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Meeting the sexual health needs of bisexual men in the age of biomedical HIV prevention: Gaps and priorities

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Abstract

The field of HIV/STI prevention has primarily focused on gay men (or “men who have sex with men” [MSM] as a broad category) with limited attention to bisexual men in particular. Although bisexual men are also at increased risk for HIV and other STI, they are less likely to utilize HIV/STI prevention services than gay men, and very few interventions have been developed to address their unique needs. Further, while biomedical advances are changing the field of HIV prevention, bisexual men are also less likely to use biomedical HIV prevention strategies (e.g., pre-exposure prophylaxis [PrEP]) than gay men. In an effort to advance research on bisexual men and their sexual health needs, the goals of this commentary are: (1) to review the empirical literature on the prevalence of HIV/STI among bisexual men, the few existing HIV/STI prevention interventions developed for bisexual men, and the use of biomedical HIV prevention among bisexual men; (2) to describe the ways in which the field of HIV/STI prevention has largely overlooked bisexual men as a population in need of targeted services; and (3) to discuss how researchers can better address the sexual health needs of bisexual men in the age of biomedical HIV prevention.

Keywords

bisexuality; bisexual men; sexual health; HIV; STI; biomedical prevention; pregnancy prevention

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INTRODUCTION

Historically, the field of HIV/STI prevention has primarily focused on addressing the sexual health needs of gay men (or “men who have sex with men [MSM]” as a broad category) with limited attention to the unique needs of bisexual men. There has been some attention to behaviorally bisexual men (i.e., men who have sex with men and women [MSMW]), much of which has focused on their potential role as a bridge for HIV transmission from male to female partners (Jeffries, 2014), a myth with scant empirical support (Friedman et al., 2017). While this attention to MSMW represents an important step toward understanding the sexual health needs of bisexual men, the category MSMW is not inclusive of all bisexual men. For example, data from a nationally representative sample revealed that, among sexually active men ages 24–32, only 45% of those who described themselves as bisexual or mostly heterosexual (but somewhat attracted to their own sex) reported sex with male and female partners in their lifetime (Everett, 2013). Similarly, in a probability sample of high school students, only 54% of sexually active male youth who identified as bisexual reported sex with male and female partners in their lifetime (Mustanski, Birkett, Greene, Rosario, Bostwick, & Everett, 2014). As such, a sizeable proportion of self-identified bisexual men are not represented in samples of MSMW. Further, behavioral categories such as MSM and MSMW have been criticized for ignoring the context in which behavior occurs (e.g., the social and cultural norms and values of diverse communities) and for obscuring important differences based on identity (Bauer & Brennan, 2013; Young & Meyer, 2005).

Despite the lack of research on HIV/STI among bisexual men, the available evidence indicates that, similar to gay men, bisexual men are also at increased risk for HIV and other STI compared to heterosexual men (Caceres et al., 2018; Friedman et al., 2014; Jeffries, 2010). However, efforts to prevent HIV/STI have largely overlooked bisexual men as a population in need of targeted services. For example, existing HIV/STI prevention interventions for MSM tend to focus on sexual behaviors, relationships, and prevention strategies with male partners, with limited (if any) attention to female partners and partners of other genders. Further, very few existing interventions are developed and tailored specifically for bisexual men. Of the few existing interventions, most focus on Black MSMW (with one exception focused on Hispanic/Latino MSMW) and are still in the early stages of efficacy testing (Fernandez et al., 2016; Harawa et al., 2018; Harawa et al., 2013; Lauby et al., 2018; Williams et al., 2013; Williams, Ramamurthi, Manago, & Harawa, 2009). Additionally, while biomedical advances are changing the field of HIV prevention, accumulating evidence suggests that they are not reaching bisexual men to the same extent as gay men (Feinstein et al., 2019; Friedman et al., 2014; Friedman et al., 2015; Friedman et al., 2018; Grov, Rendina, Jimenez, & Parsons, 2016). As such, in an effort to advance research on bisexual men and their sexual health needs, the goals of this commentary are to describe gaps in our understanding of sexual health among bisexual men and to discuss ways to address these gaps. To begin, we review the empirical literature on the prevalence of HIV/STI among bisexual men. Then, we review the few existing HIV/STI prevention interventions that have been developed and tested specifically for this population as well as the empirical literature on the use of biomedical HIV prevention among bisexual men. Finally, we describe the ways in which the field of HIV/STI prevention has overlooked

bisexual men and we discuss how researchers can better address the unique sexual health needs of this population.

The importance of identity in research on sexual health

While sexual orientation has been conceptualized as a complex, multi-dimensional construct encompassing sexual and romantic attractions, sexual behaviors, sexual identity, and other factors (Mustanski, Kuper, & Greene, 2014), most HIV/STI prevention research that has included bisexual men has focused on sexual behavior using broad samples of MSM (Sandfort & Dodge, 2008). These studies have largely focused on the sexual risk and prevention experiences of MSM with their male partners (Beyrer et al., 2012; Mustanski, Newcomb, Du Bois, Garcia, & Grov, 2011; Wade & Harper, 2015; Young & Meyer, 2005). Within the past decade, an increasing number of studies (including our own) have examined HIV/STI risk and prevention among MSMW, particularly racial/ethnic minorities, in the US (citations blinded for review). While many participants in studies of MSMW also self-identify as bisexual, relatively few studies have intentionally explored HIV/STI risk and prevention specifically among self-identified bisexual men, including these men's experiences related to their sexual identity within the context of sexual health (Baldwin et al., 2015; Feinstein, Moran, Newcomb, & Mustanski, 2019; Stokes, Venable, & McKirnan, 1997).

However, Young and Meyer (2005) described sexual identities as “powerful forces for group affiliation” (p. 1145), noting that affiliation networks and communities serve as important sources of information, norms, values, and resources, all of which are critical to sexual health (Institute of Medicine, 2011). Further, it has been suggested that sexual identity is the dimension of sexual orientation that is most relevant to experiences of disadvantage and discrimination (Vizard, 2014). Bisexual identity is highly stigmatized (Dodge et al., 2016; Friedman, Dodge, et al., 2014; Herek, 2002), bisexual people face discrimination from both heterosexual and gay and lesbian people (Feinstein & Dyar, 2017; Ochs, 1996), and being more open about one's bisexual identity is associated with depression and substance use (Feinstein, Dyar, Li, Whitton, Newcomb, & Mustanski, in press; Feinstein, Dyar, & London, 2017). Together, these stigma-related experiences contribute to negative health outcomes (Brewster, Moradi, Deblaere, & Velez, 2013; MacLeod, Bauer, Robinson, MacKay, & Ross, 2015) and present barriers to accessing healthcare (Dodge, Jeffries, & Sandfort, 2008; Dodge et al., 2012; Eady, Dobinson, & Ross, 2011; Page, 2004).

As noted, behavioral categories such as MSM and MSMW have been criticized for a number of reasons, including for undermining self-determination, being time-dependent (i.e., categorization depends on the timeframe in which sexual behavior is measured), conflating sexual orientation with number of partners (i.e., categorization as bisexual requires at least two sexual partners, whereas categorization as gay or lesbian only requires one sexual partner), and providing relatively little information about specific sexual behaviors (Bauer & Brennan, 2013; Young & Meyer, 2005). These criticisms highlight the importance of attending to self-identified sexual orientation in research on sexual health. There is also some evidence that self-identified bisexual men differ from behaviorally bisexual men who do not self-identify as bisexual in important ways. For example, compared to behaviorally

bisexual men who do not self-identify as bisexual, self-identified bisexual men are less likely to be married and to have children, and more likely to have ever had anal sex and to describe their sexual behavior as “predominately homosexual” (Lever, Kanouse, Rogers, Carson, & Hertz, 1992). Self-identified bisexual men also report more disclosure and less concealment of their sexual orientation than behaviorally bisexual men who do not self-identify as bisexual (Schrimshaw, Siegel, Downing, & Parsons, 2013). As such, self-identified bisexual men may be embedded in different social networks and communities than behaviorally bisexual men who do not self-identify as bisexual, which may affect their access to and engagement with healthcare.

Prevalence of HIV/STI among bisexual men

In 2016, MSM accounted for 67% of all new HIV infections and 91–92% of those among adolescent and young adult men (CDC, 2017, 2018b). However, the CDC’s surveillance system uses behavioral transmission categories that do not distinguish between men who have sex with men only (MSMO) and men who have sex with men and women (MSMW), limiting our ability to understand the burden of HIV among bisexual men. To address the lack of systematic data on HIV among bisexual men, Freidman and colleagues conducted a meta-analysis of studies that reported on the prevalence of HIV among MSMW in the US (Friedman et al., 2014). Several important findings emerged from their meta-analysis. First, they found that MSMW were more than five times as likely to be HIV-positive as men who have sex with women exclusively (MSWE; 18.3% versus 3.5%), but they were less than half as likely to be HIV-positive as MSMO (16.9% versus 33.3%).¹ Second, consistent with research on MSM in general (Millett et al., 2012; Millett, Peterson, Wolitski, & Stall, 2006), they found that MSMW in samples with high proportions of racial/ethnic minorities were more likely to be HIV-positive than those in samples with low proportions of racial/ethnic minorities. Third, although they did not find a significant difference in the prevalence of other STI between MSMW and MSMO (22.0% versus 26.6%) or between MSMW and MSWE (17.2% versus 7.3%), the prevalence appeared to be higher among MSMW in the comparison with MSWE.² Of note, the studies included in their meta-analysis were largely comprised of higher-risk men, such as those who used injection drugs and those who attended STI clinics in cities with high HIV prevalence. While these prevalence rates should be interpreted with caution, it is still noteworthy that there was a robust disparity in the prevalence of HIV between MSMW and MSWE.

Given that most research on HIV/STI among bisexual men has focused on MSMW, little is known about the prevalence of HIV/STI among self-identified bisexual men. However, a recent study found that self-identified gay and bisexual men were both at increased risk for HIV compared to self-identified heterosexual men who had never had sex with men. Specifically, data from a nationally representative sample revealed that 17.4% of self-identified gay men and 7.7% of self-identified bisexual men were HIV-positive compared to

¹The percentage of HIV-positive MSMW differed in the comparison with MSWE and the comparison with MSMO because different studies were included in each comparison depending on the data provided in the studies.

²Similar to the findings for HIV, the percentage of MSMW with an STI other than HIV differed in the comparison with MSWE and the comparison with MSMO because different studies were included in each comparison depending on the data provided in the studies.

only 0.3% of self-identified heterosexual men who had never had sex with men (Caceres et al., 2018). Similar to the findings for MSMW reviewed above, these findings indicate that, while self-identified gay men experience the greatest burden of HIV infection, self-identified bisexual men are also disproportionately affected by HIV compared to self-identified heterosexual men who have never had sex with men. There is also evidence that both self-identified gay and bisexual men are at increased risk for other STI compared to self-identified heterosexual men. For example, data from a nationally representative sample revealed that 18.2% of self-identified gay men and 17.7% of self-identified bisexual men reported being diagnosed with an STI (genital warts, herpes, or syphilis) in their lifetime compared to only 5.3% of self-identified heterosexual men (Jeffries, 2010). Further, in a sample of young MSM ages 18–29, the prevalence of rectal STI did not differ between self-identified gay and bisexual men (13.1% versus 13.3%; Mustanski, Feinstein, Madkins, Sullivan, & Swann, 2017). Given that few studies have examined differences in the prevalence of HIV/STI based on self-identified sexual orientation, it will be important for research to continue to examine these differences, especially at the intersections of race and ethnicity.

HIV/STI prevention interventions for bisexual men

In order to develop tailored HIV/STI prevention interventions for self-identified bisexual men, it is important to understand their unique sexual health concerns. These include, but are not limited to, the fact that these men often engage in sexual behaviors and relationships with partners of more than one gender, report using substances (including alcohol) before and during sex with partners in different ways based on the gender of their partners, and describe specific challenges to using condoms consistently with partners depending on their gender (Dodge & Sandfort, 2007; Dodge, Schnarrs, Goncalves, et al., 2012; Feinstein et al., 2019; Friedman & Dodge, 2016; Jeffries, 2014; Malebranche, 2008; Spikes et al., 2009). Further, self-identified bisexual men may have different preferences for interventions compared to behaviorally bisexual men. Previous research has found that most behaviorally bisexual men would prefer individual interventions (relative to group interventions) due to privacy concerns (Dodge et al., 2012). In contrast, we recently found that a larger proportion of self-identified bisexual men preferred a group intervention (relative to an individual intervention), which may reflect their desires to meet other self-identified bisexual men and to be part of a community that shares the same identity (citation blinded for review). We also found that self-identified bisexual men who reported more discrimination were more likely to prefer an intervention for bisexual men only (relative to an intervention for gay and bisexual men together), highlighting the unique intervention preferences of self-identified bisexual men.

However, to date, only a small number of HIV/STI prevention interventions have been developed and tested, with published findings, specifically for bisexual men (Fernandez et al., 2016; Harawa et al., 2018; Harawa et al., 2013; Lauby et al., 2018; Williams et al., 2013; Williams et al., 2009). Table 1 summarizes these interventions, including their methods and primary findings. All of these interventions have focused on MSMW (of concern, operationalized differently across each study) and most have targeted Black/African American men (with one exception that targeted Hispanic/Latino men). Further, some have

focused on highly specific populations such as post-incarcerated Black MSMW and HIV-positive MSMW with histories of childhood sexual abuse. In general, these interventions have focused on providing information about HIV/STI prevention, while emphasizing sociocultural influences on sexual behavior important to Black MSMW (e.g., masculinity, racial/ethnic identity, stereotypes about Black men). Of note, the men who participated in these interventions varied in self-identified sexual orientation, and approximately 16–40% did not self-identify as bisexual, which presents challenges to addressing the unique needs of self-identified bisexual men in the context of interventions for MSMW. Further, only two of these interventions (MAALES and POWER) are considered evidence-based by the CDC (CDC, 2018a), highlighting the need for continued development and testing of the interventions that have been developed for bisexual men.

The movement toward biomedical HIV prevention

Advances in biomedical HIV prevention have led to novel strategies for preventing and reducing HIV, including pre-exposure prophylaxis (PrEP) for HIV-negative individuals (CDC, 2018c; Grant et al., 2010) and viral suppression for HIV-positive individuals (referred to as “treatment as prevention” [TasP]). Initial research on PrEP demonstrated that it could reduce HIV acquisition by up to 92% (Grant et al., 2010) and later studies revealed even greater efficacy (up to 99%) among those with the highest adherence (Anderson et al., 2012). Additionally, in recent studies of serodiscordant couples, condomless sex with a virally suppressed HIV-positive partner did not result in any phylogenetically linked transmissions to the HIV-negative partner (Bavinton et al., 2017; Rodger, Cambiano, Bruun, & et al., 2016). However, while biomedical approaches provide new and exciting options for reducing HIV transmission, they have not been without limitations or concerns.

The main concern with PrEP has been that it may contribute to increases in condomless sex (referred to as risk compensation) and, in turn, increases in other STI (Calabrese & Underhill, 2015). Although a meta-analysis found higher rates of other STI among PrEP users compared to non-users (Kojima, Davey, & Klausner, 2016), these findings have been called into question because the PrEP users and non-users differed on other factors associated with STI acquisition (Harawa et al., 2017). Regardless, recent studies have found that MSM in clinic-based samples reported increases in the number of condomless sex partners after initiating PrEP (Lal et al., 2017; Oldenburg et al., 2018), and Newcomb et al. (2018) found that young MSM reported higher rates of receptive condomless sex in partnerships when they were on PrEP compared to those when they were not on PrEP. Concerns have also been raised about the efficacy of TasP in real-world settings, given the challenges of achieving and maintaining engagement in care and viral suppression for HIV-positive individuals (Gardner, McLees, Steiner, Del Rio, & Burman, 2011). There is some evidence that the protective effects of TasP may be lower in real-world settings compared to clinical trials (Jia et al., 2013), and there is also evidence that a significant proportion of young MSM who are HIV-positive may incorrectly assume they have an undetectable viral load (Mustanski et al., 2018). As such, behavioral approaches such as routine STI testing, risk reduction counseling, and condom use remain critically important strategies in HIV prevention.

While the field of HIV prevention has historically overlooked bisexual men, the current emphasis on biomedical prevention is continuing this pattern. In this section, we describe several ways in which the movement toward biomedical prevention may continue to overlook bisexual men, and we discuss how researchers can better address the sexual health needs of this population. First, while we have evidence-based HIV/STI prevention strategies, there is reason to believe that they may not be reaching bisexual men to the same extent as gay men. For decades, scholars have suggested that bisexual men may be less likely to receive HIV/STI prevention information than gay men due to low levels of integration and acceptance in the gay community (Doll, Myers, Kennedy, & Allman, 1997; Kennedy & Doll, 2001). More recent studies have also found that bisexual men are less likely to get tested for HIV/STI than gay men and that they get tested less frequently (Feinstein et al., 2019; Jeffries, 2010; Jin et al., 2002). Further, while PrEP uptake remains low among MSM in general (Holloway et al., 2017; Parsons et al., 2017), bisexual men are less likely to use PrEP than gay men (Feinstein et al., 2019; Grov et al., 2016). Given that PrEP is often discussed in the context of HIV/STI testing, it is not surprising that bisexual men would be less likely to use both prevention strategies than gay men. Although it has been suggested that PrEP uptake is likely to increase over time as awareness and knowledge improve among patients (Strauss et al., 2017) and providers (Petroll et al., 2017), it is likely that bisexual men will continue to be less likely to use PrEP than gay men unless it is specifically marketed to bisexual men and providers are educated about the disparities affecting this population. Relatedly, prior studies assessing PrEP (knowledge of, attitudes toward, and willingness to use) have focused on samples of “gay and bisexual men” or “MSM” (Carballo-Diequez et al., 2017; Mimiaga et al., 2018; Parsons, John, Whitfield, Cienfuegos-Szalay, & Grov, 2018; Starks, Doyle, Shalhav, John, & Parsons, 2018), and, to date, no studies have examined unique barriers to PrEP use among bisexual men. Research on PrEP has also not been intentionally inclusive of bisexual men, nor has it focused on their potentially unique PrEP-related concerns and needs. Many PrEP trials and studies have recruited and engaged participants from gay-oriented venues in large urban areas with well-established “gay community” resources, which bisexual men are less likely to access due to anticipated and prior negative experiences related to stigma toward bisexuality from gay men (Dodge, Schnarrs, Reece, et al., 2012).

There is also evidence that gay and bisexual men differ in other aspects of biomedical HIV prevention, although these studies have largely focused on MSMW rather than self-identified bisexual men. Previous research has found that, compared to HIV-positive MSMO, HIV-positive MSMW are less likely to be aware of their HIV-positive status and to receive HIV care (Friedman et al., 2018), less likely to be virally suppressed (Friedman et al., 2014; Friedman et al., 2015), more likely to experience later HIV diagnoses (Singh et al., 2014), and more likely to receive an AIDS diagnosis within 1–3 years of initial HIV diagnosis (Singh et al., 2014). Further, there is some evidence that HIV care continuum outcomes are particularly disparate among both behaviorally and self-identified bisexual men (Friedman et al., 2018). Specifically, Friedman and colleagues found that MSMW (including those who identified as bisexual and those who identified as gay) as well as MSMO who identified as bisexual were all more likely to be unaware of their HIV-positive status compared to MSMO who identified as gay. MSMW who identified as bisexual were

also less likely to receive HIV care than MSMO who identified as gay. Additionally, MSMW (including those who identified as bisexual and those who identified as gay) were less likely to be virally suppressed than MSMO who identified as gay.

These findings highlight the need for increased dissemination of HIV/STI prevention information to bisexual men and the need for tailored HIV/STI prevention interventions for this population. Of note, tailored approaches are needed for bisexual men who are HIV-negative (i.e., primary prevention) as well as those who are HIV-positive (i.e., secondary prevention), given evidence of disparities along the HIV care continuum. Previous research has found that mass media campaigns are associated with changes in various health behaviors (Wakefield, Loken, & Hornik, 2010), including increases in HIV testing (Castel et al., 2012; French, Bonell, Wellings, & Weatherburn, 2014; Myers et al., 2012; Noar, Palmgreen, Chabot, Dobransky, & Zimmerman, 2009; Pedrana et al., 2012; Solorio et al., 2016; Vidanapathirana, Abramson, Forbes, & Fairley, 2005; Wei et al., 2011). Although most mass media campaigns designed to reduce HIV focus on gay men or MSM as a broad category, Martínez-Donate and colleagues developed and tested a social marketing campaign to promote condom use and HIV/STI testing among Latino MSMW who self-identified as heterosexual (Fernandez Cerdeno et al., 2012; Martinez-Donate et al., 2009; Martinez-Donate et al., 2010). By advertising a comprehensive health exam at a local community clinic, they were able to reach their target demographic and reduce the perceived risk associated with seeking HIV/STI testing (e.g., stigma), and the campaign was associated with decreases in condomless sex with male and female partners (Martinez-Donate et al., 2010).

Based on these findings, generalized mass media campaigns could be a useful strategy to disseminate HIV/STI prevention information to diverse bisexual men and to increase awareness of biomedical HIV prevention strategies in this population. Such campaigns have the potential to reach a large proportion of the bisexual population and they do not require extensive financial resources. Further, mass media campaigns focused on reducing HIV/STI risk among bisexual men also have the potential to increase the visibility of bisexuality in society and, as such, to reduce stigma and prejudice against bisexual individuals. Of note, in addition to developing tailored mass media campaigns for bisexual men, existing campaigns for gay men or MSM could be adapted to be more inclusive of bisexual men. For example, the PrEP4Love campaign was designed to increase awareness of PrEP in Chicago (Chicago PrEP Working Group, 2018). Although bisexual men are included in one of the target demographic groups (young gay and bisexual Black men), a tailored advertisement could be developed to specifically acknowledge the relevance of PrEP to bisexual men. For example, an advertisement with a slogan such as “PrEP is for bi guys, too” could clearly communicate that bisexual men are a relevant consumer base. Further, mass media campaigns are not the only way to disseminate HIV/STI prevention information to bisexual men. As noted above, several HIV/STI prevention interventions exist for Black MSMW, but none have been developed for self-identified bisexual men, bisexual male youth, or non-Black bisexual men. At this point, there is a critical need for additional evaluation of existing interventions for bisexual men and for the development of interventions that are appropriate for diverse bisexual populations.

The emphasis on biomedical HIV prevention also inadvertently minimizes attention to other sexual health concerns, especially those related to female partners (and, in particular, unintended pregnancy). Recent work suggests that bisexual men have sexual and reproductive health concerns that are distinct from individuals who have sex with partners of one gender and/or who identify as gay, lesbian, or heterosexual (Dodge et al., 2016; Friedman et al., 2014). In one of our own studies (conducted before PrEP became available), MSMW in the Midwestern US reported a variety of reasons for condom use and nonuse with partners based on their gender (citation blinded for review). Perceived pregnancy risk affected condom use and nonuse with female partners to such a great extent that it was reported as the primary reason that condoms were not used. Specifically, many participants reported not using condoms if their female partners could not become pregnant (e.g., if they were using other forms of birth control or had undergone sterilization), emphasizing that pregnancy prevention was the most important concern for them in regard to their female partners.

Similarly, in another one of our qualitative studies, Black MSMW commonly reported that they perceived female partners as “safer” than male partners in relation to HIV risk, and that pregnancy prevention was their primary concern with female partners (citation blinded for review). In both of these studies, another segment of participants viewed pregnancy as less of a concern, and even a desired outcome. Indeed, as with other samples of bisexual men (Muñoz-Laboy et al., 2009), many participants reported having at least one child, and Latino men in particular noted the importance of having a child as a marker of masculinity and as a promulgator of family lineage. There is also quantitative evidence that self-identified bisexual men are less likely to consistently use condoms with female partners than male partners (Stokes et al., 1993), but in one of our own studies, we found that this effect became non-significant after accounting for substance use before sex (citation blinded for review). Self-identified bisexual men were more likely to use alcohol and marijuana before sex with female partners than male partners, and this may have explained why they were also less likely to use condoms with female partners than male partners. The current increasing focus on biomedical HIV prevention for MSM (including those who have sex with partners of other genders) continues to leave out any focus on pregnancy prevention (including consistent condom use) and other sexual health issues that are of primary concern to men who have sex with female partners. Inclusion of information on sexual and reproductive health, more broadly, would benefit not only bisexual men but also MSM who do not anticipate having sex with female partners but at times find themselves in such situations.

Overall, gender-specific issues related to sexual and relationship partners of bisexual men have rarely been addressed in previous public health research and intervention efforts with “MSM” due to the fact that these have focused almost exclusively on male sexual and relationship partners (inherent to the concept of MSM itself). However, such issues (particularly those that relate to female sexual and relationship partners) represent a substantial concern for bisexual men. Future interventions aimed at promoting sexual health among bisexual men should consider that risk-reduction behavior within this population is more complex due to the diversity of sexual experiences and relationships for bisexual men by virtue of interacting sexually with partners of more than one gender. Any tailored intervention for bisexual men will need to take into account the unique social context in

which these men negotiate protective behaviors with partners of different genders. In addition to developing tailored interventions for bisexual men, existing HIV/STI prevention interventions for MSM can be adapted to be more inclusive of bisexual men and their needs. Although content focused on sexual behavior with female partners may not be relevant to all sexual minority men, some self-identified gay men also engage in sexual behavior with female partners, and sexual orientation can continue to change over time even among sexual minority men (Moreira, Halkitis, & Kapadia, 2015). As such, including content focused on sexual behavior with partners of different genders has the potential to address the current and future needs of diverse men. Further, acknowledging and validating bisexuality in the context of HIV/STI prevention interventions for MSM may also serve to reduce stigma and prejudice toward bisexual individuals.

Finally, despite the development of HIV/STI prevention interventions for MSMW, the lack of interventions specifically for self-identified bisexual men represents a critical gap in the field of HIV/STI prevention. By not developing tailored interventions for self-identified bisexual men, the field is missing the opportunity to prevent and reduce HIV/STI in this population, while also affirming and supporting them in the face of prejudice and discrimination. Despite increasing societal acceptance of sexual minorities in general (Pew Research Center, 2017), bisexual men continue to face unique stressors at the intersections of heterosexism and monosexism. For example, attitudes toward bisexual individuals continue to be neutral at best and often negative (Dodge et al., 2016), and bisexual individuals are exposed to prejudice and discrimination from society at large as well as within the broader sexual minority community (i.e., from gay and lesbian individuals; Feinstein & Dyar, 2017). This prejudice is largely rooted in myths about bisexuality (e.g., that it is an experimental or transitional stage) and stereotypes about bisexual individuals (e.g., that they are promiscuous and untrustworthy in relationships; Brewster & Moradi, 2010; Eliason, 1997; Mohr & Rochlen, 1999; Zivony & Lobel, 2014). Of note, self-identified bisexual individuals also report negative experiences with healthcare providers (e.g., dismissing bisexuality as a phase, assuming they are promiscuous; Dobinson, Macdonnell, Hampson, Clipsham, & Chow, 2005; Eady, Dobinson, & Ross, 2011; Page, 2004), highlighting the potential value of an intervention specifically for self-identified bisexual men.

Although few studies have examined the extent to which these specific stressors influence HIV/STI risk among bisexual men, recent evidence suggests that higher levels of internalized stigma and lower levels of sexual orientation disclosure are associated with diagnoses of HIV/STI among self-identified bisexual men (Watson, Allen, Pollitt, & Eaton, 2018). Based on these findings, addressing issues related to internalized stigma and sexual orientation disclosure in the context of HIV/STI prevention has the potential to improve the sexual health of self-identified bisexual men. While researchers have developed several interventions to reduce stigma-related stressors and improve coping abilities among sexual minorities (for a review, see Chaudoir, Wang, & Pachankis, 2017), we are only aware of one published stigma-coping intervention specifically developed for bisexual individuals. Israel and colleagues (2018) recently developed an online intervention to reduce internalized binegativity by guiding participants to re-evaluate and challenge negative stereotypes about bisexuality, to externalize negative messages they may have received about bisexuality, and

to adopt affirming attitudes toward bisexuality. Compared to participants in the control condition, participants in the intervention condition reported lower post-test levels of internalized and anticipated binegativity as well as higher post-test levels of identity affirmation and positive affect. These strategies could be incorporated into HIV/STI prevention interventions to reduce internalized stigma among self-identified bisexual men and, in turn, to reduce its influence on their sexual behavior. More comprehensive interventions have also been developed to reduce stigma-related stressors and mental/behavioral health problems among sexual minority men (most of whom self-identified as gay; Pachankis, Hatzenbuehler, Rendina, Safren, & Parsons, 2015). Strategies from these interventions could also be adapted and integrated into interventions for self-identified bisexual men to increase their awareness of stigma-related stressors and their emotional impact, and to provide them will skills to cope with these stressors and their consequences.

Other Non-Gay-Identified Sexual Minority Men

While our overarching goal is to draw attention to the unique needs of bisexual men, it is important to acknowledge that people can use other labels to describe attractions to more than one gender/sex (e.g., pansexual, queer, fluid). Very few studies have compared the experiences of people who identify as bisexual to those of people who identify as pansexual, queer, or fluid. In an exception, Mitchell, Davis, and Galupo (2015) found that people who identified as bisexual reported experiencing more hostility from gay and lesbian people and feeling less connected to the LGBT community than did people who identified as pansexual, queer, or fluid. Based on these findings, there may be important within-group differences in the experiences of non-gay-identified sexual minority men based on the specific labels they use to describe their sexual orientation. It will be important for researchers to examine whether these within-group differences extend to sexual health and HIV/STI prevention.

Additionally, transgender men are largely absent from the literature on HIV/STI prevention. However, the limited available research has found that a large proportion of transgender men report lifetime histories of sexual risk behaviors (Clements-Nolle, Marx, Guzman, & Katz, 2001; Sevelius, 2009). For instance, in a sample of 123 transgender men, 27% reported condomless anal sex with a male partner, 63% reported condomless vaginal sex with a male partner, 18% reported non-hormonal injection drug use, 31% reported sex work or survival sex, and 59% reported forced sex or rape (Clements-Nolle et al., 2001). Further, in a sample of 45 transgender men who have sex with non-transgender men ("trans MSM"), only 31% reported always using condoms during vaginal sex, only 40% reported always using condoms during anal sex, and 47% reported ever being diagnosed with an STI (Sevelius, 2009). While trans MSM tend to perceive themselves as being at moderately high risk for HIV/STI (Reisner, Perkovich, & Mimiaga, 2010), they face numerous barriers to accessing sexual health services (e.g., lack of knowledge among providers; Scheim & Travers, 2017). Of note, transgender people are particularly likely to use labels that reflect attractions to more than one gender/sex (James, Herman, Rankin, Keisling, Mottet, & Anafi, 2016), and transgender people who identify as bisexual or pansexual tend to face greater hardships than those who identify as gay, lesbian, or heterosexual (Movement Advancement Project, 2017). As such, transgender men who identify as bisexual, pansexual, queer, or fluid may have unique needs related to sexual health and HIV/STI prevention.

Methodological Considerations

In this section, we describe several important methodological considerations for research on the sexual health of bisexual men: (1) the need to collect and analyze data in ways that can inform our understanding of biomedical HIV prevention in this population; (2) whether to assess identity or behavior; (3) whether to use a between- or within-group design; (4) how to account for gender identity and expression; and (5) how to recruit a largely invisible population. First, given the limited number of studies focused on biomedical HIV prevention among bisexual men, there is a critical need for data on this topic and population. In particular, we encourage researchers to collect data on PrEP (e.g., knowledge, attitudes, uptake, discontinuation, barriers), HIV/STI testing, diagnosis, and treatment, and viral suppression in samples of bisexual men. In addition to studies focused specifically on bisexual men, studies focused on broader populations (e.g., gay and bisexual men) can examine sexual identity as a correlate of variables related to biomedical HIV prevention. They can also examine sexual identity as a moderator of the associations between other variables or stratify their analyses by sexual identity. Population-level data would provide the most generalizable information, but non-representative data are still valuable in advancing our understanding of biomedical HIV prevention among bisexual men. In addition, given that the few existing HIV prevention interventions designed for bisexual men focus specifically on Black/Hispanic MSMW and are still in the early stages of efficacy testing, additional research is needed to develop interventions for bisexual men of all demographics and to continue testing existing interventions in rigorous clinical trials.

Second, although we have emphasized the importance of identity throughout this commentary, we are not recommending that sexual behavior be disregarded in research on sexual health. However, it is important for researchers to be aware of the problems with behavioral definitions of sexual orientation (Bauer & Brennan, 2013)—namely, that they rely on a specified timeframe, which can affect classification, and that they confound sexual orientation with number of sexual partners (i.e., two sexual partners are required to be categorized as bisexual, whereas only one sexual partner is required to be categorized as gay, lesbian, or heterosexual). Indeed, previous research has found that the effects of bisexual orientation on substance use and sexual risk variables were attenuated by limiting the analyses to participants with two or more past-year sex partners in all groups (Bauer & Brennan, 2013). Given the problems associated with behavioral definitions of sexual orientation, we encourage researchers to assess multiple dimensions of sexual orientation and, when possible, to examine the intersection between identity and behavior. Indeed, this has been done in several studies and it has led to novel insights into sexual health (e.g., Bostwick et al., 2010; Goodenow, Szalacha, Robin, & Westheimer, 2008; Jeffries, 2011; Midanik et al., 2007). For instance, among self-identified bisexual men, those who reported recent female sexual partners were more likely to prefer an intervention for bisexual men only (relative to an intervention for gay and bisexual men together) (citation blinded for review). Despite the value of examining the intersection between identity and behavior, we recognize that it is not always possible. If a specific analysis warrants using a behavioral measure of sexual orientation, then it has been recommended to conduct a sensitivity analysis by assessing any change in results when limiting the analytic sample to those with two or more partners (Bauer & Brennan, 2013).

Third, it is common for researchers to examine differences in outcomes based on group membership. This design provides important information about the similarities and differences between groups, which is critical to understanding and reducing health disparities. For example, it was not until researchers began to compare specific groups of sexual minorities to each other that it became evident that bisexual individuals were at increased risk for negative health outcomes compared to gay, lesbian, and heterosexual individuals (Dodge & Sandford, 2007; Ross, Salway, Tarasoff, MacKay, Hawkins, & Fehr, 2018). Indeed, such comparative designs are required for understanding health disparities and the factors that account for them. However, bisexual men are worthy of study in-and-of themselves, and their value does not rely on their comparison to other groups. In fact, some research questions require an exclusive focus on bisexual men either for conceptual or practical reasons. For instance, studies focused on the unique stressors facing bisexual individuals (e.g., monosexism) and their influence on health require bisexual samples. Further, previous research on differences in sexual risk behavior with partners of different genders has specifically focused on bisexual men (Feinstein et al., 2019), because too few gay men reported sex with female partners.

Fourth, given gender differences in health outcomes between bisexual men and women as well as differences in social attitudes toward bisexual men and women in the general population, research would benefit from exploring differences in targeting sexual health promotion interventions for bisexual men as well as bisexual women (Dodge et al., 2016). For example, interventions focused on bisexual men may benefit from addressing issues such as hegemonic masculinity (Malebranche, 2008), familism (Munoz-Laboy, 2008), and other issues unique to men that stem from social expectations of “real men,” including procreation as an indicator of masculinity (encouraging condomless sex with female partners). Interventions for women may benefit from addressing the shockingly disparate rates of lifetime sexual and intimate partner violence reported by bisexual women (Flanders, Anderson, Tarasoff, & Robinson, 2019). For example, they could include skill building for negotiating safer sex and successful termination of abusive relationships. For both bisexual men and women, these issues also intersect with disparate rates of poverty, lack of healthcare access, and other structural disparities faced by bisexual individuals that must be taken into account, in addition to intersecting issues related to race/ethnicity, socioeconomic status, age, and other factors (Bostwick & Dodge, 2019).

Finally, as with any other segment of the population, the recruitment of bisexual men (whether behaviorally bisexual, self-identified bisexual, or otherwise) requires intentionality. Previous research on behaviorally bisexual men has shown that many prefer to receive recruitment ads or other materials that are intentionally vague and do not explicitly include the words “bisexual” or “gay” (Dodge et al., 2012). We have used these messages successfully and reached diverse segments of behaviorally bisexual men by placing such recruitment ads in a wide range of physical and online locations, including those that are not “gay identified” (e.g., gay bars and clubs, pride parades, gay-oriented websites and social/sexual networking apps) as well as those that are “heterosexual identified” (e.g., strip clubs, general bars and clubs, straight- oriented websites and social/sexual networking apps). In terms of the recruitment of self-identified bisexual men, the same intentionality that goes into recruiting any minoritized and stigmatized population benefits the successful

engagement of participants who may be reticent to participate in research on sensitive and rarely discussed issues.

Recommendations and Conclusion

In sum, biomedical prevention has dramatically changed the field of HIV prevention and these novel risk reduction strategies represent a critical force in the fight to reduce the transmission of HIV. Still, we have a responsibility to ensure that biomedical HIV prevention efforts reach diverse populations, especially those at greatest risk for HIV and those who are least connected to existing HIV prevention services. Further, we also need to continue to address sexual health needs beyond HIV prevention, including the prevention of other STI and unintended pregnancy. The research reviewed throughout this commentary highlights the ways in which the field of HIV/STI has largely overlooked bisexual men as a population in need of targeted services, both historically and currently in the age of biomedical prevention. We have provided recommendations to facilitate efforts to fill these gaps in research and healthcare, but there continues to be a critical need for additional research on bisexual men and their sexual health needs. Based on the current evidence, several priority areas for research are evident, including: (1) the prevalence of HIV/STI among diverse bisexual men; (2) risk and protective factors related to HIV/STI in this population; (3) barriers to accessing HIV/STI prevention services among bisexual men; and (4) the development, testing, and dissemination of HIV/STI prevention interventions for this population. Further, in regard to intervention development, we have provided recommendations for tailoring interventions to the unique needs of diverse bisexual men and for making existing interventions more inclusive. In closing, to reduce sexual health disparities and ultimately to achieve health equity, researchers and healthcare providers have a responsibility to acknowledge and address the sexual health needs of diverse bisexual men. It is our hope that this commentary will serve to advance research in this area and, in turn, improve the health of bisexual men.

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References

- Anderson PL, Glidden DV, Liu A, Buchbinder S, Lama JR, Guanira JV, ... iPrEx Study T (2012). Emtricitabine-tenofovir concentrations and pre-exposure prophylaxis efficacy in men who have sex with men. *Science Translational Medicine*, 4, 151ra125.
- Baldwin A, Dodge B, Schick V, Hubach RD, Bowling J, Malebranche D, ... Fortenberry JD (2015). Sexual self-identification among behaviorally bisexual men in the midwestern United States. *Archives of Sexual Behavior*, 44, 2015–2026. [PubMed: 25344028]
- Bauer GR, & Brennan DJ (2013). The problem with “behavioral bisexuality”: Assessing sexual orientation in survey research. *Journal of Bisexuality*, 13, 148–165.
- Bavinton B, Grinsztejn B, Phanuphak N, Jin F, Zablotska I, Prestage G, ... The Opposites Attract Study Group. (2017). HIV treatment prevents HIV transmission in male serodiscordant couples in Australia, Thailand and Brazil. Paper presented at the International AIDS Society, Paris.

- Beyrer C, Baral SD, van Griensven F, Goodreau SM, Chariyaalertsak S, Wirtz AL, & Brookmeyer R (2012). Global epidemiology of HIV infection in men who have sex with men. *Lancet*, 380, 367–377. [PubMed: 22819660]
- Bostwick W, & Dodge B (2019). Introduction to the special section on bisexual health: Can you see us now? *Archives of Sexual Behavior*, 48, 79–87. [PubMed: 30535566]
- Brewster ME, & Moradi B (2010). Perceived experiences of anti-bisexual prejudice: Instrument development and evaluation. *Journal of Counseling Psychology*, 57, 451–468.
- Caceres BA, Brody AA, Halkitis PN, Dorsen C, Yu G, & Chyun DA (2018). Sexual Orientation Differences in Modifiable Risk Factors for Cardiovascular Disease and Cardiovascular Disease Diagnoses in Men. *LGBT Health*, 5, 284–294. [PubMed: 29889585]
- Calabrese SK, & Underhill K (2015). How stigma surrounding the use of HIV preexposure prophylaxis undermines prevention and pleasure: A call to destigmatize “Truvada Whores”. *American Journal of Public Health*, 105, 1960–1964. [PubMed: 26270298]
- Carballo-Diequez A, Giguere R, Dolezal C, Leu CS, Balan IC, Brown W 3rd, ... Cranston RD (2017). Preference of Oral Tenofovir Disoproxil Fumarate/Emtricitabine Versus Rectal Tenofovir Reduced-Glycerin 1% Gel Regimens for HIV Prevention Among Cisgender Men and Transgender Women Who Engage in Receptive Anal Intercourse with Men. *AIDS and Behavior*, 21, 3336–3345.
- Castel AD, Magnus M, Peterson J, Anand K, Wu C, Martin M, ... Greenberg AE (2012). Implementing a novel citywide rapid HIV testing campaign in Washington, D.C.: findings and lessons learned. *Public Health Reports*, 127, 422–431. [PubMed: 22753985]
- CDC. (2017). Diagnoses of HIV infection in the United States and dependent areas, 2016. Retrieved from <http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>
- CDC. (2018a). Compendium of Evidence-Based Interventions and Best Practices for HIV Prevention. Retrieved from <https://www.cdc.gov/hiv/research/interventionresearch/compendium/index.html>
- CDC. (2018b). Diagnoses of HIV infection among adolescents and young adults in the United States and 6 dependent areas, 2011–2016. Retrieved from <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplementalreport-vol-23-3.pdf>
- CDC. (2018c). Pre-Exposure Prophylaxis (PrEP). Retrieved from <https://www.cdc.gov/hiv/risk/prep/index.html>
- Chaudoir SR, Wang K, & Pachankis JE (2017). What reduces sexual minority stress? A review of the intervention “toolkit”. *Journal of Social Issues*, 73, 586–617. [PubMed: 29170566]
- Chicago PrEP Working Group. (2018). About PrEP4Love. Retrieved from <http://prep4love.com/about.html>
- Clements-Nolle K, Marx R, Guzman R, & Katz M (2001). HIV prevalence, risk behaviors, health care use, and mental health status of transgender persons: Implications for public health intervention. *American Journal of Public Health*, 91, 915–921. [PubMed: 11392934]
- Dobinson C, Macdonnell J, Hampson E, Clipsham J, & Chow K (2005). Improving the access and quality of public health services for bisexuals. *Journal of Bisexuality*, 5, 39–77.
- Dodge B, Herbenick D, Friedman MR, Schick V, Fu TJ, Bostwick W, ... Sandfort TG (2016). Attitudes toward Bisexual Men and Women among a Nationally Representative Probability Sample of Adults in the United States. *PLoS One*, 11, e0164430. [PubMed: 27783644]
- Dodge B, Jeffries W. L. t., & Sandfort TG (2008). Beyond the Down Low: sexual risk, protection, and disclosure among at-risk Black men who have sex with both men and women (MSMW). *Archives of Sexual Behavior*, 37, 683–696. [PubMed: 18512140]
- Dodge B, & Sandfort TG (2007). A review of mental health research on bisexual individuals when compared to homosexual and heterosexual individuals In Feinstein B (Ed.), *Becoming visible: Counseling bisexuals across the lifespan* (pp. 28–51). New York: Columbia University Press.
- Dodge B, Schnarrs PW, Goncalves G, Malebranche D, Martinez O, Reece M, ... Fortenberry JD (2012). The significance of privacy and trust in providing health-related services to behaviorally bisexual men in the United States. *AIDS Education and Prevention*, 24, 242–256. [PubMed: 22676463]
- Dodge B, Schnarrs PW, Reece M, Goncalves G, Martinez O, Nix R, ... Fortenberry JD (2012). Community involvement among behaviourally bisexual men in the Midwestern USA: experiences and perceptions across communities. *Culture, Health & Sexuality*, 14, 1095–1110.

- Dodge B, Schnarrs PW, Reece M, Martinez O, Goncalves G, Malebranche D, ... Fortenberry JD (2013). Sexual behaviors and experiences among behaviorally bisexual men in the midwestern United States. *Archives of Sexual Behavior*, 42, 247–256. [PubMed: 22187027]
- Doll L, Myers T, Kennedy M, & Allman D (1997). Bisexuality and HIV risk: experiences in Canada and the United States. *Annual Review of Sex Research*, 8, 102–147.
- Dyer TV, Khan MR, Regan R, Harawa NT, Nelson LE, Wilton L, ... Shoptaw S (2018). Differential Patterns of Risk and Vulnerability Suggest the Need for Novel Prevention Strategies for Black Bisexual Men in the HPTN 061 Study. *Journal of Acquired Immune Deficiency Syndrome*, 78, 491–498.
- Eady A, Dobinson C, & Ross LE (2011). Bisexual people's experiences with mental health services: a qualitative investigation. *Community Mental Health Journal*, 47, 378–389. [PubMed: 20602170]
- Eliason MJ (1997). The prevalence and nature of biphobia in heterosexual undergraduate students. *Archives of Sexual Behavior*, 26, 317–326. [PubMed: 9146816]
- Everett BG (2013). Sexual orientation disparities in sexually transmitted infections: Examining the intersection between sexual identity and sexual behavior. *Archives of Sexual Behavior*, 42, 225–236. [PubMed: 22350122]
- Feinstein BA, & Dyar C (2017). Bisexuality, minority stress, and health. *Current Sexual Health Reports*, 9, 42–49. [PubMed: 28943815]
- Feinstein BA, Dodge B, Korpak AK, Newcomb ME, & Mustanski B (2019). Improving the health of cisgender men who identify as bisexual: what do they want from interventions? *Sexuality Research and Social Policy*. Advance online publication. 10.1007/s13178-019-0380-2
- Feinstein BA, Moran KO, Newcomb ME, & Mustanski B (2019). Differences in HIV risk behaviors between self-identified gay and bisexual young men who are HIV-negative. *Archives of Sexual Behavior*, 48, 261–275. [PubMed: 29508171]
- Fernandez Cerdeno A, Martinez-Donate AP, Zellner JA, Sanudo F, Carrillo H, Engelberg M, ... Hovell M (2012). Marketing HIV prevention for heterosexually identified Latino men who have sex with men and women: the Hombres Sanos campaign. *Journal of Health Communication*, 17, 641–658. [PubMed: 22500921]
- Fernandez MI, Hosek SG, Hotton AL, Gaylord SE, Hernandez N, Alfonso SV, & Joseph H (2016). A Randomized Controlled Trial of POWER: An Internet-Based HIV Prevention Intervention for Black Bisexual Men. *AIDS and Behavior*, 20, 1951–1960. [PubMed: 27085548]
- Flanders CE, Anderson RE, Tarasoff LA, & Robinson M (2019). Bisexual stigma, sexual violence, and sexual health among bisexual and other plurisexual women: a cross-sectional survey study. *Journal of Sex Research*. Advance online publication. doi: 10.1080/00224499.2018.1563042
- French RS, Bonell C, Wellings K, & Weatherburn P (2014). An exploratory review of HIV prevention mass media campaigns targeting men who have sex with men. *BMC Public Health*, 14, 616. [PubMed: 24939013]
- Friedman MR, Dodge B, Schick V, Herbenick D, Hubach RD, Bowling J, ... Reece M (2014). From bias to bisexual health disparities: Attitudes toward bisexual men and women in the United States. *LGBT Health*, 1, 309–318. [PubMed: 25568885]
- Friedman MR, & Dodge BM (2016). The Role of Syndemic in Explaining Health Disparities Among Bisexual Men: A Blueprint for a Theoretically Informed Perspective In Wright ER & Carnes N (Eds.), *Understanding the HIV/AIDS Epidemic in the United States: The Role of Syndemics in the Production of Health Disparities* (pp. 71–98). Cham: Springer International Publishing.
- Friedman MR, Sang JM, Bukowski LA, Matthews DO, Eaton LA, Raymond HF, & Stall R (2018). HIV care continuum disparities among Black bisexual men and the mediating effect of psychosocial comorbidities. *Journal of Acquired Immune Deficiency Syndromes*, 77, 451–458. [PubMed: 29337847]
- Friedman MR, Stall R, Plankey M, Shoptaw S, Herrick AL, Surkan PJ, ... Silvestre AJ (2017). Stability of Bisexual Behavior and Extent of Viral Bridging Behavior Among Men Who Have Sex with Men and Women. *Archives of Sexual Behavior*, 46, 903–912. [PubMed: 27873033]
- Friedman MR, Stall R, Silvestre AJ, Mustanski B, Shoptaw S, Surkan PJ, Rinaldo CR, & Plankey MW (2014). Stuck in the middle: Longitudinal HIV-related health disparities among men who have sex with men and women. *Journal of Acquired Immune Deficiency Syndrome*, 66, 213–220.

- Friedman MR, Stall R, Silvestre AJ, Wei C, Shoptaw S, Herrick A, Surkan PJ, Teplin L, & Plankey MW (2015). Effects of syndemics on HIV viral load and medication adherence in the multicentre AIDS cohort study. *AIDS*, 29, 1087–1096. [PubMed: 25870981]
- Friedman MR, Wei C, Klem ML, Silvestre AJ, Markovic N, & Stall R (2014). HIV infection and sexual risk among men who have sex with men and women (MSMW): a systematic review and meta-analysis. *PLoS One*, 9, e87139. [PubMed: 24498030]
- Gardner EM, McLees MP, Steiner JF, Del Rio C, & Burman WJ (2011). The spectrum of engagement in HIV care and its relevance to test-and-treat strategies for prevention of HIV infection. *Clinical Infectious Diseases*, 52, 793–800. [PubMed: 21367734]
- Grant RM, Lama JR, Anderson PL, McMahan V, Liu AY, Vargas L, ... iPrEx Study Team. (2010). Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *New England Journal of Medicine*, 363, 2587–2599. [PubMed: 21091279]
- Grov C, Rendina HJ, Jimenez R, & Parsons JT (2016). Using Online Settings to Identify Gay and Bisexual Men Willing to Take or With Experience Taking PrEP: Implications for Researchers and Providers. *AIDS Education and Prevention*, 28, 378–392.
- Harawa NT, Guentzel-Frank H, McCuller WJ, Williams JK, Millet G, Belcher L, ... Bluthenthal RN (2018). Efficacy of a Small-Group Intervention for Post-Incarcerated Black Men Who Have Sex with Men and Women (MSMW). *Journal of Urban Health*, 95, 159–170. [PubMed: 29541962]
- Harawa NT, Holloway IW, Leibowitz A, Weiss R, Gildner J, Landovitz RJ, ... Shoptaw S (2017). Serious concerns regarding a meta-analysis of preexposure prophylaxis use and STI acquisition. *AIDS*, 31, 739–740. [PubMed: 28225452]
- Harawa NT, Williams JK, McCuller WJ, Ramamurthi HC, Lee M, Shapiro MF, ... Cunningham WE (2013). Efficacy of a culturally congruent HIV risk-reduction intervention for behaviorally bisexual black men: results of a randomized trial. *AIDS*, 27, 1979–1988. [PubMed: 24180003]
- Holloway IW, Dougherty R, Gildner J, Beougher SC, Pulsipher C, Montoya JA, ... Leibowitz A (2017). Brief Report: PrEP Uptake, Adherence, and Discontinuation Among California YMSM Using Geosocial Networking Applications. *Journal of Acquired Immune Deficiency Syndrome*, 74, 15–20.
- Hubach RD, Dodge B, Goncalves G, Malebranche D, Reece M, Van Der Pol B, ... Fortenberry JD (2014). Gender matters: condom use and nonuse among behaviorally bisexual men. *Archives of Sexual Behavior*, 43, 707–717. [PubMed: 23912775]
- Institute of Medicine. (2011). *The health of lesbian, gay, bisexual, and transgender people: Building a foundation for better understanding*. Washington, DC: National Academies Press.
- Israel T, Choi AY, Goodman JA, Matsuno E, Lin Y. j., Kary KG, & Merrill CR (2018). Reducing internalized binegativity: Development and efficacy of an online intervention. *Psychology of Sexual Orientation and Gender Diversity*.
- James SE, Herman JL, Rankin S, Keisling M, Mottet L, & Anafi M (2016). *The Report of the 2015 U.S. Transgender Survey*. Washington, DC: National Center for Transgender Equality.
- Jeffries W. L. t. (2010). HIV testing among bisexual men in the United States. *AIDS Education and Prevention*, 22, 356–370.
- Jeffries W. L. t. (2014). Beyond the bisexual bridge: sexual health among U.S. men who have sex with men and women. *American Journal of Preventive Medicine*, 47, 320–329. [PubMed: 24970239]
- Jia Z, Mao Y, Zhang F, Ruan Y, Ma Y, Li J, ... Shao Y (2013). Antiretroviral therapy to prevent HIV transmission in serodiscordant couples in China (2003–11): A national observational cohort study. *Lancet*, 382, 1195–1203. [PubMed: 23206835]
- Jin FY, Prestage G, Law MG, Kippax S, Van de Ven P, Rawsthorne P, ... Grulich AE (2002). Predictors of recent HIV testing in homosexual men in Australia. *HIV Medicine*, 3, 271–276. [PubMed: 12444945]
- Kennedy M, & Doll L (2001). Male bisexuality and HIV risk. *Journal of Bisexuality*, 1, 111–135.
- Kojima N, Davey DJ, & Klausner JD (2016). Pre-exposure prophylaxis for HIV infection and new sexually transmitted infections among men who have sex with men. *AIDS*, 30, 2251–2252. [PubMed: 27314179]

- Lauby J, Milnamow M, Joseph HA, Hitchcock S, Carson L, Pan Y, ... Millett G (2018). Evaluation of Project RISE, an HIV Prevention Intervention for Black Bisexual Men Using an Ecosystems Approach. *AIDS and Behavior*, 22, 164–177. [PubMed: 28871506]
- Malebranche DJ (2008). Bisexually active Black men in the United States and HIV: acknowledging more than the “Down Low”. *Archives of Sexual Behavior*, 37, 810–816. [PubMed: 18506612]
- Martinez-Donate AP, Zellner JA, Fernandez-Cerdeno A, Sanudo F, Hovell MF, Sipan CL, ... Ji M (2009). Hombres Sanos: exposure and response to a social marketing HIV prevention campaign targeting heterosexually identified Latino men who have sex with men and women. *AIDS Education and Prevention*, 21, 124–136. [PubMed: 19824840]
- Martinez-Donate AP, Zellner JA, Sanudo F, Fernandez-Cerdeno A, Hovell MF, Sipan CL, ... Carrillo H (2010). Hombres Sanos: evaluation of a social marketing campaign for heterosexually identified Latino men who have sex with men and women. *American Journal of Public Health*, 100, 2532–2540. [PubMed: 21068423]
- Martinez O, Dodge B, Reece M, Schnarrs PW, Rhodes SD, Goncalves G, ... Fortenberry JD (2011). Sexual health and life experiences: voices from behaviourally bisexual Latino men in the Midwestern USA. *Culture, Health, & Sexuality*, 13, 1073–1089.
- Millett GA, Peterson JL, Flores SA, Hart TA, Jeffries W. L. t., Wilson PA, ... Remis RS (2012). Comparisons of disparities and risks of HIV infection in black and other men who have sex with men in Canada, UK, and USA: A meta-analysis. *Lancet*, 380, 341–348. [PubMed: 22819656]
- Millett GA, Peterson JL, Wolitski RJ, & Stall R (2006). Greater risk for HIV infection of black men who have sex with men: a critical literature review. *American Journal of Public Health*, 96, 1007–1019.
- Mimiaga MJ, Pantalone DW, Biello KB, Glynn TR, Santostefano CM, Olson J, ... Safren SA (2018). A randomized controlled efficacy trial of behavioral activation for concurrent stimulant use and sexual risk for HIV acquisition among MSM: project IMPACT study protocol. *BMC Public Health*, 18, 914. [PubMed: 30045702]
- Mohr JJ, & Rochlen AB (1999). Measuring attitudes regarding bisexuality in lesbian, gay male, and heterosexual populations. *Journal of Counseling Psychology*, 46, 353–369.
- Moreira AD, Halkitis PN, & Kapadia F (2015). Sexual identity development of a new generation of emerging adult men: The P18 cohort study. *Psychology of Sexual Orientation and Gender Diversity*, 2, 159–167.
- Movement Advancement Project (2017). A closer look: Bisexual transgender people. Retrieved from <http://www.lgbtmap.org/policy-and-issue-analysis/bisexual-transgender>
- Muñoz-Laboy M (2008). Familism and sexual regulation among bisexual Latino men. *Archives of Sexual Behavior*, 37, 773–782. [PubMed: 18521735]
- Muñoz-Laboy M, Martinez O, Levine EC, Mattera BT, & Isabel Fernandez M (2018). Syndemic Conditions Reinforcing Disparities in HIV and Other STIs in an Urban Sample of Behaviorally Bisexual Latino Men. *Journal of Immigrant and Minority Health*, 20, 497–501. [PubMed: 28341890]
- Muñoz-Laboy M, Severson N, & Bannan S (2014). Occupations, social vulnerability and HIV/STI risk: The case of bisexual Latino men in the New York City metropolitan area. *Global Public Health*, 9, 1167–1183. [PubMed: 25299059]
- Muñoz-Laboy M, Yon Leau C, Sriram X, Weinstein H, Vásquez del Aguila E, & Parker R (2009). Negotiating Bisexual Desire and Familism: The Case of Latino/a Bisexual Young Men and Women in New York City. *Culture, Health & Sexuality*, 11, 331–344.
- Mustanski B, Birkett M, Greene GJ, Rosario M, Bostwick W, & Everett BG (2014). The association between sexual orientation identity and behavior across race/ethnicity, sex, and age in a probability sample of high school students. *American Journal of Public Health*, 104, 237–244. [PubMed: 24328662]
- Mustanski B, Feinstein BA, Madkins K, Sullivan P, & Swann G (2017). Prevalence and Risk Factors for Rectal and Urethral Sexually Transmitted Infections From Self-Collected Samples Among Young Men Who Have Sex With Men Participating in the Keep It Up! 2.0 Randomized Controlled Trial. *Sexually Transmitted Diseases*, 44, 483–488. [PubMed: 28703727]

- Mustanski B, Kuper L, & Greene GJ (2014). Development of sexual orientation and identity In APA handbook of sexuality and psychology, Vol. 1: Person-based approaches. (pp. 597–628). Washington, DC, US: American Psychological Association.
- Mustanski BS, Newcomb ME, Du Bois SN, Garcia SC, & Grov C (2011). HIV in young men who have sex with men: a review of epidemiology, risk and protective factors, and interventions. *Journal of Sex Research*, 48, 218–253. [PubMed: 21409715]
- Mustanski B, Ryan DT, Remble TA, D'Aquila RT, Newcomb ME, & Morgan E (2018). Discordance of self-report and laboratory measures of HIV viral load among young men who have sex with men and transgender women in Chicago: Implications for epidemiology, care, and prevention. *AIDS and Behavior*, 22, 2360–2367. [PubMed: 29637386]
- Myers JE, Braunstein SL, Shepard CW, Cutler BH, Mantsios AR, Sweeney MM, & Tsoi BW (2012). Assessing the impact of a community-wide HIV testing scale-up initiative in a major urban epidemic. *Journal of Acquired Immune Deficiency Syndrome*, 61, 23–31.
- Noar SM, Palmgreen P, Chabot M, Dobransky N, & Zimmerman RS (2009). A 10-year systematic review of HIV/AIDS mass communication campaigns: Have we made progress? *Journal of Health Communication*, 14, 15–42.
- Ochs R (1996). Biphobia: It goes more than two ways In Firestein BA (Ed.), *Bisexuality: The psychology and politics of an invisible minority* (pp. 217–239). Thousand Oaks, CA: Sage Publications.
- Operario D, Smith CD, Arnold E, & Kegeles S (2010). The Bruthas Project: Evaluation of a community-based HIV prevention intervention for African American men who have sex with men and women. *AIDS Prevention and Education*, 22, 37–48.
- Pachankis JE, Hatzenbuehler ML, Rendina HJ, Safren SA, & Parsons JT (2015). LGBaffirmative cognitive-behavioral therapy for young adult gay and bisexual men: A randomized controlled trial of a transdiagnostic minority stress approach. *Journal of Consulting and Clinical Psychology*, 83, 875–889. [PubMed: 26147563]
- Page EH (2004). Mental health services experiences of bisexual women and men: An empirical study. *Journal of Bisexuality*, 4, 137–160.
- Parsons JT, John SA, Whitfield THF, Cienfuegos-Szalay J, & Grov C (2018). HIV/STI counseling and testing services received by gay and bisexual men using pre-exposure prophylaxis (PrEP) at their last PrEP care visit. *Sexually Transmitted Diseases*. doi:10.1097/olq.0000000000000880
- Parsons JT, Rendina HJ, Lassiter JM, Whitfield TH, Starks TJ, & Grov C (2017). Uptake of HIV pre-exposure prophylaxis (PrEP) in a national cohort of gay and bisexual men in the United States. *Journal of Acquired Immune Deficiency Syndrome*, 74, 285–292.
- Pedrana A, Hellard M, Guy R, El-Hayek C, Gouillou M, Asselin J, ... Stooze M (2012). Stop the drama Downunder: a social marketing campaign increases HIV/sexually transmitted infection knowledge and testing in Australian gay men. *Sexually Transmitted Diseases*, 39, 651–658. [PubMed: 22801349]
- Petroll AE, Walsh JL, Owczarzak JL, McAuliffe TL, Bogart LM, & Kelly JA (2017). PrEP awareness, familiarity, comfort, and prescribing experience among US primary care providers and HIV specialists. *AIDS and Behavior*, 21, 1256–1267. [PubMed: 27885552]
- Pew Research Center. (2017). Changing Attitudes on Gay Marriage. Retrieved from <http://www.pewforum.org/fact-sheet/changing-attitudes-on-gay-marriage/>
- Reisner SL, Perkovich B, & Mimiaga MJ (2010). A mixed methods study of the sexual health needs of New England transmen who have sex with nontransgender men. *AIDS Patient Care and STDs*, 24, 1–13. [PubMed: 20095911]
- Rodger AJ, Cambiano V, Bruun T, & et al. (2016). Sexual activity without condoms and risk of HIV transmission in serodifferent couples when the HIV-positive partner is using suppressive antiretroviral therapy. *JAMA*, 316, 171–181. [PubMed: 27404185]
- Ross LE, Salway T, Tarasoff LA, MacKay JM, Hawkins BW, & Fehr CP (2018). Prevalence of depression and anxiety among bisexual people compared to gay, lesbian, and heterosexual individuals: a systematic review and meta-analysis. *Journal of Sex Research*, 55, 435–456. [PubMed: 29099625]

- Sandfort TG, & Dodge B (2008). "And then there was the Down Low": introduction to Black and Latino male bisexualities. *Archives of Sexual Behavior*, 37, 675–682. [PubMed: 18506614]
- Scheim AI, & Travers R (2017). Barriers and facilitators to HIV and sexually transmitted infections testing for gay, bisexual, and other transgender men who have sex with men. *AIDS Care*, 29, 990–995. [PubMed: 28027664]
- Schrimshaw EW, Siegel K, Downing MJ, & Parsons JT (2013). Disclosure and concealment of sexual orientation and the mental health of non-gay-identified, behaviorally-bisexual men. *Journal of Consulting and Clinical Psychology*, 81, 141–153. [PubMed: 23276123]
- Sevelius J (2009). There's no pamphlet for the kind of sex I have: HIV-related risk factors and protective behaviors among transgender men who have sex with non-transgender men. *Journal of the Association of Nurses in AIDS Care*, 20, 398–410. [PubMed: 19732698]
- Singh S, Hu X, Wheeler W, & Hall HI (2014). HIV diagnoses among men who have sex with men and women—United States and 6 dependent areas, 2008–2011. *American Journal of Public Health*, 104, 1700–1706. [PubMed: 25033139]
- Solorio R, Norton-Shelpuk P, Forehand M, Montano D, Stern J, Aguirre J, & Martinez M (2016). Tu Amigo Pepe: Evaluation of a Multi-media Marketing Campaign that Targets Young Latino Immigrant MSM with HIV Testing Messages. *AIDS and Behavior*, 20, 1973–1988. [PubMed: 26850101]
- Spikes PS, Purcell DW, Williams KM, Chen Y, Ding H, & Sullivan PS (2009). Sexual Risk Behaviors Among HIV-Positive Black Men Who Have Sex With Women, With Men, or With Men and Women: Implications for Intervention Development. *American Journal of Public Health*, 99(6), 1072–1078. [PubMed: 19372509]
- Starks TJ, Doyle KM, Shalhav O, John SA, & Parsons JT (2018). An Examination of Gay Couples' Motivations to Use (or Forego) Pre-exposure Prophylaxis Expressed During Couples HIV Testing and Counseling (CHTC) Sessions. *Prevention Science*. doi:10.1007/s11121-018-0892-7
- Stokes JP, Vanable P, & McKirnan DJ (1997). Comparing gay and bisexual men on sexual behavior, condom use, and psychosocial variables related to HIV/AIDS. *Archives of Sexual Behavior*, 26, 383–397. [PubMed: 9251836]
- Strauss BB, Greene GJ, Phillips G 2nd, Bhatia R, Madkins K., Parsons JT, & Mustanski B (2017). Exploring patterns of awareness and use of HIV pre-exposure prophylaxis among young men who have sex with men. *AIDS and Behavior*, 21, 1288–1298. [PubMed: 27401537]
- Vidanapathirana J, Abramson MJ, Forbes A, & Fairley C (2005). Mass media interventions for promoting HIV testing. *Cochrane Database of Systematic Reviews*, 3, CD004775.
- Wade RM, & Harper GW (2015). Young Black Gay/Bisexual and Other Men Who Have Sex With Men A Review and Content Analysis of Health-Focused Research Between 1988 and 2013. *American Journal of Men's Health*, 11, 1388–1405.
- Wakefield MA, Loken B, & Hornik RC (2010). Use of mass media campaigns to change health behaviour. *Lancet*, 376, 1261–1271. [PubMed: 20933263]
- Watson RJ, Allen A, Pollitt AM, & Eaton LA (2018). Risk and Protective Factors for Sexual Health Outcomes Among Black Bisexual Men in the U.S.: Internalized Heterosexism, Sexual Orientation Disclosure, and Religiosity. *Archives of Sexual Behavior*. doi:10.1007/s10508-018-1216-5
- Wei C, Herrick A, Raymond HF, Anglemyer A, Gerbase A, & Noar SM (2011). Social marketing interventions to increase HIV/STI testing uptake among men who have sex with men and male-to-female transgender women. *Cochrane Database of Systematic Reviews*, 9, CD009337.
- Williams JK, Glover DA, Wyatt GE, Kisler K, Liu H, & Zhang M (2013). A sexual risk and stress reduction intervention designed for HIV-positive bisexual African American men with childhood sexual abuse histories. *American Journal of Public Health*, 103, 1476–1484. [PubMed: 23763412]
- Williams JK, Ramamurthi HC, Manago C, & Harawa NT (2009). Learning from successful interventions: A culturally congruent HIV risk-reduction intervention for African American men who have sex with men and women. *American Journal of Public Health*, 99, 1008–1012. [PubMed: 19372517]

- Young RM, & Meyer IH (2005). The trouble with “MSM” and “WSW”: Erasure of the sexual-minority person in public health discourse. *American Journal of Public Health*, 95, 1144. [PubMed: 15961753]
- Zivony A, & Lobel T (2014). The invisible stereotypes of bisexual men. *Archives of Sexual Behavior*, 43, 1165–1176. [PubMed: 24558124]

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Table 1.

HIV/STI prevention interventions for bisexual men.

Intervention	Participants	Methods	Primary Findings
Hombres Sanos (Healthy Men; Martinez-Donate et al., 2010)	<ul style="list-style-type: none"> • Latino ethnicity • At least 18 years old • A subsample of participants were heterosexually identified MSMW (based on lifetime sexual history) 	<p>Intervention</p> <ul style="list-style-type: none"> • Campaign materials (e.g., posters, radio ads, community-based outreach) promoted condom use and HIV/STI testing • Materials were designed to appeal to Latino cultural values and to be salient for heterosexually identified Latino MSMW • The campaign advertised a comprehensive health exam at a local community clinic, which included HIV/STI testing and screening for other conditions (e.g., diabetes, hypertension) • The campaign ran for 7 months <p>Control: None</p> <p>Design: Cross-sectional surveys of independent samples conducted before, during, and after the campaign</p>	<ul style="list-style-type: none"> • Significant reductions in unprotected sex with male and female partners
The Bruthas Project (Operario, Smith, Arnold, & Kegeles, 2010)	<ul style="list-style-type: none"> • Identified as an African American man • At least 18 years old • Reported sex with at least one male partner and one female partner during the past 2 years • Lived or worked in Oakland, California • Did not self-identify as gay or bisexual 	<p>Intervention</p> <ul style="list-style-type: none"> • 4 weekly 1-hour sessions • Topics included risk reduction, interpersonal dynamics with male and female partners that contribute to unsafe sex (e.g., homophobia, stigma, gender norms), and motivations for unsafe sex <p>Control: None</p> <p>Design: Assessments at baseline and 3-month follow-up</p>	<ul style="list-style-type: none"> • Significant reductions in unprotected anal sex (insertive and receptive) with male partners, number of unsafe sex partners (male and female), and sex under the influence of drugs
Men of African American Legacy Empowering Self (MAALES; Harawa et al., 2013)	<ul style="list-style-type: none"> • Self-identified as a Black/African American man • Assigned male at birth • At least 18 years old • Reported at least one sexual activity with a cisgender woman and a cisgender man (or a transgender woman) in the past 24 months • Did not participate in an HIV prevention program in the past 6 months 	<p>Intervention</p> <ul style="list-style-type: none"> • 6 small-group sessions (2 hours each) over 3 weeks • Booster sessions at 6- and 18-weeks postintervention • Didactic and skill-building components addressing HIV/STI knowledge, sexual negotiation, risk reduction, and HIV/STI testing and treatment • Addressed social influences and cultural norms (with emphases on gender and ethnicity) <p>Control</p> <ul style="list-style-type: none"> • 1 session (15–25 minutes) • Client-centered HIV education and risk-reduction based on a standard HIV test counseling approach <p>Design: Assessments at baseline and 3- and 6-month follow-up</p>	<ul style="list-style-type: none"> • Significant reductions in the number of total anal or vaginal sex acts, the number of unprotected sex acts with female partners, and the number of female partners in the intervention group (relative to the control group)
Enhanced Sexual Health Intervention for Men (ESHIM; Williams, Glover, Wyatt, Kisler, Liu, & Zhang, 2013)	<ul style="list-style-type: none"> • Identified as an African American man • At least 18 years of age • English-speaking • HIV-positive • Did not self-identify as gay • Reported unprotected anal or vaginal sex with a male and a female partner in the past 3 months 	<p>Intervention:</p> <ul style="list-style-type: none"> • 6 small-group sessions (2 hours each) over 3 weeks • Cognitive-behavioral approach • Addressed topics such as the influence of gender and ethnicity, stigma, the recognition of stressors (including trauma), and strategies for coping and affect regulation <p>Control:</p> <ul style="list-style-type: none"> • A health promotion intervention • 6 small-group sessions (2 hours each) over 3 weeks • Addressed health issues affecting African American men (e.g., hypertension, diabetes) and how to prevent and manage them • Did not focus on sexual behavior <p>Design: Assessments at baseline and 3- and 6-month follow-up</p>	<ul style="list-style-type: none"> • The intervention and the control condition both led to reductions in sexual risk behavior (e.g., unprotected anal sex, unprotected vaginal sex, number of male and female partners) • The intervention was more efficacious than the control condition in decreasing unprotected insertive anal sex
POWER (Fernandez et al., 2016)	<ul style="list-style-type: none"> • Identified as a Black man • At least 18 years old • Lived in the greater Chicago metropolitan area 	<p>Intervention</p> <ul style="list-style-type: none"> • Three sessions (60–90 minutes each) over three weeks 	<ul style="list-style-type: none"> • The intervention was associated with significant reductions in condomless vaginal or anal intercourse

Intervention	Participants	Methods	Primary Findings
	<ul style="list-style-type: none"> Reported a male and a female sex partner in the past 12 months Reported 2 or more sex partners in the past 3 months Reported at least one episode of condomless sex with a man or a woman in the past 3 months Did not report injection drug use in the past 12 months Did not identify as transgender 	<ul style="list-style-type: none"> Participants logged into a website and chatted with a facilitator as they worked through the exercises Focused on providing culturally relevant information on HIV risk and protection, and increasing motivation and behavioral skills to promote adoption of safe practices <p>Control</p> <ul style="list-style-type: none"> A health information comparison condition One session (3–4 hours) Focused on strategies to improve physical and sexual health <p>Design: Assessments at baseline and 3-month follow-up</p>	<p>(relative to the control condition)</p> <ul style="list-style-type: none"> The intervention was associated with significantly lower odds of condomless anal intercourse with male partners and serodiscordant sex with male partners
Men In Life Environments (MILE; Harawa et al., 2018)	<ul style="list-style-type: none"> Self-identified as Black/African American At least 18 years old Reported being incarcerated in past 12 months Reported sex with at least one man and one woman in the past 12 months Reported at least one episode of vaginal or anal sex without a condom in the past 3 months Reported 2 or more sex partners in the past 3 months Did not report injection drug use in the last 12 months 	<p>Intervention</p> <ul style="list-style-type: none"> Adaptation of MAALES 6 small-group sessions (2 hours each) over 3 weeks No booster sessions Adapted to address HIV risk and harm-reduction in prisons and jails, challenges experienced during re-entry, and HIV testing and stigma in custody settings Participants were also offered post-incarceration supplemental services and condoms at each assessment (e.g., assistance in accessing emergency shelter, guidance in making appointments for obtaining social security) <p>Control: Participants did not receive the intervention, but they were offered post-incarceration supplemental services and condoms at each assessment</p> <p>Design: Assessments at baseline and 3-month follow-up</p>	<ul style="list-style-type: none"> Significant reductions in condomless sex with males and females and number of partners for both the intervention and control condition; no intervention advantage.
Project Rise (Lauby et al., 2018)	<ul style="list-style-type: none"> Self-identified as Black At least 18 years old Lived in the Philadelphia Metropolitan Region Reported sex with both male and female partners in the past 12 months Reported at least 2 sexual partners of any gender in the past 3 months Reported at least one instance of anal or vaginal sex without condoms in past 3 months Did not report injection drug use in the past 12 months 	<p>Intervention</p> <ul style="list-style-type: none"> 6 weekly individual sessions (90–120 minutes each) Addressed stress, coping, discrimination, and sexual risk behaviors Offered HIV/STI testing <p>Control</p> <ul style="list-style-type: none"> 1 session (60 minutes) Standard HIV risk reduction, not tailored to MSMW (e.g., assessment of risk, discussion of risk reduction) Offered HIV/STI testing. <p>Design: Assessments at baseline and 5-month follow-up</p>	<ul style="list-style-type: none"> Significant reductions in the number of female partners and the number of total male and female partners compared to the control group Significant reduction in the number of sex episodes without a condom with female partners and with all partners compared to the control group