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Publication date:
2023

Link:
[Link to publication in PEARL](#)

Citation for published version (APA):

Andrew, E., Travis, S., Taylor, K., Nelson, P., Sandra, K., Mel, M., Frank, D., Lauren, M., Oliver, B., Erin, B., Adam, B., Daniel, V., Cara, B., Paul, S., & Beer, O. (2023). *Identity development, attraction, and behaviour of heterosexually-identified men who have sex with men: A scoping review.*

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Preprint · September 2023

DOI: 10.13140/RG.2.2.27962.36803

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Identity development, attraction, and behaviour of heterosexually-identified men who have sex
with men: A scoping review

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The authors have no conflicts of interest.

Acknowledgements

This work was funded by an Insight Grant from Canada's Social Sciences and Humanities Research Council (SSHRC #435-2022-0887). We thank Lauren Verwolf for figure design and Salem Rao for assistance with this article.

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Abstract

Heterosexually identified men who have sex with men (H-MSM) experience discordance between their sexual identity and behaviours. Studies with large, mixed samples suggest that H-MSM may comprise 4-7% of the sexually active adult male population. Understanding and accepting H-MSM as they self-identify may be necessary to implement effective public health and psychosocial interventions. There is no known knowledge synthesis of H-MSM. This scoping review synthesizes primary studies about H-MSM identity development, attraction, and behaviour. Thirteen databases were searched, and two independent reviewers screened 3,617 titles and abstracts and 269 full-texts to arrive at 120 articles meeting inclusion criteria. Ten independent reviewers then conducted thematic content analysis. H-MSM either expressed sexual identity uncertainty, or justified maintaining heterosexual identity, due to fear of discrimination and little or no social support. H-MSM compartmentalized same-sex sexual behaviours as isolated events unrepresentative of their sexual identity. H-MSM further minimized these behaviours to infrequent, recreational/sport, or economic coincidences with little partner communication regarding HIV and sexual health. Many H-MSM also depersonalized male sex partners, denied same-sex attraction, and avoided gay-identified venues. Reviewed articles further reported H-MSM had negative emotional responses to sex with men (e.g., guilt, shame, disgust). Findings also suggest H-MSM are mislabeled in sexual health screening. H-MSM are unlike other heterosexual men and other MSM, and require unique considerations and approaches to sexual and mental health care.

Keywords

Heterosexual men who have sex with men; Scoping review; Sexual identity-behaviour discordance

Background

Sexuality is multidimensional and complex; key components include identity, attraction, and behaviour (Lehmiller, 2017; Savin-Williams, 2014). Sexual identity relates to social group status, develops in relation to an individual's environment, and can change over time and in different contexts (Bussey, 2011). Further, sexual identity or orientation refers to the label one uses to define their sexuality (e.g., straight, gay). Sexual attraction is defined by desires for sexual intimacy toward an individual and/or a group of people (Regan and Bersched, 1996). Attraction is a pathway to identity, whereby an individual's desires towards people both known (e.g., friends) and unknown (e.g., celebrities) to an individual form the basis for their orientation within context (Pratt, 1998). Sexual behaviours are the sexual practices an individual engages in, which includes sexual activity with others and with oneself (Meston and Buss, 2007). For many people, these three components can be concordant with each other (e.g., a cisgender man identifies as gay, is attracted to other men, and has sex with other men). However, some individuals experience discordance between their identities, attractions, and behaviours (e.g., a cisgender man identifies as straight, is attracted to men and women, and has sex with men). Heterosexual or straight men are concordant in this context if their attractions and behaviours align with heterosexuality. Yet, studies have shown some heterosexual men are attracted to and engage in sex with other men (e.g., Reynolds, 2015; Silva and Whaley, 2017).

Mendelsohn et al. (2022) recently found 0.6% ($n=315$) of sexually active adult men and 0.4% of sexually active adult women ($n=335$) studied in California experience discordance between their sexual identity and sexual behaviours. The authors argue that the population estimate for those experiencing sexual identity-behaviour discordance is likely higher. Indeed, other scholars determine approximately 94% of U.S. adults experience concordance between

their sexual identity and sexual attractions and about 96% experience concordance between their sexual identity and sexual behaviours in the past year (Fu et al., 2019). Thus, at least 4% of adults may experience some type of discordance between their sexual identity, attractions, and behaviours. Other studies find the proportion of those experiencing discordance may be even higher, with an upper limit 7.4% of the United States' (US) sexually active adult population (Silva and Whaley, 2017).

Throughout the 21st century, researchers, policymakers, and healthcare professionals have taken an interest in examining the experiences of this population, with the consensus term emerging of heterosexually identified men who have sex with men (H-MSM) (Persson et al., 2017; Reback and Larkins, 2010; White and Gliberman, 2014). Despite a growing interest in the sexuality field, a systematic or scoping review of empirical H-MSM studies does not yet exist. A review could improve understanding of and destigmatize sexual identity-behaviour discordance amongst men and offer research and practice implications, especially related to public health and male sexuality. Thus, the purpose of this scoping review was to collate and assess empirical research on H-MSM. H-MSM may be distinct from concordant men due to implications of *sustained discordance* and health disparities.

Sustained Discordance

There can be confusion related to the identity of H-MSM. The incongruity between their sexual identity and behaviours leads many to believe they are closeted gay, bisexual, or queer (GBQ+) men (Carrillo and Hoffman, 2018; Reynolds, 2015; Robinson and Vidal-Ortiz, 2013). However, individuals experiencing *situational outness* are distinct from those experiencing *sustained discordance*. Situational outness is defined as a person choosing when to disclose their identity or sexual encounters based on perceived safety and/or perceived benefit (Sabat et al.,

2014). Sustained discordance is demonstrated through, for example, H-MSM maintaining their heterosexual identity in a global context regardless of sexual attraction and behaviour. In other words, with sustained discordance, regardless of the social circle, H-MSM consistently maintain their heterosexual identities. H-MSM provide reasoning for such sustained discordance, stating that their sexual encounters with men are infrequent, accidental, recreational, unnecessary, and/or a necessity for monetary reasons (Reback and Larkins, 2010).

However, there is a distinction between hidden GBQ+ men and H-MSM. Goethe et al. (2018), for instance, find differences between what they label “hidden homosexuals” and heterosexuals who had a “sexual experience with a man” (p. 284). Specifically, “hidden homosexuals” are men who identify as homosexual but only have recent and lifetime sexual experiences with women and not men. Meanwhile, H-MSM are characterized as the 1.6% of men who identify as heterosexual but still have at least one lifetime sexual experience with another man (Goethe et al., 2018). Nevertheless, H-MSM are often secretive about their same-sex encounters (Silva, 2018). Thus, situational outness and sustained discordance are key terms to differentiate and explore regarding H-MSM’s identity development. Regardless of their reasons for identifying as heterosexual yet engaging in sexual behaviours with other men, it is important for practitioners and researchers to understand this population as they identify. Acceptance and affirmation of heteroflexibilities, or straight-identified people choosing to include same-sex desires within their identity of heterosexuality (Carrillo, 2022), is critical towards HIV prevention and health promotion (Carrillo and Hoffman, 2016).

Health Disparities

Mental and sexual health disparities are identified between H-MSM and both heterosexual men and MSM (Mendelsohn et al., 2022; Scott et al., 2016). H-MSM report

increased rates of depressive symptoms compared to men who identify as heterosexual (Mendelsohn et al., 2022). Further, greater concealment of sexual behaviour correlates with more depressive symptoms, more anxious symptoms, and lower levels of positive affect (Schrimshaw et al., 2013). Annor and colleagues (2018) find that high school students who displayed sexual identity-behaviour discordance were 70% more likely to experience suicidal ideation or attempt suicide than their concordant peers.

For sexual health disparities, there are reports indicating that H-MSM are less likely than concordant gay men to use condoms and be tested for HIV (Pathela et al., 2006). Abdallah et al. (2018) further support this finding, indicating that H-MSM tend to engage in behaviours associated with high risk of HIV transmission. This risk behaviour is argued to relate to adverse childhood experiences connected to homophobia, religious upbringing, conservatism, and conversion therapy—which may explain why some H-MSM are reluctant to identify as non-heterosexual (Parent and Wille, 2021; Reback and Larkins, 2010; Silva, 2019; Silva and Whaley, 2017; Ward, 2015).

The Current Study

This scoping review identifies themes, research gaps, and future directions regarding the identities, attractions, and behaviours of H-MSM. While interest in conducting research with H-MSM has grown since 2000, they remain a poorly understood population. A collation of the literature regarding the identity development, attractions, and behaviours of H-MSM may help researchers and practitioners develop a stronger understanding of this population, which is needed to effectively engage them in holistic health promotion efforts and address health disparities.

Methods

This scoping review focuses on determining what is known about the identity development, attraction, and behaviours of H-MSM. The procedures were based on Arksey and O'Malley's (2005) framework and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR). A more detailed description of the methods can be found in the protocol (Authors, in press).

Search Procedure

A search for relevant literature published from January 1, 2000 onwards was conducted using the electronic databases EBSCO Academic Search Complete, OVID APA PsychInfo, CINAHL Plus with Full Text, Education Research Complete, Gender Studies Database, GenderWatch, Health Source: Nursing/Academic Edition, LGBTQ+ Source, OVID MEDLINE, Psychology and Behavioral Sciences Collection, SocINDEX with Full Text, Sociological Collection, and Social Work Abstracts. The search was conducted between July 19, 2022 and August 7, 2022 using a combination of keywords and, where appropriate, controlled vocabulary to describe the concepts of “heterosexual men who have sex with men,” “straight men who have sex with men,” and “sexual identity-behaviour discordance.”

Inclusion Criteria

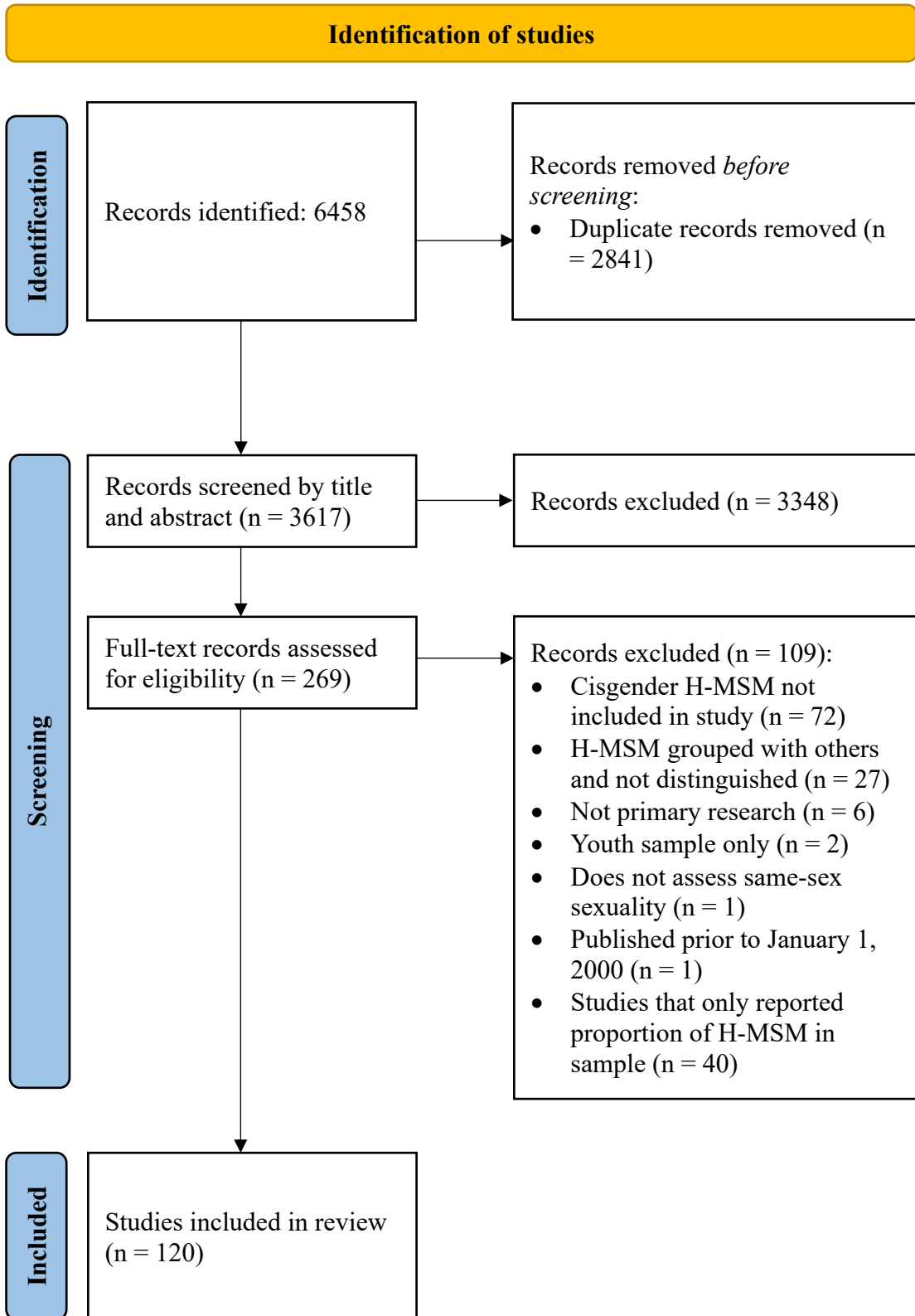
Because H-MSM are an understudied population, broad inclusion criteria are applied—which also enhances the comprehensiveness of the review. Included studies are: (1) empirical research on heterosexual men who report at least one lifetime sexual encounter with other men; (2) published on or after January 1, 2000; and (3) available in English.

Screening

Figure 1 depicts the process of identifying and screening relevant records for inclusion. The initial search yielded 6,458 records, including 2,841 duplicates. After duplicate removal, the first two authors screened the titles and abstracts of the remaining 3,617 articles, which resulted in the exclusion of 3,348 records. The primary reason for exclusion at this stage was that many articles compared heterosexual men with GBQ+ men, yet did not examine H-MSM. The same authors then screened the full texts of the 269 articles that passed the title and abstract screening, which resulted in a further 109 articles being excluded. Then, 40 articles that solely reported on the proportion of H-MSM within the sample were excluded as these papers did not present findings on the identity development, attraction, or behaviour of H-MSM. This resulted in a final selection of 120 articles, which were subject to thematic content analysis reported here.

Figure 1

PRISMA Flow Diagram of Study Selection



Data Extraction and Analysis

Research assistants extracted data from the articles by documenting details about the publication (e.g., authors, year of publication, funding source), sample (e.g., study population and sample size), methods (including the recruitment strategy), outcomes, limitations, and future directions. Thematic content analysis was then performed by ten independent reviewers (researchers, practitioners, and people with lived experience) on the 120 articles (Braun and Clarke, 2006; Hsieh and Shannon, 2005; Thomas and Harden, 2008). Each reviewer analyzed a subset of articles to create descriptive codes (i.e., labels to generally summarize the results) and in vivo codes (i.e., labels using a word or short phrase from the results). All reviewers emailed their findings to the first two authors, and then all met to discuss their independent reviews, which allowed themes and subthemes to begin emerging. The second author then conducted focused coding of the data to organize and consolidate independent reviews into a draft of the results. All reviewers had two weeks to review this draft and provide feedback. The final results were approved by all reviewers.

Quality

The Mixed Methods Appraisal Tool (MMAT) Version 2018 (Hong et al., 2018) was used to assess the quality of evidence and risk of bias in the included studies. Each article was assessed using seven criteria based on the study design (qualitative, quantitative randomized control trial, quantitative non-randomized, quantitative descriptive, or mixed methods). The first two items were the same for every article (“Are there clear research questions?” and “Do the collected data allow to address the research questions?”). The remaining five items were based on the specific study design. Each item was dummy-coded where the article was given a 1 if the response to the criteria was a “Yes” or a 0 if the response was a “No” or “Can’t Tell.”

The protocol (Authors, in press) originally reported that two reviewers would independently assign ratings to each included article on a range of 25% (low quality articles) to 100% (high quality articles). However, only one reviewer performed this task. The second reviewer cross-checked their work, including changing “can’t tell” to “yes” or “no” where applicable. These two reviewers met biweekly over a three-month period to check the ratings and settle disputes. In addition, articles were given ratings from 0% (low quality) to 100% (high quality) in 20-percentage point increments as five unique items were used for each study design.

Results

There were 120 articles included in this scoping review. The majority of studies utilized a quantitative descriptive design ($n = 79$, 65.83%). Other studies adopted a qualitative design ($n = 35$, 29.17%). Few studies used mixed methods ($n = 5$, 4.17%). One study (.83%) used an intervention design. Zero studies were randomized, controlled trials.

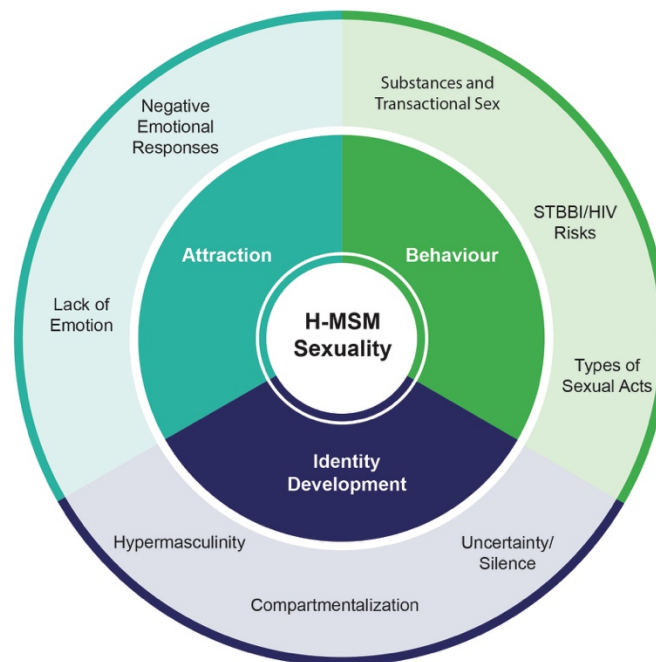
The MMAT was used to appraise the quality of evidence of each article. Most studies were given a score of at least 60% ($n = 114$). More specifically, 46 studies were scored 100%, 48 studies were given a score of 80%, 20 studies were scored 60%, 5 studies were given a score of 40%, 1 study scored of 20%, and 0 studies scored of 0%. Out of the 79 quantitative descriptive studies, 18 scored 100%, 40 scored 80%, 18 scored 60% and three scored 40%. Qualitative studies were mostly appraised at 100% ($n = 27$). Five qualitative studies were appraised at 80%. The other three studies were appraised at 60%, 40%, and 20%, respectively. One mixed methods study received 100% and two others received 80%, one received 60%, and one received 40%. Finally, the intervention study was appraised at 80%.

Themes were organized into a priori categories based upon the three constructs: Identity Development, Attraction, and Behaviour. Under identity development, themes included

hypermasculinity, uncertainty/silence, and compartmentalization. Themes related to attraction included lack of emotion with men and negative emotional responses. Behaviour-related themes consisted of sexually transmitted and blood borne infections (STBBI)/HIV risks, substance use and transactional sex, and types of sexual acts. See Figure 2 for a model of these findings.

Figure 2

Model of H-MSM Sexuality



Identity Development

Identity development consists of three themes: hypermasculinity, uncertainty/silence, and compartmentalization.

Hypermasculinity

Twenty-nine articles discuss the roles of hypermasculinity and internalized homophobia. Findings from 28 of the 29 articles suggest there is a high prevalence of hypermasculinity and internalized homophobia among H-MSM. Social norms around gender, for instance, are rooted in masculinity and discourage men from identifying as non-heterosexual (Perez-Brumer et al.,

2019). Accordingly, H-MSM tend to reject gay culture and have high degrees of hypermasculinity/machismo and internalized homophobia (Dillon et al., 2019; Phillips et al., 2020; Rutledge et al., 2018; Shoptaw et al., 2009; Silva, 2017). Conversely, Silva (2018, 2022) report most sampled H-MSM (56.09% and 62.88%, respectively) display low overt homophobia and conservative masculinity. Nevertheless, a considerable proportion of the participants have moderate or high levels of overt homophobia and/or conservative masculinity. Silva and Fetner (2022) also found that most H-MSM are moderately supportive of LGBTQ+ rights; though, religiosity and homophobia remain associated with identity-behaviour discordance.

Vrangalova and Savin-Williams (2012) argue some degree of discordance is due to stigma toward male same-sex sexuality, resulting in H-MSM maintaining heterosexual identities. Indeed, Duffin (2016) shows that H-MSM equate identifying as gay with being weak and vulnerable and that they associate bisexuality with confusion and pedophilia (Duffin, 2016). Two studies find that H-MSM believe they could not obtain happiness or emotional security if they did not have children (Silva and Whaley, 2018; Williams et al., 2004), indicating some H-MSM may be maintaining heterosexual identities to comply with traditional norms around constructing families. Three other studies highlight how H-MSM uphold hypermasculine personas to avoid being perceived as gay within their Black and Latino communities (Miller et al., 2005; Phillips et al., 2020; Shoptaw et al., 2009). Two studies add that disclosing same-sex sexuality would harm their reputations, especially within their culture and religion (Benoit and Koken, 2012; Schrimshaw et al., 2018). Cardoso (2009), though, concludes H-MSM fisherman in Brazil are not concerned about how disclosure of same-sex behaviours could affect their reputations as macho heterosexual men. Relatedly, three studies suggest some H-MSM do not view homosexuality

negatively, but they have negative attitudes towards feminine men and transgender individuals (Anderson, 2008; Cardoso, 2002, 2009).

Maintaining a hypermasculine persona and heterosexual identity may be harming the mental health and well-being of H-MSM. Carrillo and Hoffman (2016) state some participants experience stress from the societal pressures to be masculine and that allowing another man to be in charge of them during sex relieved some stress. Schrimshaw et al. (2013) similarly denote that concealment of same-sex sexuality is associated with heterosexual identification and internalized homophobia. In turn, internalized homophobia predicts heightened depressive and anxiety symptoms.

Uncertainty/Silence

Many HMSM experience uncertainty, largely related to fear of discrimination, stigma, and lack of social support. Dillon et al. (2019), for instance, finds H-MSM have high sexual identity uncertainty. This could be due to a lack of understanding of sexuality as reported in two studies. Duffin (2016) finds participants believed attraction was a dichotomy and bisexuality equated to sexual confusion. In another study, many men indicate they never had to define their sexuality until being interviewed for the study (Carrillo and Hoffman, 2016). These authors argue participants may have adopted flexible definitions of heterosexuality, in part, due to lack of understanding about heterosexuality and other sexual identities (Carrillo and Hoffman, 2016). Relatedly, the majority of H-MSM are at lower stages of homosexual identity acceptance, especially if they are still married to women (Malcolm, 2008).

Findings also show straight identification and concealment about same-sex behaviours among MSM and men who have sex with men and women (MSMW) is associated with political conservatism, marriage, high school or below education, full-time employment, living with a

female partner, and frequent sex with women (Schrimshaw et al., 2013; Silva, 2017). MSMW are also more likely to identify as heterosexual than gay (Mayer et al., 2021), but are most likely to identify as bisexual (Reilly et al., 2016). Scholars also find anywhere from 24-63% of H-MSM never tell others about their same-sex attractions and behaviours (Schrimshaw et al., 2013, 2018; Zule et al., 2009). Schrimshaw et al. (2018) finds H-MSM have various reasons for not disclosing their same-sex behaviours, such as concerns related to negative emotional reactions and relationship changes (e.g., being disowned), prior negative experiences with disclosure, fear that someone will tell others, and cultural and religious rejection. Schrimshaw et al. (2013) also reports that greater concealment is related to higher levels of depressive and anxiety symptoms and lower positive affect.

Compartmentalization

According to four studies, some H-MSM compartmentalize sexual behaviours as unrelated to and not representative of their sexual identity (Operario et al., 2008). Reback and Larkins (2010), for example, find H-MSM describe their same-sex behaviours as unrelated to their heterosexuality because such experiences are infrequent and sometimes accidental and serve recreational and/or economic purposes. That is, substance use is often involved, leading many to dismiss same-sex behaviours as uncharacteristic of their sober selves. For others, same-sex behaviours are viewed as ‘sport’—something that is fun but does not require intimacy—which allows them to avoid adopting non-heterosexual identities. Many others engage in transactional sex with other men to exchange substances and/or money. Both substance use and transactional sex are further described under the *Behaviours* category.

Attraction

Two themes emerge under attraction: lack of emotion and negative emotional responses. Notably, attraction is the smallest category as few reports examine attraction among H-MSM.

Lack of Emotion

H-MSM experience different types of attraction toward men compared to women. Eight studies, for instance, indicate H-MSM experience no romantic attraction to men (e.g., Martinez and Hosek, 2005; Silva, 2017). Men in these studies only experience romantic attraction with women and use sex with men as a form of stress relief. Relatedly, Harawa et al. (2008) mentions some participants preferred male over female sexual partners when they were intoxicated because sex with other males required less emotional commitment. Morandini et al. (2019) finds the visual attention of mostly heterosexual men is fixated more heavily on sexually explicit features (i.e., genitals) rather than on other areas of the body (e.g., face, chest) due to increased sexual attraction. Other H-MSM deny any attraction to men (Duffin, 2016) or emphasize they are primarily attracted to women—not men (Carrillo and Hoffman, 2016)—allowing them to maintain their heterosexual identity. Overall, H-MSM's attraction toward other men is primarily sexual.

Notably, three studies report on the types of men that H-MSM were attracted to when they do acknowledge they are attracted to other men. Findings reveal the types of men H-MSM are attracted to may vary. Fontdevila (2020), for example, concludes participants desire masculine cisgender men. Meanwhile, other H-MSM report same-sex attractions and behaviours by being attracted to feminine men (Siegel and Meunier, 2019) and transgender women (Duffin, 2016), occasionally justifying their identity-behaviour discordance through these attractions.

Negative Emotional Responses

Findings from seven studies suggest H-MSM experience negative emotional responses following sexual encounters with other men. In particular, many H-MSM feel shame about their same-sex behaviours (e.g., Miller, 2008). Reback and Larkins (2010) report H-MSM feel shameful, guilty, disgusted, and unclean after having sex with other men. According to participants, these negative feelings suggest H-MSM cannot be LGBTQ+ as if positive emotional responses would indicate an individual may be LGBTQ+ (Reback and Larkins, 2010). In addition, feelings of shame and guilt are associated with greater anxiety and depression (Mendelsohn et al., 2022) and likelihood of engaging in transactional sex or having a history of substance abuse (Senreich, 2015).

Behaviours

Behaviours is the largest category and consists of three themes: STBBI/HIV risks, substance use and transactional sex, and types of sexual acts.

STBBI/HIV Risks

Forty-four studies included findings relate to behavioural risks, testing, stigma, treatment, and health services/help seeking. These studies mostly show H-MSM have elevated risks for HIV and other sexually transmitted and blood borne infections (STBBIs) in comparison to heterosexual or other MSM. Three studies, though, find H-MSM are less likely than other heterosexual men or MSM to report being diagnosed with HIV (Everett, 2013; Mendoza et al., 2015; Pathela et al., 2006). One other study found H-MSM are not significantly more likely to test positive for HIV despite having significantly higher odds of engaging in condomless sex (Baytop et al., 2014). However, these lower odds of reporting past or current STBBIs/HIV may be related to lack of testing. Indeed, six studies conclude H-MSM have low rates of HIV testing

(Margolis et al., 2012; McCree et al., 2016). In fact, one study of Black MSM in Washington, DC finds 82% of participants who had never tested for HIV were heterosexual and 19% of the full sample identified as heterosexual (McCree et al., 2016). Another study of MSM in the United Kingdom shows 83% of H-MSM have not been tested for HIV in the past 12 months and 70% never received an HIV test result (Witzel et al., 2016). Perhaps related to the lack of testing, Lert et al. (2010) and MacCarthy et al. (2014) find H-MSM have higher odds of delayed diagnosis and treatment for HIV compared to other MSM.

H-MSM report several reasons for not testing, including thinking they did not have HIV; fearing being diagnosed with HIV, being outed to others, and/or being deported; not knowing where to get tested; not having the time or resources; and not believing they did anything to contract HIV (Boyce et al., 2012; Margolis et al., 2012; Wirtz et al., 2014). Importantly, men who had never tested before preferred self-administered testing, genitourinary medicine clinics, and testing in general practice (Witzel et al., 2016). H-MSM also often prefer free, public health clinics as they provide greater anonymity and allow them to blend in without bringing attention to their same-sex sexual behaviours (Boyce et al., 2012). These services may be especially important as H-MSM are less likely than gay and bisexual men to have a primary healthcare provider (Merighi et al., 2011) and less likely than gay men to disclose their same-sex sexual behaviours to providers (Stults et al., 2020). A lack of knowledge of HIV may also pose a barrier to testing and prevention. Ortiz-Sánchez et al. (2017) and Tang et al. (2014) each report H-MSM lack adequate knowledge of HIV.

Pre-exposure prophylaxis (PrEP) use is another preventative tool against HIV. However, only one study examines PrEP use, finding H-MSM were significantly less willing to use PrEP than gay MSM (Lim et al., 2017). Condom use is also important to prevent HIV and other

STBBIs. Findings are mixed on whether H-MSM have lower or higher condom use than other MSM. Four studies report H-MSM have lower condom use than other MSM (Denning and Campsmith, 2005; Rutledge et al., 2018). Zellner et al. (2009) similarly report that 91.7% of H-MSM who engage in sex with female and male partners during the past 60 days did not use condoms and only 21% of H-MSM, compared to 53.1% of gay MSM, were carrying condoms at the time of the survey. McCree et al. (2016) also acknowledge those who had never tested for HIV are more likely to be heterosexual and less likely to use condoms with male partners. Meanwhile, two studies found H-MSM have less condomless episodes than gay, bisexual, and other MSM (Carballo-Diéguez et al., 2011; Joseph et al., 2018). Another four studies found no significant differences in condomless anal intercourse between H-MSM and other MSM (Ayer et al., 2021; Bond et al., 2009). Additionally, eight studies show H-MSM are more likely to use condoms with male partners than female partners (Martinez and Hosek, 2005). Shen et al. (2016) suggested social and cultural norms around married life create expectations for men to engage in condomless sex with their wives, which may help explain the different rates of condom use with male and female partners. Further, Rosenberger et al. (2012) and Williams et al. (2004) report that location, physical urges, and religious beliefs impact condom use. Condoms are not always readily available in venues for anonymous sex, cars, parks, and other locations where H-MSM engage in sex. Condoms are more readily available when H-MSM engage in sex in a hotel or at a partner's home. Miller et al (2005) add that substance use can make H-MSM incapable of discussing condom use.

Moreover, HIV stigma impacts how H-MSM engage in preventative measures and treatment. Philibin et al. (2018), for example, note H-MSM often delayed treatment of HIV and other STBBIs due to fear of discrimination and stigma. HIV-related stigma and associating HIV

with identifying as gay or bisexual also prevented many H-MSM from getting tested (Boyce et al., 2012; Williams et al., 2004). Stigma about HIV also may affect disclosure of HIV. Reback et al. (2015) find some H-MSM refuse to disclose their HIV serostatus to female sexual partners. The authors also share that those H-MSM who did disclose having HIV did so in ways to protect their heterosexual identity. Alternatively, Ayer et al. (2021) find H-MSM were more likely than gay or bisexual men to communicate about HIV. Relatedly, HIV programming is often geared toward gay and bisexual and younger MSM and not heterosexual and/or older MSM (Martinez-Donate et al., 2010; Philibin et al., 2018).

Substance Use and Transactional Sex

Substance use and/or transactional sex among H-MSM is discussed in 27 studies. Among these articles, 11 examine substance use, 10 examine transactional sex, and six examine both substance use and transactional sex. Generally, results show H-MSM often use various substances (Reback and Larkins, 2010). However, research on substance use disparities between H-MSM and other heterosexual men and MSM is mixed. Findings from five studies suggest H-MSM have elevated levels of recent substance use and substance use during sex compared to other heterosexual men and MSM (Dillon et al., 2019; Zellner et al., 2009). Deren et al. (2001) also argue that H-MSM have larger drug networks than other MSM. In addition, Brewer et al. (2014) find Black H-MSM are more likely than other Black MSM to have a history of incarceration and incarceration history was associated with drug and alcohol use in the last six months. Results from three other studies, though, indicate H-MSM may abuse substances less than others. First, Lert et al. (2010) find HIV+ H-MSM were less likely to use poppers or cocaine but more likely to smoke tobacco compared to other HIV+ MSM. The authors found no significant differences in heavy alcohol use. Second, McCabe et al. (2019) similarly found that

past-year prevalence of alcohol use disorder did not differ significantly between H-MSM and other heterosexual men without same-sex attraction. Notably, though, H-MSM have a lower prevalence of alcohol use disorder than gay, bisexual, and men who are unsure of their identity. Third, Gattis et al. (2012) find H-MSM have lower rates of alcohol dependence than other heterosexual or gay men. Gattis et al. (2012) also share H-MSM have higher usage rates of depressants, stimulants, cannabis, hallucinogens, and inhalants than other heterosexual men but lower usage rates than gay men.

Results from four studies reveal H-MSM use substances to lower inhibitions and make them more comfortable engaging in sex with another man (Benoit and Koken, 2012; Operario et al., 2008). According to Harawa et al. (2008), drug use not only increases comfort with engaging in sex with other men, but drugs also help Black H-MSM cope with their same-sex behaviours. That is, some H-MSM may use intoxication from drugs to excuse their same-sex behaviours and maintain their heterosexual identity. Harawa et al. (2008) also mentioned that drugs and alcohol are often located in many areas where Black H-MSM and other non-gay-identified Black MSM pick up other men for sex.

Moreover, every article mentioning transactional sex acknowledged that many H-MSM have sex with other men to obtain drugs and/or money (Fernández-Dávila et al., 2008; Finlinson et al., 2006). Similarly, many H-MSM engage in survival sex where they have sex with another man as a means towards obtaining food, money, clothes, and/or shelter (Fontdevila, 2020; Wirtz et al., 2014). In fact, H-MSM have increased odds of engaging in transactional sex (Boyce et al., 2012) and transactional sex is the most common HIV risk behaviour among H-MSM (Abdallah et al., 2020). In addition, transactional sex is associated with crack and injection drug use (Newman et al., 2004) and shame, guilt, and a need for secrecy (Senreich, 2015). H-MSM sex

workers also are less knowledgeable of HIV, report more unprotected vaginal sex, and experience symptoms of STBBIs (Tang et al., 2014).

Types of Sexual Acts

Finally, 22 studies explore the types of sexual acts performed by H-MSM. Twelve studies report on the position or role H-MSM take during sex with other men. Nine of these articles find H-MSM only accept roles as the insertive partner during anal intercourse (Duffin, 2016; Cardoso, 2009). This likely relates to cultural beliefs about sexuality and gender roles. Indeed, many studies highlight how certain cultures and communities (e.g., South and East Asians, Turkish, Latino, and Black cultures and communities) associate an insertive role with manhood and masculinity (Cardoso, 2009; Clark et al., 2013; Huysamen, 2018). Thus, H-MSM often insist they can maintain their manhood and identity as heterosexual as long as they are the insertive partner and not the receiving partner during anal intercourse with other men (Duffin, 2016). Relatedly, some H-MSM avoid kissing (Li et al., 2010) or anal sex (Carrillo and Hoffman, 2016) to maintain their heterosexual identities.

Another unique aspect of sex with men related to discretion. Six studies explicitly reported discretion was valued among H-MSM. Silva (2017) found H-MSM prefer regular and discrete partners with no strings attached versus one-night stands. One study mentions discretion is arousing and exciting for H-MSM (Carrillo and Hoffman, 2016). Similarly, another study mentioned that young H-MSM enjoy Internet cruising because it is erotic and promises greater anonymity over public venues (Robinson and Moskowitz, 2013). Meanwhile, two studies shared that discretion is important to avoid others learning about their same-sex behaviours (Schrimshaw et al., 2018; Williams et al., 2004). Findings from one other study simply stated H-MSM prefer discretion because sex is a personal and private topic (Schrimshaw et al., 2014).

Four other studies describe the type of sex H-MSM enjoy with men versus with women. Results indicate H-MSM perceive male partners as sexually adventurous and have rougher and more aggressive sex with them compared to female partners (Fernández-Dávila et al., 2008; Fontdevila, 2020; Siegel and Meunier, 2019). In addition, H-MSM report that male partners are more capable of pleasing them than female partners (Fontdevila, 2020; Siegel and Meunier, 2019). Sex with men is viewed by H-MSM as a way to feel free and achieve sexual relief (Fernández-Dávila et al., 2008; Fontdevila, 2020; Martinez and Hosek, 2005) while sex with women is viewed as morally superior (Fontdevila, 2020). In three other studies, H-MSM recognize that other men are more readily available for sex and securing a sexual relationship is easier with men than with women (Fernández-Dávila et al., 2008; Martinez and Hosek, 2005; Reback et al., 2019). Additionally, findings from three studies suggest H-MSM sometimes engage in opportune or situational sex with other men. That is, H-MSM had sex with other men because the opportunity was available and other options were limited in their given situation. For instance, Muñoz-Laboy (2004) show H-MSM engage in opportunity sex with other men while in prison for drug-related offenses. Finally, two studies report that H-MSM may have sex with other men because female partners wanted them to have a threesome with another man (Carrillo and Hoffman, 2016; Thompson et al., 2022).

Discussion

As the first known knowledge synthesis of H-MSM and with ten independent coders, this review offers novel, comprehensive insight into studies of the identity development, attraction, and behaviour of H-MSM. The resulting model (Figure 2) highlights the complexity of the population. Although a comparatively small population when compared to concordant heterosexual and GBQ+ men, there is considerable variability of identities and experiences

amongst H-MSM. Ethnicity, religiosity, and political ideology are the key demographics (other than sexual orientation and behaviour) under study and comparison in these articles. This synthesis highlights some the main issues that H-MSM may face and calls for further research to examine these intricate dimensions of sexuality. In practice, accepting these individuals' identity as heterosexual and acknowledging heterosexuality can have flexibilities are important to effectively engage with this population and promote healthy behaviours, as H-MSM currently have little options for client centered care based on honesty about their identity and potential health risk behaviours (Carrillo and Hoffman, 2016).

Dimensions of Sexuality

Among the three main constructs explored in this scoping review, behaviour has the most evidence followed by identity development with attraction in a distant third. As the included reports are primarily in the fields of public health and psychology, behaviour may understandably be a priority focus (Holt-Lunstad et al., 2017). However, lack of attention to identity development and attraction may imply that the reasons behind H-MSM's behaviour remain understudied. Without a fulsome understanding of the internal pathway to behaviour, interventions may only be able to offer surface-level support (e.g., prophylactic) without addressing the root causes of behaviour (Paina and Peters, 2012).

Rates of STBBI and HIV testing are low amongst H-MSM when compared to their concordant heterosexual and GBQ+ peers. Further, many jurisdictions are reporting multi-year trends of unchanging rates of STBBI and HIV testing (Koester et al, 2018), suggesting that the same groups of people may be getting tested year-over-year and other groups may not as readily avail themselves of sexual health screening (Koester et al, 2018). Given the reviewed studies' successes in recruiting H-MSM by advertising specifically for the population (Reback et al.,

2019), a targeted testing campaign centered on H-MSM may be a potential direction for future research.

The Importance of Terminology

Labelling sexuality has long been a controversial and contentious process, with frequent debate and constant evolution of terminology (Moleiro and Nuno, 2017). The language used to describe a person's sexuality and sexual behaviour is particularly fraught when issues such as discordance and concealment are present (Shapiro and Ray, 2007). Nonetheless, this review identifies terminology in the extant literature that complicated screening and synthesis and could inhibit research impacts for H-MSM. During screening, hundreds of articles referred to participants as 'behaviourally bisexual'. Through full-text review, the screeners identified that this was a term used by researchers when male respondents were either: a) self-identifying as heterosexual, bisexual, or gay and reporting sex with both men and women (e.g., Schrimshaw et al., 2013, 2014, 2018; van Gemert et al., 2013); or b) when respondents were not asked for their sexuality, and reported sex with both men and women (e.g., Dodge et al., 2013; Martinez et al., 2011; Mattera et al., 2018). The nomenclature of labelling a participant as behaviourally linked to an identity label is uncommon in sexuality scholarship (Cameron and Kullick, 2003), and can be problematized. If H-MSM are mislabelled as behaviourally bisexual, then neither bisexual-identified people nor H-MSM will be distinctly represented in the results and the implications may be applied inappropriately.

Of secondary concern is mixed terminology labelling participants on sexual behaviour, without considering identity. Men who have sex with men and women (MSMW), as discussed above, could be interpreted as bisexual men or as heterosexual men (Dodge et al, 2008). Relying solely on sexual behaviour also does not allow for emerging identities and flexibility in labels,

excluding pansexuality, heteroflexibility, and other identities. H-MSM may be the label that is most descriptive and representative of the population.

Overall, the questions that researchers and practitioners ask of men inform the ways in which we conceptualize their experience. If we ask questions like “who do you have sex with?” and “how do you identify your sexuality?” and report the true complexity of responses, the field may better reflect the identities and experiences of the community.

Limitations

This scoping review has numerous limitations. A meta-analysis was not plausible given the heterogeneity of the design, measures, and outcomes across included studies (Cumpston et al., 2019). Only including studies available in English limited the scope of the search. This review did not synthesize literature pertaining to sexual fantasies, which some scholars argue is another key dimension of sexuality (Canivet et al, 2022).

Conclusion

This review demonstrates that H-MSM are a distinct population that are increasingly of focus in sexuality scholarship. Literature is primarily exploratory in nature, developing over the past two decades. The next phase of scientific inquiry with H-MSM may be in the development and evaluation of interventions (e.g., targeted prevention campaigns, psychosocial support) to address the issues identified in this review.

References

- Abdallah I, Conserve D, Burgess TL, Adegbite AH and Oraka E (2020) Correlates of HIV-related risk behaviors among self-identified heterosexual men who have sex with men (HMSM): National survey of family growth (2002, 2006-2010, and 2011-2017). *AIDS Care* 32(12): 1529-1537.
- Anderson E (2008) “Being masculine is not about who you sleep with...:” Heterosexual athletes contesting masculinity and the one-time rule of homosexuality. *Sex Roles* 58(1-2): 104–115.
- Annor FB, Clayton HB, Gilbert LK., Ivey-Stephenson AZ, Irving SM, David-Ferdon C and Kann LK (2018) Sexual orientation discordance and nonfatal suicidal behaviors in U.S. high school students. *American Journal of Preventive Medicine* 54(4): 530-538.
- Arksey H and O’Malley L (2005) Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology* 8(1): 19-32.
- Ayer A, Perez-Brumer, A, Segura ER, Chavez-Gomez S, Fernandez R, Arroyo C, Barrantes A, Lake JE, Cabello R and Clark JL (2021) Let’s talk about sex: The impact of partnership contexts on communication about HIV serostatus and condom use among men who have sex with men (MSM) and transgender women (TW) in Lima, Peru. *AIDS and Behavior* 25: 2139-2153.
- Baytop C, Royal S, McCree DH, Simmons R, Tregerman R, Robinson C, Johnson WD, McLaughlin M and Price C (2014) Comparison of strategies to increase HIV testing among African-American gay, bisexual, and other men who have sex with men in Washington, DC. *AIDS Care* 26(5): 608-612.

- Benoit E and Koken JA (2012) Perspectives on substance use and disclosure among behaviorally bisexual black men with female primary partners. *Journal of Ethnicity in Substance Abuse* 11(4): 294–317.
- Benoit E, Pass M, Randolph D, Murray D and Downing MJ Jr (2012) Reaching and engaging non-gay identified, non-disclosing Black men who have sex with both men and women. *Culture, Health and Sexuality*, 14(9): 975-990.
- Bond L, Wheeler DP, Millett GA, LaPollo AB, Carson LF and Liau A (2009) Black men who have sex with men and the association of down-low identity with HIV risk behavior. *American Journal of Public Health* 99(S1): S92-S95.
- Bowring AL, Vella AM, Degenhardt L, Hellard M, and Lim MSC (2015) Sexual identity, same-sex partners and risk behaviour among a community-based sample of young people in Australia. *International Journal of Drug Policy* 26: 153-161.
- Boyce S, Barrington C, Bolaños H, Arandi CG and Paz-Bailey G (2012) Facilitating access to sexual health services for men who have sex with men and male-to-female transgender persons in Guatemala City. *Culture, Health & Sexuality* 14(3): 313-327.
- Braun V, and Clarke V (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2): 77-101.
- Bussey K (2011) Gender identity development. (eds) *Handbook of Identity Theory and Research*. Springer Science + Business Media, pp.603-628.
- Brewer RA, Magnus M, Kuo I, Lei Wang L, Liu TY, and Mayer KH (2014) The high prevalence of incarceration history among Black men who have sex with men in the United States: Associations and implications. *American Journal of Public Health* (1971) 104(3): 448–454.

- Cameron D and Kulick D (2003) *Language and sexuality*. Cambridge University Press.
- Canivet C, Bolduc R and Godbout N (2022) Exploring variations in individuals' relationships to sexual fantasies: A latent class analysis. *Archives of Sexual Behavior* 51: 1-12.
- Carballo-Diéguez A, Balan I, Marone R, Pando MA, Dolezal C, Barreda V, Leu C-S and Ávila MM (2011) Use of respondent driven sampling (RDS) generates a very diverse sample of men who have sex with men (MSM) in Buenos Aires, Argentina. *PLoS ONE* 6(11): e27447.
- Cardoso FL (2002) "Fishermen": Masculinity and sexuality in a Brazilian fishing community. *Sexuality and Culture* 6: 45-72.
- Cardoso FL (2009) Recalled sex-typed behavior in childhood and sports' preferences in adulthood of heterosexual, bisexual, and homosexual men from Brazil, Turkey, and Thailand. *Archives of Sexual Behavior* 38: 726-736.
- Carrillo H (2022) Heteroflexibility. *Introducing the New Sexuality Studies*. Routledge.
- Carrillo H and Hoffman A (2016) From MSM to heteroflexibilities: Non-exclusive straight male identities and their implications for HIV prevention and health promotion. *Global Public Health* 11(7-8): 923-936.
- Carrillo H and Hoffman A (2018) 'Straight with a pinch of bi': The construction of heterosexuality as an elastic category among adult US men. *Sexualities*, 21(1-2): 90-108.
- Clark J, Salvatierra J, Segura E, Salazar X, Konda K, Perez-Brumer A, Hall E, Klausner J, Caceres, C and Coates T (2013) Moderno love: sexual role-based identities and HIV/STI prevention among men who have sex with men in Lima, Peru. *AIDS and Behavior*, 17: 1313-1328.

- Cumpston M, Li T, Page MJ, Chandler J, Welch VA, Higgins JP and Thomas J (2019) Updated guidance for trusted systematic reviews: a new edition of the Cochrane Handbook for Systematic Reviews of Interventions. *The Cochrane Database of Systematic Reviews* 10(10).
- Denning PH and Campsmith ML (2005) Unprotected anal intercourse among HIV-positive men who have a steady male sex partner with negative or unknown HIV serostatus. *American Journal of Public Health* 95(1): 152-158.
- Deren S, Stark M, Rhodes F, Siegal H, Cottler L, Wood M, Kochems L, Carlson R, Falck R, Rourke K and Trotter R (2001) Drug-using men who have sex with men: Sexual behaviours and sexual identities. *Culture, Health & Sexuality* 3(3): 329-338.
- Dillon FR, Eklund A, Ebersole R, Ertl MM, Martin JL, Verile MG, Gonzalez SR, Johnson S, Florentin D, Wilson L and Roberts S (2019) Heterosexual self-presentation and other individual-and community-based correlates of HIV testing among Latino men who have sex with men. *Psychology of Men & Masculinities* 20(2): 238
- Dodge B, Jeffries WL and 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.
- Dodge B, Schnarrs PW, Reece M, Martinez O, Goncalves G, Malebranche D, Van Der Pol B, Nix R and Fortenberry JD (2013) Sexual behaviors and experiences among behaviorally bisexual men in the Midwestern United States. *Archives of Sexual Behaviors* 42: 247-256.
- Duffin TP (2016) The lowdown on the down low: Why some bisexually active men choose to self-identify as straight. *Journal of Bisexuality* 16(4): 484-506.

- Esie P, Kang J, Flagg EW, Hong J, Chen T and Bernstein K (2018) Men who have sex with men-
-Identification criteria and characteristics from the National health and nutrition
examination survey, 1999-2014. *Sexually Transmitted Diseases* 45(5): 337-342.
- 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.
- Fasula AM, Oraka E, Jeffries WL III, Carry M, Ocfemia MCB, Balaji AB, Rose CE, Jayne PE
(2016) Young sexual minority males in the United States: Sociodemographic
characteristics and sexual attraction, identity and behavior. *Perspectives on Sexual and
Reproductive Health* 48(1): 3-8.
- Fernández-Dávila P, Salazar X, Cáceres CF, Maiorana A, Kegeles S, Coates TJ and Martinez J
(2008) Compensated sex and sexual risk: Sexual, social and economic interactions
between homosexually-and heterosexually-identified men of low income in two cities of
Peru. *Sexualities* 11(3): 352-374.
- Finlinson HA, Colón HM, Robles RR and Soto M (2006) Sexual identity formation and AIDS
prevention: An exploratory study of non-gay-identified Puerto Rican MSM from working
class neighborhoods. *AIDS and Behavior* 10: 531-539.
- Fontdevila J (2020) Productive pleasures across binary regimes: Phenomenologies of bisexual
desires among Latino men. *Sexualities* 23(4): 645-665.
- Fu TC, Herbenick D, Dodge B, Owens C, Sanders SA, Reece M and Fortenberry JD (2019)
Relationships among sexual identity, sexual attraction, and sexual behavior: Results from
a nationally representative probability sample of adults in the United States. *Archives of
Sexual Behavior* 48: 1483-1493.

- Gattis MN, Sacco P and Cunningham-Williams RM (2012) Substance use and mental health disorders among heterosexual identified men and women who have same-sex partners or same-sex attraction: results from the national epidemiological survey on alcohol and related conditions. *Archives of Sexual Behavior*; 41: 1185-1197.
- Goethe VE, Angerer H, Dinkel A, Arsov C, Hadaschik B, Imkamp F, Gschwend JE and Herkommer K (2018) Concordance and discordance of sexual identity, sexual experience, and current sexual behavior in 45-year-old men: Results from the German male sex-study. *Sexual Medicine* 6(4): 282-290.
- Harawa NT, Williams JK, Ramamurthi HC and Bingham TA (2006) Perceptions towards condom use, sexual activity, and HIV disclosure among HIV-positive African American men who have sex with men: implications for heterosexual transmission. *Journal of Urban Health* 83: 682-694.
- Holt-Lunstad J, Robles TF and Sbarra DA (2017) Advancing social connection as a public health priority in the United States. *American psychologist* 72(6): 517.
- Hong QN, Fàbregues S, Bartlett G, Boardman F, Cargo M, Dagenais P, Gagnon MP, Griffiths F, Nicolau B, O’Cathain A and Rousseau MC (2018) The Mixed Methods Appraisal Tool (MMAT) version 2018 for information professionals and researchers. *Education for Information* 34(4): 285-291.
- Hsieh HF and Shannon SE (2005) Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9): 1277-1288.
- Huysamen M (2018) *A critical analysis of men's constructions of paying for sex: doing gender, doing race in the interview context*. PhD Thesis. University of Cape Town, SA.

Joseph HA, Pan Y, Mendoza M, Harawa NT, Lauby J, Hosek SG, Bluthenthal R, Milnamow M, Fernandez MI, Jeffries WL IV (2018) HIV acquisition and transmission potential among African American men who have sex with men and women in three U.S. cities. *Archives of Sexual Behavior* 47(1): 183-194.

Koester KA, Erguera XA, Kang Dufour MS, Udoh I, Burack JH, Grant RM and Myers JJ (2018) “Losing the phobia:” Understanding how HIV pre-exposure prophylaxis facilitates bridging the serodivide among men who have sex with men. *Frontiers in Public Health* 6: 250.

Legate N and Rogge RD (2019) Identifying basic classes of sexual orientation with latent profile analysis: Developing the multivariate sexual orientation classification system. *Archives of Sexual Behavior* 48: 1403-1422.

Lehmiller J (2017) *The psychology of human sexuality*. John Wiley and Sons.

Lert F, Sitta R, Bouhnik AD, Dray-Spira R and Spire B (2010) HIV-positive men who have sex with men: biography, diversity in lifestyles, common experience of living with HIV. ANRS-EN12 VESPA Study, 2003. *Aids Care* 22(1): 71-80.

Li H, Holroyd E and Lau JTF (2010) Negotiating homosexual identities: The experiences of men who have sex with men in Guangzhou. *Culture, Health & Sexuality* 12(4): 401-414.

Lim SH, Mburu G, Bourne A, Pang J, Wickersham JA, Wei CKT, Yee IA, Wang B, Cassolato M and Azwa I (2017) Willingness to use pre-exposure prophylaxis for HIV prevention among men who have sex with men in Malaysia: Findings from an online survey. *PLoS ONE* 12(9): e0182838.

- Lindley LL, Walsemann KM and Carter JW Jr (2012) The association of sexual orientation measures with young adults' health-related outcomes. *American Journal of Public Health* 102(6): 1177-1185.
- Malcolm JP (2008) Heterosexually married men who have sex with men: Marital separation and psychological adjustment. *Journal of Sex Research* 45(4): 350-357.
- Margolis AD, Joseph H, Belcher, L, Hirshfield S and Chiasson MA (2012) 'Never testing for HIV' among men who have sex with men recruited from a sexual networking website, United States. *AIDS and Behavior* 16(1): 23-29.
- Martinez J and Hosek SG (2005) An exploration of the down-low identity: nongay-identified young African-American men who have sex with men. *Journal of the National Medical Association* 97(8): 1103.
- Martinez O, Dodge B, Reece M, Schnarrs P, Rhodes S, Goncalves G, Muñoz-Laboy M, Malebranche D, Van Der Pol B, Nix R, Kelle G and Fortenberry JD (2011) Sexual health and life experiences: Voices from behaviourally bisexual Latino men in the Midwestern USA. *Culture, Health & Sexuality* 13(9): 1073-1089.
- Martínez-Donate AP, Zellner JA, Sañudo F, Fernandez-Cerdeño A, Hovell MF, Sipan CL, Engelberg M and 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(12): 2532-2540.
- Mattera B, Levine EC, Martinez O, Muñoz-Laboy M, Hausmann-Stabile C, Bauermeister J, Fernandez MI, Operario D and Rodriguez-Diaz C (2018) Long-term health outcomes of childhood sexual abuse and peer sexual contact among an urban sample of behaviourally bisexual Latino men. *Culture, Health & Sexuality* 20(6): 607-624.

- Mayer ME, White E, Montano MA, Lama JR, Sanchez H, Cabello, R, Sanchez J, Pasalar S and Duerr A (2021) Sexual behavior among men who have sex with men: The need for more targeted outreach to men who also have sex with cisgender women. *Journal of Acquired Immune Deficiency Syndromes* (1999) 86(3): 265.
- McCabe SE, Hughes TL, West BT, Veliz P and Boyd CJ (2019) DSM-5 alcohol use disorder severity as a function of sexual orientation discrimination: A national study. *Alcoholism: Clinical and Experimental Research* 43(3): 497-508.
- McCree DH, Johnson W, Baytop C and Royal S (2016) Risk behaviors and testing history of African American MSM: Implications for prevention. *Journal of the National Medical Association* 108(4): 220-224.
- Mendelsohn DM, Omoto AM, Tannenbaum K and Lamb CS (2022) When sexual identity and sexual behaviors do not align: The prevalence of discordance and its physical and psychological health correlates. *Stigma and Health* 7(1): 70-79.
- Mendoza MLR, Jacobson JO, Morales-Miranda S, Alarcón CÁS and Núñez RL (2015) High HIV burden in men who have sex with men across Colombia's largest cities: Findings from an integrated biological behavioral surveillance study. *PLoS ONE* 10(8): e0131040.
- Merighi JR, Chassler D, Lundgren L and Inniss HW (2011) Substance use, sexual identity, and health care provider use in men who have sex with men. *Substance Use & Misuse* 46(4): 452-459.
- Meston C and Buss M (2007) Why humans have sex. *Archives of Sexual Behavior* 36: 477-507.
- Miller M (2008) Straight, gay, or both: The case of Michael. *Journal of Gay and Lesbian Mental Health* 12(4): 381-397.

- Miller M, Serner M and Wagner M (2005) Sexual diversity among black men who have sex with men in an inner-city community. *Journal of Urban Health*, 82: i26-i34.
- Moleiro C and Pinto N (2015) Sexual orientation and gender identity: review of concepts, controversies and their relation to psychopathology classification systems. *Frontiers in Psychology* 6: 1511.
- Morandini JS, Veldre A, Holcombe AO, Hsu K, Lykins A, Bailey JM and Dar-Nimrod I (2019) Visual attention to sexual stimuli in mostly heterosexuals. *Archives of Sexual Behavior*, 48: 1371-1385.
- Muñoz-Laboy, MA (2004) Beyond 'MSM': Sexual desire among bisexually-active Latino men in New York City. *Sexualities* 7(1): 55-80.
- Newman PA, Rhodes F and Weiss RE (2004) Correlates of sex trading among drug-using men who have sex with men. *American Journal of Public Health* 94(11): 1998-2003.
- Operario D, Smith CD and Kegeles S (2008) Social and psychological context for HIV risk in non-gay-identified african american men who have sex with men. *AIDS Education and Prevention* 20(4): 347-359.
- Ortiz-Sánchez EJ, Rodríguez-Díaz CE, Jovet-Toledo GG, Santiago-Rodríguez EI, Vargas-Mollina RL and Rhodes SD (2017) Sexual health knowledge and stigma in a community sample of HIV-positive gay, bisexual and other men who have sex with men in Puerto Rico. *Journal of HIV/AIDS & Social Services* 16(2): 143-153.
- Paina L and Peters DH (2012) Understanding pathways for scaling up health services through the lens of complex adaptive systems. *Health Policy and Planning* 27(5): 365-373.

- Parent MC and Wille L (2021) Heterosexual self-presentation, identity management, and sexual functioning among men who have sex with men. *Archives of Sexual Behavior* 50: 3155-3162.
- Pathela P, Hajat A, Schillinger J, Blank S, Sell R and Mostashari F (2006) Discordance between sexual behavior and self-reported sexual identity: A population-based survey of New York City men. *Annals of Internal Medicine* 145(6): 416-425.
- Perez-Brumer AG, Passaro RC, Oldenburg CE, Garcia J, Sanchez J, Salvatierra HJ, Lama JR and Clark JL (2019) Homophobia and heteronormativity as dimensions of stigma that influence sexual risk behaviors among men who have sex with men (MSM) and women (MSMW) in Lima, Peru: a mixed-methods analysis. *BMC Public Health*, 19(1): 617–617.
- Persson, LE, Kufner, A and Samko, N (2017) *Weighted inequalities of Hardy type*. World Scientific Publishing Company.
- Philbin MM, Hirsch JS, Wilson PA, Ly AT, Giang LM and Parker RG (2018) Structural barriers to HIV prevention among men who have sex with men (MSM) in Vietnam: Diversity, stigma, and healthcare access. *PLoS ONE* 13(4): e0195000.
- Pratt MG (1998) Central questions in organizational identification. *Identity in Organizations* 24(3): 171-207.
- Phillips G, Feinstein BA, Levy M, Kuo I, Glick SN, Fields SD, Dyer TV, Felt D and Magnus M (2020) Changes in sexual and gender identity and their associations with internalized homophobia among black men who have sex with men in the HPTN 061 BROTHERS Cohort. *Archives of Sexual Behavior* 49: 2375-2387.

- Reback CJ, Kaplan RL and Larkins S (2015) Disclosure of male sexual partnering and HIV serostatus among a sample of heterosexually identified men who have sex with men and women. *AIDS Education and Prevention* 27(3): 227-239.
- Reback CJ and Larkins S (2010) Maintaining a heterosexual identity: Sexual meanings among a sample of heterosexually identified men who have sex with men. *Archives of Sexual Behavior* 39(3): 766-773.
- Reback CJ, Larkins S and Clark K (2019) Motivations for a casual or occasional sexual encounter with a man and/or transgender woman among heterosexual men: Toward a better understanding of atypical sexual partnering. *Sexuality and Culture* 23(2): 359-374.
- Regan PC and Bersched E (1996) Beliefs about the state, goals, and objects of sexual desire. *Journal of Sex and Marital Therapy* 22(2): 110-120.
- Reilly KH, Neaigus A, Wendel T, Marshall DM and Hagan H (2016) Bisexual behavior among male injection drug users in New York City. *AIDS and Behavior* 20: 405-416.
- Reynolds C (2015) “I am super straight and I prefer you be too”: Constructions of heterosexual masculinity in online personal ads for “straight” men seeking sex with men. *Journal of Communication Inquiry* 39(3): 213-231.
- Robinson BA and Moskowitz DA (2013) The eroticism of internet cruising as a self-contained behavior: A multivariate analysis of men seeking men demographics and getting off online. *Culture, Health & Sexuality* 15(5): 555-569.
- Robinson BA and Vidal-Ortiz S (2013) Displacing the dominant “down low” discourse deviance, same-sex desire, and Craigslist.org. *Deviant Behavior* 34(3): 224-241.

- Rosenberger JG, Reece M, Schick V, Herbenick D, Novack DS, Van Der Pol B and Fortenberry JD (2012) Condom use during most recent anal intercourse event among a U.S. sample of men who have sex with men. *The Journal of Sexual Medicine* 9(4): 1037-1047.
- Rutledge SE, Jemmott JB, O'Leary A and Icard LD (2018) What's in an identity label? Correlates of sociodemographics, psychosocial characteristics, and sexual behavior among African American men who have sex with men. *Archives of Sexual Behavior* 47: 157-167.
- Sabat I, Trump R and King E (2014) Individual, interpersonal, and contextual factors relating to disclosure decisions of lesbian, gay, and bisexual individuals. *Psychology of Sexual Orientation and Gender Diversity* 1(4): 431-440.
- Savin-Williams RC (2014) An exploratory study of the categorical versus spectrum nature of sexual orientation. *Journal of Sex Research* 51(4): 446-453.
- Schrimshaw EW, Siegel K, Downing MJ Jr and 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(1): 141.
- Schrimshaw EW, Downing MJ Jr, Cohn DJ and Siegel K (2014) Conceptions of privacy and the non-disclosure of same-sex behaviour by behaviourally-bisexual men in heterosexual relationships. *Culture, Health and Sexuality* 16(4): 351-365.
- Schrimshaw EW, Downing MJ Jr and Cohn DJ (2018) Reasons for non-disclosure of sexual orientation among behaviorally bisexual men: Non-disclosure as stigma management. *Archives of Sexual Behavior* 47: 219-233.
- Scott RL, Lasiuk G and Norris C (2016) The relationship between sexual orientation and depression in a national population sample. *Journal of Clinical Nursing* 25: 3522-3532.

- Senreich E (2015) Self-identified heterosexual clients in substance abuse treatment with a history of same-gender sexual contact. *Journal of Homosexuality* 62(4): 433-462.
- Shapiro K and Ray S (2007) Sexual health for people living with HIV. *Reproductive Health Matters* 15(29): 67-92.
- Shen H, Tang S, Mahapatra T, Tucker JD, Huang S, Yang B, Zhao J, Detels R and Tang W (2016) Condomless vaginal intercourse and its associates among men who have sex with men in China. *PLoS ONE* 11(4): e0154132.
- Shoptaw S, Weiss RE, Munjas B, Hucks-Ortiz C, Young S.D, Larkins S, Victorienne GD and Gorbach PM (2009) Homonegativity, substance use, sexual risk behaviors, and HIV status in poor and ethnic men who have sex with men in Los Angeles. *Journal of Urban Health* 86: 77-92.
- Siegel K and Meunier É (2019) Awareness and perceived effectiveness of HIV treatment as prevention among men who have sex with men in New York City. *AIDS and Behavior* 23: 1974-1983.
- Silva T (2017) Bud-sex: Constructing normative masculinity among rural straight men that have sex with men. *Gender and Society* 31(1): 51-73.
- Silva TJ (2018) 'Helping' a buddy out': Perceptions of identity and behaviour among rural straight men that have sex with each other. *Sexualities* 21(1-2): 68-89.
- Silva TJ (2019) Straight identity and same-sex desire: Conservatism, homophobia, and straight culture. *Social Forces* 97(3): 1067-1094.
- Silva T (2022) Heterosexual identification and same-sex partnering: Prevalence and attitudinal characteristics in the USA. *Archives of Sexual Behavior* 51(4): 2231-2239.

- Silva T and Fetner T (2022) Sexual identity-behavior discordance in Canada. *Canadian Review of Sociology* 59(2): 156-180.
- Silva TJ and Whaley RB (2018) Bud-sex, dude-sex, and heteroflexible men: The relationship between straight identification and social attitudes in a nationally representative sample of men with same-sex attractions or sexual practices. *Sociological Perspectives* 61(3): 426-443.
- Stults CB, Grov C, Anastos K, Kelvin EA and Patel VV (2020) Characteristics associated with trust in and disclosure of sexual behavior to primary care providers among gay, bisexual, and other men who have sex with men in the United States. *LGBT Health* 7(4): 208-213.
- Tang W, Mahapatra T, Liu F, Fu G, Yang B, Tucker JD, Zhao J and Detels R (2014) Burden of HIV and syphilis: a comparative evaluation between male sex workers and non-sex-worker men who have sex with men in urban China. *PloS One* 10(5): e0126604
- Thomas J and Harden A (2008) Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology* 8: 45.
- Thompson AE, Osborn M, Gooch K and Ravet M (2022) An empirical investigation of variations in outcomes associated with heterosexual adults' most recent mixed-sex threesome experience. *Archives of Sexual Behavior* 51(6): 3021-3031.
- Van Gemert C, Vongsaiya K, Hughes C, Jenkinson R, Bowring AL, Sihavong A, Phimpachanh C, Chanlivong N, Toole M and Hellard M (2013) Characteristics of a sexual network of behaviorally bisexual men in Vientiane, Lao PDR, 2010. *AIDS Education and Prevention* 25(3): 232-243.

- Vasilenko SA, Rice CE and Rosenberger JG (2018) Patterns of sexual behavior and sexually transmitted infections in young men who have sex with men. *Sexually Transmitted Diseases* 45(6), 387-393.
- Vrangalova Z and Savin-Williams RC (2012) Mostly heterosexual and mostly gay/lesbian: Evidence for new sexual orientation identities. *Archives of Sexual Behavior* 41: 85-101.
- Ward J (2015) *Not gay: sex between straight white men*. New York: NYU Press.
- White E and Globerman J (2014) Sexual health of heterosexually-identified men who have sex with men. *Ontario HIV Treatment Network: Rapid Review* 92
- Williams JK, Wyatt GE, Resell J, Peterson J and Asuan-O'Brien A (2004) Psychosocial issues among gay-and non-gay-identifying HIV-seropositive African American and Latino MSM. *Cultural Diversity and Ethnic Minority Psychology* 10(3): 268.
- Wirtz AL, Zelaya CE, Peryshkina A, Latkin C, Mogilnyi V, Galai N, Dyakonov K and Beyrer C (2014) Social and structural risks for HIV among migrant and immigrant men who have sex with men in Mosco, Russia: Implications for prevention. *AIDS Care* 26(3): 387-395.
- Witzel TC, Melendez-Torres GJ, Hickson F and Weatherburn P (2016) HIV testing history and preferences for future tests among gay men, bisexual men and other MSM in England: Results from a cross-sectional study. *BMJ Open* 6: e011372.
- Zellner JA, Martínez-Donate AP, Sañudo F, Fernández-Cerdeño A, Sipan CL, Hovell MF and Carrillo H () The interaction of sexual identity with sexual behavior and its influence on HIV risk among Latino men: Results of a community survey in Northern San Diego County, California. *American Journal of Public Health* 99(1): 125-132.

Zule WA, Bobashev GV, Wechsberg WM, Costenbader EC and Coomes CM (2009) Behaviorally bisexual men and their risk behaviors with men and women. *Journal of Urban Health* 86: 48-62.