011 Feldman 2007	Pantalone 2011 Greenwood 2002	Pantalone 2011 Greenwood 2002	Stephenson 2011 Feldman 2007 Kalichman 2000 Kalichman 1995
Race/Ethnicity	Pantalone 2011 Houston 2007 Kalichman 2001	Koblin 2006 Stall 2003 Greenwood 2002	Pantalone 2011 Pantalone 2011	Greenwood 2002		Stephenson 2011 Pantalone 2011 Greenwood 2002		Pantalone 2011 Kalichman 2000	Stephenson 2011 Greenwood 2002 Kalichman 1995
Income/Socio-Economic Status	Houston 2007	Pantalone 2011 Stall 2003 Greenwood 2002 Nieves-Rosa 2000	Pantalone 2011	Greenwood 2002	Pantalone 2011	Greenwood 2002		Pantalone 2011 Kalichman 2000	Kalichman 2001 Greenwood 2002 Kalichman 1995
Education	Greenwood 2002	Pantalone 2011 Feldman 2007 Stall 2003 Nieves-Rosa 2000	Stephenson 2011 Greenwood 2002	Pantalone 2011 Feldman 2007	Greenwood 2002	Stephenson 2011 Pantalone 2011 Feldman 2007		Stephenson 2011 Feldman 2007 Greenwood 2002 Kalichman 2000	Kalichman 1995 Pantalone 2011
Employment	Greenwood 2002	Pantalone 2011		Pantalone 2011 Greenwood 2002		Pantalone 2011 Greenwood 2002			Pantalone 2011 Greenwood 2002
Relationship Status	Pantalone 2011			Pantalone 2011	Pantalone 2011				Pantalone 2011 Kalichman 2001 Kalichman 1995
HIV status	Feldman 2007 Stall 2003 Greenwood 2002	Koblin 2006 Nieves-Rosa 2000	Feldman 2007 Greenwood 2002	Stephenson 2011	Greenwood 2002	Stephenson 2011 Feldman 2007		Stephenson 2011	Feldman 2007 Greenwood 2002 Kalichman 2001
Sexual Identity/Orientation		Koblin 2006 Relf 2004 Greenwood 2002							Kalichman 2001
Geography		Feldman 2007 Greenwood 2002		Feldman 2007					Feldman 2007
Living situation		Pantalone 2011 Koblin 2006		Pantalone 2011					Pantalone 2011

Table 6

Results of statistical testing of possible health correlates of violence and result of testing. Studies in which a possible health correlate was tested against the outcome of a certain form of partner violence are summarized, including whether or not the possible correlate was found to be statistically significant. Health correlates are listed if tested by at least two studies. Health correlates without findings are untested in the 28 studies reviewed.

	Any IPV		Physical IPV		Psychological/Emotional IPV		Sexual IPV	
	Significant	Not significant	Significant	Not significant	Significant	Not significant	Significant	Not significant
Unprotected Anal Intercourse (UAI)	Houston 2007 Relf 2004 Nieves-Rosa 2000		Nieves-Rosa 2000	Feldman 2007	Feldman 2007	Nieves-Rosa 2000	Kalichman 2001 Nieves-Rosa 2000	Kalichman 1995
Insertive UAI							Kalichman 2001	Brastein 2006
Receptive UAI							Brastein 2006	Kalichman 2001
Serodiscordant or unknown serostatus UAI	Stall 2003							Brastein 2006
STI Diagnosis	Houston 2007						Kalichman 1995	Kalichman 2001
Alcohol Consumption	Welles 2011 Houston 2007	Pantalone 2011 Nieves-Rosa 2000		Pantalone 2011		Pantalone 2011		Pantalone 2011
Substance Use and/or Abuse	Houston 2007 Koblin 2006 Relf 2004 Stall 2003 Klitzman 2002 Nieves-Rosa 2000	Pantalone 2011	Pantalone 2011 Wong 2010			Pantalone 2011 Wong 2010	Kalichman 2001	Pantalone 2011 Wong 2010 Brastein 2006 Kalichman 1995
Depression	Pantalone 2011 Houston 2007 Stall 2003		Pantalone 2011			Pantalone 2011	Kalichman 1995	Pantalone 2011
Lower Self-Esteem	Nieves-Rosa 2000	Houston 2007					Kalichman 1995	
Lower Self-worth	Nieves-Rosa 2000						Kalichman 2001	
Less able to talk with partner about condoms							Kalichman 2001 Kalichman 1995	
Trading sex							Kalichman 2001	Brastein 2006
Number of Partners		Houston 2007	Feldman 2007		Feldman 2007		Feldman 2007	Brastein 2006
Family threats of violence	Koblin 2006		Feldman 2007		Feldman 2007		Feldman 2007	
Mental Health Problems	Houston 2007 Stall 2003						Brastein 2006	
HIV Testing history		Koblin 2006		Greenwood 2002	Greenwood 2002		Greenwood 2002	Kalichman 2001 Kalichman 1995