

The Sexual Health of Bisexual Men: Examining the Roles of Bisexual Minority Stress and
Substance Use

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ABSTRACT

THE SEXUAL HEALTH OF BISEXUAL MEN: EXAMINING THE ROLES OF BISEXUAL MINORITY STRESS AND SUBSTANCE USE

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According to public health research, bisexual men are at elevated risk for contracting STIs and HIV relative to other sexual minority groups (e.g., gay men, lesbian women) as well as heterosexual people; yet, no studies to date have examined contextual factors that may contribute to this sexual health trend. Using a minority stress theory framework, the present study tested the direct and indirect associations of anti-bisexual discrimination with risky sexual behaviors in a sample of 508 self-identified bisexual men (age range = 18 - 76), with internalized biphobia, bisexual identity concealment, and substance use mediating this relation. Bisexual identity centrality's direct relations with internalized biphobia, bisexual identity concealment, and risky sexual behavior were also tested. A path analysis was used to analyze the data. Results indicated that anti-bisexual discrimination yielded significant direct positive associations with internalized biphobia, bisexual identity concealment, and risky sexual behavior. Internalized biphobia, but not bisexual identity concealment, yielded a significant direct association with substance use, which yielded a significant direct positive link with risky sexual behavior. Bisexual identity centrality yielded significant direct negative associations with both internalized biphobia and bisexual identity concealment, but it yielded a nonsignificant association with risky sexual behavior. Internalized biphobia also yielded a total indirect link with risky sexual behavior through the mediating role of substance use. Implications of these findings for clinical practice and future research with bisexual men are discussed.

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CHAPTER I

INTRODUCTION

Public health research indicates that sexual minority (e.g., gay, bisexual, queer) men are at greater risk for contracting sexually transmitted infections (STIs) and the human immunodeficiency virus (HIV) relative to their female and heterosexual counterparts (e.g., Bimbi et al., 2006; Halkitis, Green & Carragher, 2006; Halkitis, Green & Mourgues, 2005; Halkitis, Zade, Shrem, & Marmor, 2004; Kalichman & Cain, 2004; Kashubeck-West & Szymanski, 2008). More specifically, recent trends suggest that the prevalence of STIs (e.g., syphilis, gonorrhea, and chlamydia) and HIV among sexual minority men has consistently increased over the last several decades, while prevalence in the general population has steadily decreased across the same timespan (Center for Disease Control and Prevention [CDC], 2016a). Halkitis and colleagues (2015) posit that the elevated rates of risky sexual behaviors among sexual minority men may contribute to the aforementioned sexual health trends in this community (Halkitis et al., 2005; Halkitis et al., 2006). Risky sexual behaviors among sexual minority men can be broadly conceptualized as unprotected sexual intercourse (i.e., anal and/or vaginal sex) and/or oral sex without a male or female condom with a sex partner; engaging in sexual activities of any sort with multiple sex partners; and/or using one or more substances (e.g., alcohol, marijuana, cocaine) prior to or during any form of sexual activity with a sex partner – all of which may increase the likelihood of contracting an STI and/or HIV/AIDS (Coley, Medeiros, & Schindler, 2008; Denato et al., 2013; Dew, Elifson, Sterk, & 2007; Gullette & Lyons, 2006; Huebner & Howell, 2003; Preston, D’Augelli, Kassab, & Starks, 2007).

Research findings suggest that several factors are positively correlated with the sexual risk-taking practices of sexual minority men, including overall alcohol consumption and drug use

(e.g., Brubaker, Garrett, & Dew, 2009; Jerome & Halkitis, 2009; Kowszun & Malley, 1996; Kus, 1988). In the same vein, recent research using a minority stress framework has considered the ways that heterosexist stressors may be associated with risky sexual behavior among this population (Dew & Chaney, 2005; Meyer & Dean, 1998). According to Meyer (2003), there are four stressors that sexual minority individuals may encounter: 1) experiences of heterosexist discrimination, 2) expectations of heterosexist stigma, 3) internalized heterosexism, and 4) concealment of one's sexual minority identity. In turn, sexual minorities may engage in different types of negative coping strategies, including substance use, which may foster the development of mental and physical health concerns (Allen, 2001; Amadio & Chung, 2004; D'Augelli, Grossman, Hershberger, & O'Connell, 2001). Moreover, previous research has successfully demonstrated that each of these minority stressors is associated with poor mental (e.g., psychological distress, substance abuse) and physical (e.g., risky sexual behavior, heart disease) health outcomes among sexual minority individuals (Huebner, Davis, Nemeroff, & Aiken, 2002; Meyer, 2003; Meyer & Dean, 1998; Pachankis et al., 2013; Schrimshaw, Siegel, Downing, & Parsons, 2013). However, scholars also posit that sexual identity centrality may serve an important role in the associations of heterosexist discrimination with internalized heterosexism, sexual identity concealment, as well as physical health outcomes among sexual minority people (Dyar & London, 2018; Meyer, 2003; Quinn & Earnshaw, 2011, 2013).

Despite the extensive body of research regarding minority stress theory and its constructs, few studies have focused on bisexual individuals, and none have specifically considered the perspectives of men who self-identify as bisexual. Often, researchers aggregate bisexual men in samples with gay men, which may obscure differences between groups of sexual minority men, or they sample men who have sex with men and women (MSMW) – men who are behaviorally

bisexual – who may or may not self-identify as bisexual (Malebranche 2008; Meyer & Wilson 2009; Moradi, Mohr, Worthington, & Fassinger, 2009; Young & Meyer 2005). Because bisexual men represent a subpopulation of sexual minority men that encounter unique stressors, such as anti-bisexual discrimination, they may be at increased risk for adverse psychological and physical health outcomes (Brewster & Moradi, 2010a; Brewster & Moradi, 2010b; Brewster, Moradi, DeBlaere, & Velez, 2013). Indeed, epidemiological research suggests that bisexual men may be at elevated risk of contracting STIs and HIV compared to gay men (Doll et al., 1992; Kalichman, Roffman, Picciano, & Bolan, 1998; Stokes, McKirnan, Doll, & Burzette, 1996); however, the role of bisexual-specific stressors have not been directly assessed in relation to this population’s risk for STI/HIV exposure. Thus, taken collectively, there is a clear need to explore how minority stress theory applies to bisexual men, while also accounting for factors that may influence the core constructs of this theoretical framework, including negative coping strategies.

Minority Stress and Risky Sexual Behaviors Among Sexual Minority Men

Minority stress theory (e.g., Brooks, 1981; Meyer, 2003) posits that the psychological and physical health disparities of sexual minorities can be largely explained by societal heterosexism, which perpetuates institutional and interpersonal discrimination against sexual minority people (Marshall et al., 2008; Meyer, 2003). Expanding upon this original framework, Hatzenbuehler (2009) argued that heterosexist discrimination may lead to other minority stressors that also have implications for mental health. For example, as a response to heterosexist discrimination, sexual minority people may internalize negative attitudes or beliefs about sexual minority people (i.e., internalized heterosexism) (Newcomb & Mustanski, 2010; Velez et al., 2013). Furthermore, in order to avoid future discrimination, sexual minority individuals may conceal their sexual orientation identities (Hatzenbuehler, 2009; Meyer, 1995, 2003).

Collectively, the aforementioned constructs are associated with negative psychological (e.g., anxiety, depression) (Brewster & Moradi, 2010; Cochran & Cauce, 2006; Meyer, 1995, 2003) and physical (e.g., cardiovascular disease, cancer) (Dudley et al., 2004; Herek & Garnets, 2007; Pachankis et al., 2015) health outcomes among sexual minority individuals.

Theorists also posit that greater sexual identity centrality – or the importance of sexual identity to one’s overall sense of self – may be associated with lower rates of internalized heterosexism and sexual identity concealment, in which empirical findings have consistently supported these claims (e.g., Cramer et al., 2018; Dyar, Feinstein, & London, 2015; Mohr & Kendra, 2011). However, due to the scarcity of research devoted to sexual identity centrality, little is known about its relations with physical health outcomes (e.g., risky sexual behaviors) among sexual minority individuals (Quinn & Chaudoir, 2009; Quinn & Earnshaw, 2011, 2013). Nonetheless, researchers have argued that sexual identity centrality may potentially moderate heterosexist discrimination’s relations with internalized heterosexism, sexual identity concealment, and negative health outcomes (e.g., Cramer et al., 2018; Dyar et al., 2015; Meyer, 2003; Quinn & Chaudoir, 2009). On the one hand, some scholars indicate that sexual identity centrality may protect against the detrimental consequences (e.g., sexual identity concealment) of heterosexist discrimination because it promotes positive self-regard and self-esteem (Crocker & Major, 1989; Fingerhut et al., 2010; Jefferson, Neilands, & Sevelius, 2013). Alternatively, other theorists argue that identity centrality may strengthen heterosexist discrimination’s associations with internalized heterosexism, sexual identity concealment, as well as negative health concerns among sexual minority people because a critical dimension of their self-concept is being targeted (Quinn & Chaudoir, 2009; Thoits, 1999). However, to our knowledge, no studies to date have tested these theories (Cramer et al., 2018; Quinn & Chaudoir, 2009; Quinn & Earnshaw, 2011,

2013). Taken collectively, though scholars highlight the potential importance of sexual identity centrality within minority stress theory, limited research has considered the potential direct and interactive associations of this variable with other minority stressors (e.g., internalized heterosexism) as well as physical health outcomes (Cramer et al., 2018; Mohr & Kendra, 2011).

An emerging body of literature has also considered how minority stressors are associated with risky sexual behaviors among sexual minority men (e.g., Dudley, Rostosky, Korfhage, & Zimmerman, 2004; Farnsworth, 2002; Pachankis et al., 2015; Ratti, Bakeman, & Peterson, 2000). For instance, research has assessed the relation of internalized heterosexism with risky sexual behaviors (e.g., Meyer & Dean, 1995, 1998; Dudley et al., 2004; Farnsworth, 2002; Peterson et al., 1992; Ratti et al., 2000; Shidlo, 1994). Findings of these studies are mixed, with some studies finding a significant positive relation between the two variables (e.g., Meyer & Dean, 1995, 1998; Peterson et al., 1992; Ratti et al., 2000), while others find nonsignificant associations (e.g., Dudley et al., 2004; Farnsworth, 2002; Shidlo, 1994; Shrout & Bolger, 2002). Shrout and Bolger (2002) posited that these inconsistent findings derive from varying operationalizations of risky sexual behaviors across studies. Despite this methodological limitation, a meta-analysis conducted by Newcomb and Mustanski (2010) further supported the association of internalized heterosexist discrimination with risky sexual behavior, though the effect size was relatively small ($d = .27$). Similarly, a large cross-national survey of sexual minority men ($N = 174,209$) found that heterosexist discrimination was positively associated with risky sexual behavior, and this association was mediated by sexual identity concealment (Pachankis et al., 2015).

In addition, scholars argue that sexual minority men may engage in unhealthy coping strategies, including the use of alcohol and other substances (e.g., cocaine, heroin), as a way of

alleviating the burden of chronic minority stressors (e.g., Brubaker, Garrett, & Dew, 2009; Jerome & Halkitis, 2009; Kowszun & Malley, 1996; Kus, 1988). Compared to other substances, alcohol has received the most attention in research drawing from minority stress theory (e.g., Amadio, 2006; Hughes et al., 2010; Thiede et al., 2003). Research indicates that heterosexual discrimination (Herek & Garnets, 2007; Hughes et al., 2010; McCabe, Bostwick, Hughes, West, & Boyd, 2010), internalized heterosexism (Amadio, 2006; Szymanski, Kashubeck-West, & Meyer, 2008), and sexual identity concealment (Kipke et al., 2007; Klitzman, Greenberg, Pollack, & Dolezal, 2002; McKirnan & Peterson, 1989; Thiede et al., 2003; Wong, Kipke, & Weiss, 2008) are positively associated with rates of drug use and alcohol consumption. Simultaneously, research has consistently indicated that elevated alcohol consumption and drug use among sexual minority men may also increase their likelihood of engaging in risky sexual behaviors (Bruce, Kahana, Harper, & Fernández, 2010; Sander et al., 2013). Substance use may promote risky sexual behavior because it interferes with an individual's ability to attend to the potential negative consequences of their behavior (Steele & Josephs, 1990). It is important to note, however, that the majority of minority stress theory research aggregates gay and bisexual men together, thereby failing to consider the possibility of within-group differences among sexual minority men (Eliason, 2001; Fox, 2003; Israel & Mohr, 2004; Moradi et al., 2009). In particular, bisexual men have been largely overlooked in minority stress research (Brewster and Moradi, 2010; Israel & Mohr, 2004); thus, additional research is needed to broaden the scope of minority stress theory and to further evaluate the unique experiences of bisexual men as they correspond with sexual risk-taking behaviors.

Bisexual Minority Stress

National research findings suggest that approximately four percent of women and three percent of men residing in the United States self-identify as bisexual (Herbenick et al., 2010). Bisexual individuals encounter unique forms of discrimination from both the heterosexual and gay/lesbian communities, making them a dually marginalized sexual minority group (Spalding & Peplau, 1997). Anti-bisexual discrimination has been conceptualized as the negative feelings, attitudes, and behaviors that non-bisexuals direct towards bisexual people, which may lead bisexual individuals to feel isolated in and rejected by society at large (Brewster & Moradi, 2010; Mohr & Rochlen, 1999; Watson, Velez, Brownfield, & Flore, 2016). Put simply, it is the “denigration of bisexuality as a life-choice” (Bennett, 1992, p. 207). Though the general bisexual population may encounter anti-bisexual discrimination, bisexual men appear to be perceived more negatively than bisexual women (Eliason, 2001; Mohr & Rochlen, 1999). This gender difference may arise because 1) bisexual men are assumed to be one of the major reasons HIV/AIDS emerged in the heterosexual community and 2) female bisexuality is objectified and fetishized in a patriarchal society (Brewster & Moradi, 2010; Israel & Mohr, 2004; Eliason, 1997, 2001; Fox, 2003; Mohr & Rochlen, 1999). Moreover, comparable to the internalized oppression processes of gay men and lesbian women (i.e., internalized heterosexism), internalized biphobia on the part of bisexual individuals may contribute to the emergence of physical and mental health issues, particularly for bisexual men (Balsam & Mohr, 2007; Sheets & Mohr, 2009). In turn, bisexual men may refrain from informing heterosexual and other sexual minority people about their sexual identity as a means of avoiding stigma (i.e., identity concealment) (Diamond, 2008). However, research has failed to consider how anti-bisexual discrimination, internalized biphobia, and bisexual identity concealment are associated with the

emergence of the stereotypical behaviors expected of individuals within this community (e.g., engaging in risky sexual behavior) (Eliason, 2002; Israel & Mohr, 2004). Similarly, despite previous research suggesting that bisexual identity centrality is negatively correlated with both internalized biphobia and bisexual identity concealment among bisexual individuals (Davila et al., 2018; Dyar & London, 2018), no studies to date – at least to our knowledge – have considered the moderating role of bisexual identity centrality as it potentially relates to bisexual minority stressors (e.g., internalized biphobia) and risky sexual behaviors among bisexual men.

Although research tends not to focus on bisexual men per se, several studies have compared the risky sexual behaviors of MSWM, or behaviorally bisexual men, to those of men who only have sex with men (MSM) (e.g., Dodge, Jeffries, & Sandfort, 2008; Goodenow, Netherland, & Szalacha, 2002; Jeffries & Dodge, 2007). For example, several studies indicate that MSWM tend to have a larger number of sexual partners and lower rates of condom use relative to MSM and men who have sex only with women (MSW) (e.g., McKirnan et al., 1995; Kalichman et al., 1998). In addition, Heckman and colleagues (1995) found that MSMW possessed lower intentions of condom use with male and female partners as well as weaker peer norms favoring safer sex relative to their MSM counterparts. At the same time, MSMW are often more likely than MSM to engage in sexual activities under the influence of drugs and alcohol, thereby placing them at increased likelihood of engaging in sexually risky behaviors (Jeffries & Dodge, 2007). Zule, Bobashev, Wechsberg, Costenbader, and Coomes (2009) also found that MSWM were more likely than MSW to be HIV-positive, despite comparable rates of unprotected anal intercourse among these groups of men; thus, additional factors (e.g., experiences of discrimination, alcohol use) may place MSMW at increased risk for STI and HIV

exposure. Although such findings are helpful in terms of understanding the sexual health of MSMW, it is unclear to what extent they generalize to the broader population of bisexual men.

Purpose of the Present Study

Despite the growing body of research that has demonstrated how minority stress constructs are associated with increased rates of substance use, risky sexual behaviors, and negative sexual health outcomes among sexual minority men, no study to date specifically considers experiences of anti-bisexual discrimination, internalized biphobia, bisexual identity concealment, and bisexual identity centrality in relation to the sexual behaviors of bisexual men. Such a gap within this body of literature is troublesome, particularly since public health trends over the last decade have indicated that bisexual men are at increased risk for contracting STIs and HIV relative to their heterosexual counterparts as well as to other sexual minority groups (Bailey, Farquhar, Owen, & Mangtani, 2004; CDC, 2016a). Consequently, this leaves the experiences of bisexual men largely up to speculation (Eliason, 2001; Fox 2003).

Based on the minority stress framework (Hatzenbuehler, 2009; Meyer, 2003; Pachankis, 2007) and prior research on sexual minority men's and MSMW's sexual health (Dew & Chaney, 2005; Pachankis et al., 2015), this study tested a model of interrelations among anti-bisexual minority stressors, bisexual identity centrality, substance use, and risky sexual behaviors (Appendix A). First, it was hypothesized that anti-bisexual discrimination would yield direct positive relations with internalized biphobia, bisexual identity concealment, and risky sexual behavior (Hypothesis 1). Internalized biphobia was expected to yield direct positive relations with substance use and risky sexual behavior (Hypothesis 2). We also hypothesized that bisexual identity concealment would yield a direct positive relation with substance use (Hypothesis 3). In turn, it was hypothesized that substance use would yield a direct positive relation with risky

sexual behavior (Hypothesis 4). Beyond these direct associations, anti-bisexual discrimination was expected to yield a significant positive indirect relation with substance use via the mediating roles of both internalized biphobia and bisexual identity concealment (Hypothesis 5). Anti-bisexual discrimination was hypothesized to yield a significant positive indirect relation with risky sexual behavior via a chain of mediated relations involving internalized biphobia, bisexual identity concealment, and substance use (Hypothesis 6). It was also hypothesized that internalized biphobia and bisexual identity concealment would yield significant positive indirect relations with risky sexual behavior through the mediating roles of substance use (Hypothesis 7).

Based on previous sexual identity centrality research (e.g., Cramer et al., 2018; Dyar, Feinstein, & London, 2015), it was hypothesized that bisexual identity centrality would yield negative direct associations with both internalized biphobia and identity concealment (Hypothesis 8). However, given the scarcity of research regarding sexual identity centrality in general – and bisexual identity centrality in particular – exploratory analyses were conducted to further examine bisexual identity centrality’s potential direct association with risky sexual behavior. More specifically, it was hypothesized that bisexual identity centrality would yield a significant direct association with risky sexual behavior; yet, because no studies to date have examined this relation, the direction of the association was unspecified. Additional exploratory analyses also examined the moderating role of bisexual identity centrality among variables of interest. Specifically, it was hypothesized that bisexual identity centrality would moderate the associations of anti-bisexual discrimination with internalized biphobia, bisexual identity concealment, and risky sexual behaviors; however, due to the two competing perspectives regarding the moderating role of sexual identity centrality (e.g., Cramer et al., 2018; Dyar et al., 2015), the nature of these interaction effects was not specified.

CHAPTER II

LITERATURE REVIEW

Physical health disparities among sexual minority people (e.g., gay, lesbian, bisexual, queer, pansexual) in America are well documented. Specifically, members of this community are at increased risk for cardiovascular disease (Case et al., 2004; Conron et al., 2010), asthma (Conron et al., 2010; Landers, Mimiaga, & Conron, 2011), pain and fatigue (Wang et al., 2007), and other chronic health conditions (Cochran & Mays, 2007; Kim & Fredriksen-Goldsen, 2012). Sexual minority men are also at increased risk for contracting sexually transmitted infections (STIs), such as syphilis, gonorrhea, chlamydia, and the human papillomavirus (HPV), as well as the human immunodeficiency virus (HIV) – the pathogen responsible for the acquired immune deficiency syndrome (AIDS) (CDC, 2016a, 2016b). Moreover, several studies have consistently found elevated rates of STIs among sexual minority men in comparison to their heterosexual counterparts (e.g., Bailey, Farquhar, Owen, & Mangtani, 2004; Bell, Ompad, & Sherman, 2006; Ciesielski, 2003; Fethers, Marks, Mindel, & Estcourt, 2000; Stall, Hays, Waldo, Ekstrand, & McFarland, 2000). In particular, gay and bisexual men – referred to in public health and national survey data as men who have sex with men (MSM) – are at higher risk for contracting STIs and HIV-seropositive conversion (i.e., obtaining a HIV-positive diagnosis) when compared to women and exclusively heterosexual men (CDC, 2016c). More specifically, the CDC (2016c) reported that MSM in the U.S. are 40 times more likely than women and 44 times more likely than men who only have sex with women (MSW) to be diagnosed with HIV.

Although HIV diagnoses in the general U.S. population decreased by an estimated 19% between 2005 and 2014, there was nearly a 6% increase in HIV seropositive conversion among all gay and bisexual men during the same timespan (CDC, 2016c). In addition, gay and bisexual

men accounted for more than 80% of the estimated HIV diagnoses among males aged 13 and older, as well as nearly 70% of the total estimated HIV diagnoses in the United States during 2014. Similarly, bisexual and gay males accounted for 92% of new HIV diagnoses among males aged 13 to 24 and for nearly 30% of the total new diagnoses among all gay and bisexual men in 2014 (CDC, 2014; CDC, 2016c). These findings suggest that sexual health discrepancies are apparent for sexual minority men and MSM across the lifespan. Rates of HIV infection among MSM also vary according to race/ethnicity. For example, in 2015 most new HIV diagnoses among MSM occurred among African American/Black men (39%), followed by White men (29%) and Latino/Hispanic men (27%) (CDC, 2016a, 2016c). Because approximately 15% of HIV-positive gay or bisexual men are unaware that they are HIV-seropositive, they may unknowingly transmit the virus to other individuals if they engage in unsafe sex (CDC, 2016b).

In terms of STI prevalence, the general MSM population accounted for approximately 60% of the newly documented syphilis cases in the United States in 2015, and all cases of syphilis among MSM increased 56% from 2011 to 2015 (CDC, 2015a). With respect to gonorrhea, a longitudinal study conducted between 2010 and 2013 found that rates of diagnosis were between 10.7 and 13.9 times higher among MSM compared to women and heterosexual men (CDC, 2015b). Lastly, rates of HPV-related anal lesions are seventeen times more common among MSM than heterosexual men, with prevalence being particularly high among MSM who are HIV-positive (CDC, 2015c).

Although the general MSM population is disproportionately affected by STIs and HIV, studies have also found within-group differences based on participants' reports of purely same-gender versus multiple-gender partners (Dodge et al., 2007; Jeffries & Dodge 2007; Nakamura et al., 2011). Collective findings suggest that men who have sex with men and women (MSWM) –

also commonly referenced to as behaviorally bisexual men – may be at elevated risk of contracting STIs and HIV compared to men who have sex with men only (MSMO) (Prahbhu, Owen, Folger, & McFarland, 2004; Zule et al., 2009). Although these studies do not focus specifically on men who self-identify as bisexual per se but rather on men who engage in sexual activities (e.g., anal intercourse, oral sex) with male- and female-identified partners, findings have consistently been used to characterize the sexual behaviors of bisexual men (Halkitis et al., 2015). In turn, bisexual men are often perceived by non-bisexuals as “members of a promiscuous group that is responsible for spreading the AIDS epidemic and other sexually transmitted diseases to the heterosexual population” (Weinberg, Williams, & Pryor, 1994, p. 216).

Scholars caution, however, that the use of the terms MSM, MSMW, and behaviorally bisexual men may overlook, and therefore not accurately assess, sexual health outcomes that vary according to one’s sexual identity (Muñoz-Laboy, 2004; Young & Meyer, 2005). For instance, Everett (2013) found that women who identified as bisexual were nearly two times more likely to report STI infections relative to those who identified as women who have sex with men and women. Thus, scholars have encouraged researchers of different disciplines to sample self-identified bisexual men in sexual behavior research in order to fully comprehend the distribution of STI and HIV discrepancies across sexual minority subpopulations (Malebranche 2008; Meyer & Wilson 2009; Moradi et al., 2009; Young & Meyer 2005). Moreover, though sexual minority men are often treated as a homogenous group (Hutchins, 1999; Israel & Mohr, 2004; Eliason, 2001), there may be important and nuanced within-group differences between gay, bisexual, and queer men – such as likelihood of engaging in sexual activity with partners with a variety of gender identities – that are consistently overlooked in the extensive body of literature on sexual health research (Moradi et al., 2009; Young & Meyer 2005).

Due to the consistent prevalence of STIs and HIV among sexual minority men in the United States, scholars have directed their attention towards assessing factors associated with sexual health concerns among this population (e.g., Halkitis et al., 2004; Halkitis et al., 2015; Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008; Jeffries & Dodge, 2007; Rosario et al., 1999). Collectively, recent research in the fields of medicine, public health, and psychology suggests that the increase in STI and HIV diagnoses among sexual minority men is largely associated with their risky sexual behaviors (e.g., Halkitis et al., 2015; Malebranche et al., 2010; Mustanski et al., 2011). Risky sexual behaviors have been operationalized in numerous ways in sexual health research with sexual minority men, MSM and MSMW. For instance, the term “HIV risk” is often used interchangeably with “risky sexual behaviors” and “sexual risk taking;” however, there are consequences of risky sexual behaviors other than HIV (e.g., STIs; Mustanski et al., 2011). According to Brawner, Alexander, Fannin, Baker, and Davis (2016), the varied definitions of risky sexual behaviors in public health research stems from researchers' failure to use standardized measures to quantify sexual risk taking among the general MSM population. Instead, researchers in this field have relied on participants' self-reports of number of non-committed sexual partners or sexual encounters (Page-Shafer et al., 1997; Koblin et al., 2006; Rosenberg, Sullivan, DiNenno, Salazar, and Sanchez, 2011) and/or frequency of engaging in unprotected insertive anal intercourse (UIAI) and unprotected receptive anal intercourse (URAI; Grov et al., 2006; Halkitis & Figueroa, 2013; Koblin et al., 2006; Parson & Bimbi, 2007; Vittinghoff et al., 1999). However, the limits of such an operationalization of risky sexual behaviors are twofold. First and foremost, it fails to include the collective experiences of sexual minority men who have sexual/intimate interactions with individuals of other genders (e.g., those identifying as bisexual, pansexual, or queer). Second, this definition neglects other sexual

activities (e.g., oral sex, vaginal intercourse) that may place MSM, MSMSW, and sexual minority men at risk for contracting STIs, which may stem from sexual health researchers' predominant focus on HIV diagnosis and transmission among sexual minority men (Bimbi et al., 2006; Halkitis et al., 2006; Halkitis et al., 2005; Halkitis et al., 2004; Kashubeck-West & Szymanski, 2008; Kalichman & Cain, 2004).

Although scholars emphasize that it is significantly less likely to transmit HIV through acts like oral sex (Halkitis et al., 2006; Halkitis et al., 2005; Halkitis et al., 2004), this is not the case for other STIs – that is, STIs can be spread through most forms of unprotected sexual activity (CDC, 2016c). Furthermore, though most studies have assessed risky sexual behaviors with casual sex partners, empirical findings also indicate that long-term relationships with romantic partners do not ameliorate HIV and STI risk among sexual minority men (Calsyn, Campbell, Tross, & Hatch-Maillette, 2011; Crawford et al., 2003). More specifically, because 44-65% of gay and bisexual men in long-term relationships report engaging in sexual activities with partners outside of the dyad through mutual consent, condomless sex with a long-term partner may still place them at risk for contracting an STI and/or HIV (Hoff & Beougher, 2010; Hoff et al., 2009; Wheldon & Pathak, 2010); however, daily use of Pre-exposure prophylaxis (i.e., PrEP), can reduce an HIV-negative partner's risk of HIV-seroconversion by up to 92% (CDC, 2017a). Lastly, additional research has conceptualized risky sexual behaviors in terms of alcohol use prior to and/or during UIAI or URAI with a long-term or casual sex partner, particularly if that partner is HIV-positive or possesses an unknown HIV and STI status (e.g., Colfax et al., 2004; Irwin, Morgenstern, Parsons, Wainberg, & Labouvie, 2006; Leigh, 2002; Weinhardt & Carey, 2000). With this in mind, risky sexual behaviors will be broadly defined in this manuscript as unprotected sexual intercourse (i.e., anal and/or vaginal sex) and/or oral sex

without a male or female condom with a long-term or casual sex partner; engaging in sexual activities of any sort with multiple sex partners; and/or using one or more substances (e.g., alcohol, marijuana, cocaine) prior to or during any form of sexual activity with a sex partner (Coley et al., 2008; Denato et al., 2013; Dew et al., & 2007; Gullette & Lyons, 2006; Huebner & Howell, 2003; Preston et al., 2007).

Taken collectively, there is an evident need to further assess contextual factors that are associated with risky sexual behaviors among sexual minority men. In particular, the experiences of men who self-identify as bisexual have been largely overlooked in this body of research, despite this population being at increased risk for STIs and HIV relative to their heterosexual and gay male counterparts (Doll et al., 1992; McKirnan et al., 1995; Kalichman et al., 1998; Pachankis et al., 2015). However, considering the limited amount of research that specifically assesses the experiences of bisexual men, this paper will use the large body of empirical research concerning MSM, MSMW, and sexual minority men to establish a rationale for examining risky sexual behaviors of men who self-identify as bisexual. First, a review of the sexual risk-taking practices of sexual minority men is presented; the roles of CSA and alcohol use in risky sexual behaviors among this population are also considered. Subsequently, this paper will provide a review of minority stress theory, thereby presenting a framework for understanding bisexual people's experiences of bisexual-specific stressors. From this perspective, an argument will be made for expanding this body of literature to centralize the unique experiences of bisexual men, who have been nearly absent from sexual minority research (Eliason, 2001; Fox, 2003; Israel & Mohr, 2004).

Sexual Minority Men and Risky Sexual Behavior

According to Cochran, Mays and Sullivan (2003), gay and bisexual men have a greater likelihood than the general population for behaviors that increase the risk for STIs in general and HIV/AIDs in particular (Bimbi et al., 2006; Halkitis et al., 2006; Halkitis et al., 2005; Halkitis et al., 2004; Kashubeck-West & Szymanski, 2008; Kalichman & Cain, 2004). Halkitis and Figueroa (2013) examined four distinct risky sexual behaviors of 592 sexual minority men over a month-long period: 1) any unprotected anal intercourse (UAI), 2) URAI, 3) UIAI, and 4) unprotected receptive oral intercourse (UROI). Findings of this study indicated that a greater portion (54.2%) of participants reported engaging in UROI at least once in the last 30 days, whereas 13.7% engaged in at least one instance of URAI and 11% engaged in at least one instance of UIAI in the same time-span. Furthermore, results revealed a high correlation across risky sexual behaviors; specifically, a gay or bisexual man's tendency to engage in one of the aforementioned risky sexual behaviors places him at elevated odds of engaging in any of the other three sexual risk-taking practices.

Scholars indicate that UAI is strongly associated with transmission of HIV to sexual partners among sexual minority men (Manning et al., 2007; Osmond, Pollack, Paul, and Catania, 2007). Osmond and colleagues (2007), for instance, assessed HIV diagnosis and unprotected intercourse trends in San Francisco between 1997 and 2002. Findings indicated a positive association ($r = .38$) between rates of unprotected anal intercourse and HIV seroconversion during this time period. More specifically, rates of UAI and HIV seroconversion diagnosis increased 47% and 40%, respectively. However, research suggests that the risk for HIV seroconversion may depend on a partner's role in the sexual encounter – that is, odds of seroconversion are higher for the receptive partner than the insertive partner during anal

intercourse (Groer et al., 2007; Halkitis & Figueroa, 2013; Koblin et al., 2006; Parson & Bimbi, 2007; Vittinghoff et al., 1999). In a study comparing the sexual behaviors of gay and bisexual men who did and did not receive an HIV diagnosis (i.e., seroconverted), Vittinghoff and colleagues (1999) found that, compared to men who did not seroconvert, men who seroconverted were more likely to have had URAI. Findings also revealed that 18% of the sample seroconverted after only one or two URAI experiences; however, results also demonstrated that UIAI among sexual minority men poses a risk for seroconversion, though to a lesser extent (i.e., 6%).

In addition, researchers have considered HIV transmission risk as it relates to the number of sexual partners and partners' HIV serostatus (Page-Shafer et al., 1997; Koblin et al., 2006). In a 2006 study, Koblin and colleagues examined risk factors associated with HIV seroconversion in a cohort of sexual minority men and MSM. Multivariate analyses revealed that men who reported four or more male partners in a 2-year timespan, who engaged in unprotected receptive anal intercourse with any serostatus partner, and who engaged in UIAI with HIV-positive partners were at even higher risk of HIV infection. In a more recent study, Rosenberg and colleagues (2011) used data from the National HIV Behavioral Surveillance system between 2003 and 2005 to determine the relation of number of sexual partners with self-reported HIV status in a sample of 12,000 MSM. Regression analyses indicated that participants who were HIV-positive had approximately 23% more casual male partners than did HIV-negative men. Scholars caution, however, that selecting a sexual partner according to reported HIV status may not be sufficient to reduce one's risk for HIV seroconversion (Halkitis & Figueroa, 2013; Koblin et al., 2006; Rosenberg et al., 2011). For instance, according to the CDC (2016c), more than half of a sample of MSM were unaware of their HIV status, despite having had seroconverted within

the last year. In turn, sexual minority men are encouraged to not only be aware of their long-term or casual sex partners' sexual health history, but also take the necessary precautions (e.g., using condoms for anal intercourse) to prevent HIV seroconversion (Halkitis et al., 2006; Halkitis et al., 2005; Halkitis et al., 2004; Kashubeck-West & Szymanski, 2008).

An important limitation of this body of research is that it positions HIV status as the *sine qua non* of sexual health outcomes in research with sexual minority men. Although the odds of HIV seroconversion are significantly lower for oral sex compared to URAI and UIAI, this form of sexual contact still has the potential to place sexual minority men at increased odds for other STIs (Prahbhu et al., 2004; Zule et al., 2009). In addition, although each of the samples previously mentioned included behaviorally bisexual men, none of them considered unprotected vaginal intercourse as another behavior that could be associated with STI and HIV transmission (Prahbhu et al., 2004; Zule et al., 2009). This methodological limitation demonstrates the way that the specific contexts of bisexual men's lives are elided in the sexual health literature and the experiences of exclusively gay men are privileged. Sexual health research must expand to assess behaviors that may contribute uniquely to the sexual health of bisexual men (Brewer et al., 2013; Dyer et al., 2013; Friedman, 2013; Harawa et al., 2012; Maulsby et al., 2012; Maulsby et al., 2013).

To the author's knowledge, no study has specifically compared the sexual risk-taking behaviors of gay- and bisexual- identified men; however, various studies have found that MSWM tend to have a larger number of sexual partners and lower rates of condom use relative to MSM and MSW (Doll et al., 1992; McKirnan et al., 1995; Kalichman et al., 1998). Heckman and colleagues (1995), for example, conducted a study that directly investigated the differences in risky sexual behaviors of men who have sex with women only (MSWO) and behaviorally

bisexual men. Findings indicate that, relative to MSMO, MSMW reported lower intentions to use condoms in their next sexual encounter; greater frequency of oral sex with multiple partners; and possessed weaker peer norms favoring protective sex and avoidance of risk. At the same time, results revealed that one-third of MSWM engaged in unprotected anal intercourse and that 17% of MSWM had multiple unprotected anal sex partners in the last two months. Unfortunately, this study failed to assess for frequency of unprotected vaginal intercourse among the sample of MSMW. In addition, Stokes and colleagues (1996) assessed risky sexual behaviors with male and female partners among behaviorally bisexual men in the past six months. Results indicated that 61% of the sample reported having unprotected vaginal or anal sex with at least one female partner, 30% reported unprotected anal sex with a male partner, and 23% reported unprotected anal or vaginal sex with a woman as well as unprotected sex with a man. Lastly, Zule and colleagues (2009) conducted a study comparing HIV-risk among MSWM and MSM. Results indicated that MSWM were more likely than MSM to engage in risky sexual behaviors with female sexual partners and to be diagnosed as HIV-positive, despite comparable rates of unprotected anal intercourse among these groups of men.

Considering the elevated rates of risky sexual behaviors among sexual minorities in general, and in particular behaviorally bisexual men, an emerging body of empirical research has considered additional factors that might perpetuate sexual risk-taking practices among this population of men. Based on collective findings, scholars consistently point to two salient variables that may place sexual minority men at increased jeopardy for engaging in risky sexual behaviors across the lifespan: 1) drug use and 2) alcohol consumption. The following section provides a review of the relationship between these constructs and risky sexual behaviors.

Drug Use

Empirical research suggests that sexual minority individuals may engage in drug use (e.g., cocaine, heroin, marijuana) more frequently relative to their heterosexual counterparts (e.g., Austin & Bozick, 2012; Green & Feinstein, 2012; King et al., 2008; Marshal et al., 2008). For instance, two meta-analytic studies determined that sexual minority individuals, compared with their heterosexual counterparts, were more likely to report higher rates of daily and lifetime substance use (Marshal et al., 2008; Substance Abuse and Mental Services Administration [SAMSA], 2001). Moreover, according to a study that used U.S. national data, sexual minority adults were approximately two times more likely to engage in illicit drug use of any kind in the past year than heterosexual adults (Medley et al., 2016). Findings from this study also revealed that an estimated 31 percent of sexual minority adults engaged in marijuana used in the last year compared to approximately 13 percent of heterosexual adults (Medley et al., 2016). Furthermore, results also determined that ten percent and five percent of sexual minority and heterosexual adults, respectively, reported misusing pain relievers (i.e., opioids) over the course of a year (Medley et al., 2016). Lastly, sexual minority adults were approximately three times more likely to engage in cocaine, inhalant, and methamphetamine use relative to their heterosexual adult counterparts (Medely et al., 2016). Overall, these results are comparable to those found in other studies containing samples of sexual minority individuals (Austin & Bozick, 2012; King et al., 2008; Green & Feinstein, 2012).

Despite higher rates of drug use among sexual minorities in general relative to their heterosexual counterparts, researchers have indicated that the prevalence of drug use in particularly – and substance use in general – among sexual minority men and MSM is particularly concerning (e.g. Medely et al., 2016; Newcomb, Birkett, Corliss, & Mustanski,

2014; Ostrow & Stall, 2008). Specifically, empirical findings suggest that these populations of men are more likely than their heterosexual and female counterparts to engage in elevated rates of drug use (Medley et al., 2016; Newcomb et al., 2014). Furthermore, several empirical studies have also demonstrated that MSMW and behaviorally bisexual men may be more likely to engage in drug use than MSM and gay-identified men (e.g., Agronick et al., 2004; Newman, Rhodes, & Weiss, 2004; Roth et al., 2018). For instance, one study comparing drug use behaviors among MSM and MSMW found that MSMW were more likely to report drug use relative to MSM (White et al., 2014). Another study also demonstrated that MSMW were more likely to report recent non-injection drug use when compared to MSW and MSM (Knight et al., 2008). This study also determined that MSMW were more likely to use cocaine and crack than MSM (Knight et al., 2008). Collectively, these consistent findings suggest that bisexual men may be the most at-risk population with respect to drug use.

Scholars have argued that the higher rates of drug use among sexual minority men, MSM, and MSWM may increase their engagement in risky sexual behaviors, thereby placing them at greater risk for HIV and STI contraction relative to their heterosexual counterparts (e.g., Bruce, Kahana, Harper, & Fernández, 2010; Sander et al., 2013). From a theoretical standpoint, expectancy theory focuses on the significance of social expectations regarding the association of drug use with sexual behavior (Dermen & Cooper, 1994). More specifically, because cultural and social messages may suggest that drug use enhances sexual pleasure and/or lowers sexual inhibitions, this may make increase the likelihood of sexual minority men engaging in risky sexual behavior under the influence of drugs (Bimbi et al., 2006; Dermen & Cooper, 1994; Dermen & Cooper, 2000). Supporting these claims, a study determined that MSM who reported engaging in unprotected sexual activity were more likely to believe in the sexual enhancing

effects of drug use relative to men who did not engage in unprotected sexual activity (Bimbi et al., 2006). Additional empirical studies have been conducted to examine the association of drug use with risky sexual behaviors among sexual minority men, MSM, and MSMW, all of which have determined that drug use is associated with sexual activity under the influence and/or unprotected sex, which are two distinct forms of risky sexual behavior (e.g., Bedoya et al., 2001; Dyer et al., 2013; Jefferies & Dodge, 2007). Furthermore, a 2007 comparative study assessed the association of drug use with risky sexual behaviors among behaviorally bisexual men, gay men, and MSWO using the 2002 cycle of the National Survey of Family Growth (Jefferies & Dodge, 2007). Findings indicated that behaviorally bisexual men in this sample were more likely than MSWO and gay men to engage in sexual activities under the influence of drugs, thereby placing them at increased likelihood of engaging in sexually risky behaviors. Taken collectively, these findings suggest that bisexual men may engage in drug use at higher rates compared to other male populations, which in turn may contribute to their riskier sexual practices (Bedoya et al., 2001; Jefferies & Dodge, 2007).

It is also important to note, however, that drug use may also be associated with higher levels of alcohol consumption and potential alcohol abuse among sexual minorities, which in turn may also contribute to higher rates of risky sexual behavior among sexual minority men in general and bisexual men in particular (e.g., Feinstein, Dyar, & London, 2017; Livingston, Oost, Heck, & Cochran, 2015; McCabe et al., 2009; McCabe et al., 2013). A cross-sectional study determined that sexual minority men ($N=1515$; approximately 95% gay-identified men) who engaged in alcohol consumption were statistically significantly more likely to also use drugs relative to sexual minority men who did not engage in alcohol consumption (Li & McDaid, 2014). In turn, given the association of drug use with alcohol consumption among sexual

minority men in general, it is important to also consider the potential association between alcohol use and risky sexual behaviors among bisexual men.

Alcohol Consumption

Research findings suggest that people who drink more tend to place themselves at higher risk for HIV than those who drink less (e.g. Colfax et al., 2004; Irwin et al., 2006; Leigh, 2002; Mustanski, 2008; Stall et al., 1986; Weinhardt & Carey, 2000). Among sexual minority men, alcohol and drug use been associated with a greater number of sexual partners and more frequent UAI (Halkitis & Parsons, 2002; Parsons & Halkitis, 2002; Purcell et al., 2001), and alcohol use is associated with HIV seroconversion (Burcham et al., 1989; Chesney et al., 1998; Kashubeck-West & Szymanski, 2008). Moreover, compared to other substances, alcohol has been assessed more frequently among sexual minority men (e.g., Amadio, 2006; Hughes et al., 2010; Thiede et al., 2003). For example, a study with a sample of sexual minority men found that alcohol intoxication before sexual intercourse was positively associated with both URAI and UIAI (Kashubeck-West & Szymanski, 2008). In a study of racially/ethnically diverse gay and bisexual men and MSM, alcohol use, but not illicit substance use, was associated with UAI among men in this sample (Moeller, Palamar, Halkitis, & Siconolfi, 2014). Notably, however, differences in mean levels of and associations among the variables of interest by sexual orientation (e.g., gay vs. bisexual men) were not tested in this study.

On the other hand, Dyer and colleagues (2013) compared the relation of alcohol use with HIV-sexual risk behaviors among Black men who have sex with other men only (MSMO; $n = 839$) with Black men who have sex with men and women (BMSMW; $n = 590$). Logistic regression analyses indicated that Black MSMW were significantly more likely than Black MSMO to engage in UAI under the influence of alcohol, even after controlling for overall

alcohol use and demographic characteristics (e.g., education level, income). In turn, these results suggest that bisexual men may consume higher amounts of alcohol relative to other male populations, which in turn may contribute to their riskier sexual practices (Bedoya et al., 2001; Dyer et al., 2014).

Several theories have been proposed to explain why alcohol use may be associated with risky sexual behaviors in sexual minority men. For instance, alcohol myopia theory (Steele & Josephs, 1990) suggests that the psychoactive properties of alcohol inhibit a person's ability to attend to the potential negative consequences associated with risky sexual behaviors. Supporting this claim, research suggests that alcohol consumption may decrease a person's consideration of inhibitory cues (e.g., unknown sexual history of a potential partner) and increase intentions to engage in sexual risk-taking behaviors (Davis, Hendershot, George, Norris, & Heiman, 2007; George et al., 2009). Another explanation holds that people who consume alcohol to make sexual experiences more pleasurable and/or to reduce anxiety during sexual decision-making (e.g., whether or not to use a condom-use) may be more likely to engage in risky sexual behaviors (Dermen & Cooper, 2000). In a study examining alcohol consumption outcome expectations in a sample of gay and bisexual men ($N=779$), results revealed that sexual minority men who believed in the stress-reducing and pleasure-enhancing qualities of alcohol were more likely to report engaging in higher rates of URAI or UIAI relative to men who did not possess such expectations (Bimbi et al., 2006).

Notably, the aforementioned theories only consider intrapsychic factors that may influence the relation of alcohol with sexual risk-taking among this population of men. However, empirical evidence suggests that increased substance use among sexual minority men may also be associated with their experiences of discrimination and stigma (Allen, Myers, & Williams,

2014; Brooks, Rotheram-Borus, Bing, Ayala, & Henry, 2003; Dyer et al., 2013; Saleh, Operario, Smith, Arnold, & Kegeles, 2011). For instance, sexual minority men may engage in substance use to cope with their sexual orientation being perceived as socially unacceptable or undesirable in their social contexts (McKirnan, Vanable, Ostrow, & Hope, 2001). Minority stress theory can be used to further conceptualize and contextualize the experiences of sexual minority men as it relates to their elevated rates of risky sexual behaviors (Meyer, 1995, 2003).

Minority Stress Theory

Sexual minorities have historically encountered various forms of stigma, prejudice, violence, and oppression in different settings, including home, work, school and healthcare settings (António & Moleiro, 2015; Feinstein et al., 2014; Milburn, Ayala, Batterham, & Rotheram-Borus 2006). Despite increased acceptance, visibility, and sociopolitical reform in the U.S. (e.g., legalization of non-heterosexual marriage in 2015), sexual minority men and women reside in a society that continues to denigrate non-heterosexual relationships, behaviors, and identities, all while privileging heterosexuality (Meyer, 1995; Hatzenbuehler, 2009; Herek et al., 2009). In turn, minority stress theory has been used to conceptualize the negative health consequences associated with the pervasive heterosexist stressors experienced by sexual minority individuals (Meyer, 1995, 2003). Though everyone experiences general stressors (e.g., academic/work demands, unexpected life change), members of minority groups also experience stressors that arise due to their stigmatized status(es) (Meyer, 2003). These minority stressors are “additive to general stressors that are experienced by all people, and therefore, stigmatized people require an adaptation effort above that required of similar others who are not stigmatized” (Meyer, 2003, p. 676). In addition, he argues that minority stress is chronic (i.e., stable across social and cultural entities) and socially-based, in that it derives from social processes as well as

institutional structures and policies; therefore, minority stress may contribute to increased hypervigilance and isolation among sexual minority people (Hatzenbuehler, 2009; Pachankis et al., 2015).

Relying on Lazarus and Folkman's (1984) theory of distal and proximal stress, Meyer (2003) differentiates between two types of sexual minority stressors. Distal minority stressors are characterized as stressors that occur outside of the individual, such as interpersonal and institutional discrimination. On the other hand, proximal stressors are described as being more internal in nature, and they are associated with one's self-identification with a sexual minority status. According to Meyer (2003), one type of proximal stress that sexual minority individuals may engage in sexual identity concealment (i.e., degree of outness) – a process of withholding one's sexual orientation from others as a way of avoiding negative perceptions from others, which ultimately imposes increased psychological burden on the individual (Schrimshaw et al., 2013). Sexual identity concealment, therefore, may include an individual's decision to constantly monitor his/her behaviors (e.g., how one speaks, walks, dresses) under all circumstances and on a daily basis (Meyer, 2003). In turn, sexual identity concealment serves as a mechanism through which sexual minority men and women attempt to protect themselves from subsequent heterosexist discrimination (Meyer, 1995, 2003). Secondly, internalized heterosexism is considered the most proximal stressor within this theoretical framework (Meyer, 2003). Meyer and Dean (1998) define internalized heterosexism as the internalization of negative beliefs and attitudes about same-sex behavior or relationships, sexual minority people and communities, and oneself as a sexual minority person.

Expanding upon the framework of minority stress theory, Hatzenbuehler (2009) postulates that distal stressors (e.g., heterosexist discrimination) may be associated with

detrimental physical and mental health consequences through the mediating role of proximal stressors, including internalized heterosexism and sexual identity concealment, as well as psychological factors (e.g., social isolation). Experiences of heterosexist discrimination are believed to increase concealment of one's sexual minority identity and internalization of negative attitudes toward sexual minority people, identities, and communities (i.e., internalized heterosexism) (Hatzenbuehler, 2009). In turn, such increases in proximal stressors may subsequently promote deleterious health outcomes among sexual minority people (Hazenbuehler, 2009; Pachankis et al., 2015; Velez & Moradi, 2016). The adverse mental (e.g., anxiety, depression) and physical health (e.g., cardiovascular disease) consequences of distal and proximal minority stressors among sexual minority individuals in general (e.g., Denton, Rostosky, & Danner, 2014; Brewster et al., 2010; Brewster et al., 2013; Velez et al., 2013), and sexual minority men in particular (e.g., Hatzenbuehler et al., 2008; Pachankis et al., 2015; Mereish & Poteat, 2015; Feinstein et al., 2012), have been well documented. Across studies, heterosexist discrimination and internalized heterosexism have been positively associated with lower psychological well-being and greater psychological distress (Brewster et al., 2013; Feinstein, Goldfried, & Davila, 2012; Newcomb & Mustanski, 2010; Schmitt et al., 2014; Velez, Moradi, & DeBlaere, 2015). On the other hand, sexual identity concealment has been inconsistently associated with psychological health variables, which scholars argue may correspond with an individual's motivation for and perceived consequences of concealment/outness (e.g., protection from verbal harassment) (Cain, 1991; Hazhenbuelher, 2009).

Further expanding upon the framework of minority stress theory, scholars have considered the potential role of sexual identity centrality as it relates to minority stress among

sexual minority individuals (e.g., Dyar & London, 2018; Mohr & Kendra, 2011; Quinn & Earnshaw, 2011, 2013). Sexual identity centrality can be broadly conceptualized as the significance of one's sexual identity to one's overall self-concept across contexts (Dyar et al., 2015; Dyar & London, 2018; Mohr & Kendra, 2011; Quinn et al., 2014). Sexual identity centrality is believed to decrease sexual identity concealment and internalized heterosexism among sexual minority individuals because it may represent a willingness to dispute negative societal messages about one's non-heterosexual identity (Cramer et al., 2018; Dyar & London, 2018; Mohr & Kendra, 2011). Supporting these claims, empirical findings have consistently determined that sexual identity centrality is negatively correlated with both internalized heterosexism and sexual identity concealment as well as positively correlated with outness (i.e., sexual identity disclosure) (e.g., Dyar et al., 2015; Fingerhut et al., 2010). Although these studies have examined the role of sexual identity centrality among sexual minority people in general, additional research is needed to further examine the role of sexual identity centrality as it relates to sexual minority men's internalized heterosexism and sexual identity concealment (Cramer et al., 2018; Dyar et al., 2015; Mohr & Kendra, 2011).

Moreover, theorists differ in terms of the posited moderating role of sexual identity centrality in the associations of heterosexist discrimination with proximal minority stressors (e.g., internalized heterosexism) and health concerns (e.g., risky sexual behaviors) (Dyar & London, 2018; Fingerhut et al., 2010; Quinn & Chaudoir, 2009; Thoits, 1999). For instance, some scholars suggest that sexual identity centrality may protect against the detrimental consequences of heterosexist discrimination (e.g., internalized heterosexism, health concerns) because it potentially promotes self-esteem and positive self-regard as a sexual minority individual (Crocker & Major, 1989; Fingerhut et al., 2010; Jefferson et al., 2013). Similarly,

greater sexual identity centrality may also buffer against the deleterious outcomes linked to heterosexist discrimination because it may (a) entail an understanding of systems of oppression as well as (b) encourage sexual minority people to use group-level coping strategies (e.g., social support) (Crocker & Major, 1989; Fingerhut et al., 2010; Jefferson et al., 2013). In contrast, other researchers suggest that sexual identity centrality may strengthen heterosexist discrimination's associations with proximal stressors and health concerns among sexual minority people because an important dimension of their self-concept is constantly being targeted (Mohr & Kendra, 2011; Quinn & Chaudoir, 2009; Quinn & Earnshaw, 2013; Thoits, 1999). For instance, Thoits (1999) argues that "the more an individual identifies with, is committed to, or has highly developed self-schemas in a particular life domain, the greater will be the impact of [discrimination] that occur[s] in that domain" (p. 352). Scholars also indicate that, relative to individuals with lower identity centrality, people with higher identity centrality may be more likely to perceive themselves as inadequate, powerless, socially isolated, and misunderstood when faced with discrimination (Quinn & Chaudoir, 2009; Quinn & Earnshaw, 2011, 2013), and this may further promote proximal stress and negative health outcomes. Although no studies to date – at least to our knowledge – have examined these theorized associations, sexual identity centrality may be an important construct to consider within the broader framework of minority stress theory and in relation to sexual minority men's engagement in risky sexual behavior (Crocker & Major, 1989; Fingerhut et al., 2010; Jefferson et al., 2013).

Scholars also postulate that sexual minority individuals may establish unhealthy coping strategies, including substance (ab)use, as a result of distal and proximal stressors, which may mediate the relation of minority stressors with negative health outcomes (Haztenbuehler, 2009; Meyer, 2003). For instance, empirical studies have determined that heterosexist discrimination

(Herek & Garnets, 2007; Hughes et al., 2010; McCabe, Bostwick, Hughes, West, & Boyd, 2010), internalized heterosexism (Amadio, 2006; Szymanski, Kashubeck-West, & Meyer, 2008), and sexual identity concealment (Kipke et al., 2007; Klitzman, Greenberg, Pollack, & Dolezal, 2002; McKirnan & Peterson, 1989; Thiede et al., 2003; Wong, Kipke, & Weiss, 2008) are positively associated with rates of substance use in sexual minority people. Furthermore, sexual minority men and women are more likely than their heterosexual counterparts to have an alcohol or substance abuse disorder, further emphasizing their increased likelihood of using drugs and alcohol as a method of coping with chronic minority stress (Hatzenbuehler et al., 2008; Ziyadeh et al., 2007). However, comparative studies among sexual minority people suggest that gay and bisexual men are more likely than lesbian and bisexual women to report alcohol and substance-related concerns (Dawson et al., 2008; Drabble, Midanik, Trocki, 2005; Ziyadeh et al., 2007). As previously indicated, elevated rates of substance use among sexual minority men may increase their odds of engaging in risky behaviors, including unprotected sexual intercourse with multiple partners (Dermen & Cooper, 2000; Dyer et al., 2013; Eaton et al., 2013; Friedman et al., 2013; Harawa et al., 2012).

Although researchers have clearly demonstrated some of the deleterious psychological and physical health implications of minority stress across sexual minority individuals, empirical studies have only recently begun to assess the relation of minority stressors with risky sexual behaviors among sexual minority men – a population that is at greatest risk for STI and HIV diagnoses in the United States (e.g., Dew & Chaney, 2005; Meyer & Dean, 1998; Pachankis et al., 2015). More specifically, scholars have assessed the direct and indirect effects of experiences of heterosexist discrimination, internalized heterosexism, and sexual identity concealment on HIV transmission risk among gay and bisexual men (e.g., Herrick et al., 2013; Jeffries &

Johnson, 2008; Ratti et al., 2000; Rosario et al., 2001). Additional research has also examined the mediating role of substance use in the relation of these minority stressors with HIV-risk among gay and bisexual men (e.g., Emler, Fredriksen-Goldsen, & Kim, 2015; Hatzenbuehler et al., 2008; Wang & Pachankis, 2016). Therefore, the proceeding section will offer a review of minority stress research as it relates to the sexual health of sexual minority men.

Perceived Experiences of Heterosexist Discrimination

Experiences of heterosexist discrimination across the lifespan have not only been associated with mental health concerns (e.g., depression, anxiety, substance abuse) and psychological distress among sexual minority men, they have also been consistently associated with sexual risk-taking among this population (Frye et al., 2015; Herrick et al., 2013; Jeffries & Johnson, 2008; Neilands et al., 2008; Pachankis et al., 2015; Tulloch et al., 2015). To understand the associations of heterosexist discrimination with HIV acquisition and transmission among sexual minority men, Frye and colleagues (2015) assessed the experiences of discrimination and risky sexual behaviors in the last three months among a sample of over a thousand racially/ethnically diverse sexual minority men. Regression analyses indicated that heterosexist discrimination, but not racial discrimination, in the home and/or social neighborhood was associated with URAI with an HIV-positive or HIV-status unknown partner. These results mirror the findings of studies focused on Latino (Nakamura & Zea, 2010) and older (Emler et al., 2015; Hatzenbuehler et al., 2008) sexual minority men. Moreover, Pachankis and colleagues (2015) expanded the scope of heterosexist discrimination among sexual minority men in 38 countries by considering the impact of structural heterosexist discrimination (e.g., laws and regulations) on their sexual behaviors. According to the findings, structural heterosexist discrimination was

positively associated with greater frequency of unprotected anal intercourse; this relation was also mediated by participant's level of sexual identity concealment.

Although no study to date – at least to our knowledge – has considered how the relation of heterosexist discrimination with risky sexual behaviors among sexual minority men is mediated by substance use, empirical research has demonstrated that heterosexist discrimination is associated with alcohol consumption and drug use among gay and bisexual men across the lifespan (e.g., Dawson, Grant, & Ruan, 2005; Hasin, Keyes, Hatzenbuehler, Aharonovich, & Alderson, 2007; McCabe et al., 2010; Pachankis, Hatzenbuehler, & Starks, 2014). Pachankis and colleagues (2014), for instance, assessed this relationship using a sample of over 100 sexual minority men participants from 28 states. Findings indicated that experiences of heterosexist discrimination were positively associated with tobacco and alcohol use. In addition, Hequembourg and Brallier (2009) conducted a qualitative study using focus groups with sexual minority men and women regarding their experiences of heterosexist discrimination and its detrimental consequences. The findings indicated that gay men described substance use as a coping mechanism that enabled them to feel less shameful and more uninhibited with respect to their sexual identities. Moreover, empirical evidence also indicates that multiple, simultaneous forms of discrimination (e.g., racist, sexist, heterosexist) are associated with even higher rates of alcohol and drug use disorders, further suggesting the negative influence of multiple forms minority stress in the lives of sexual minority men (McCabe et al., 2010). Because alcohol and drug use are associated with risky sexual behaviors (Halkitis & Parsons, 2002; Parsons and Halkitis, 2002; Purcell et al., 2001), it is arguable that using substances as a way of coping with minority stressors places sexual minority men in situations that compromise their sexual health.

Internalized Heterosexism

A substantial body of empirical research has assessed the direct and indirect role of internalized heterosexism as it relates to risky sexual behaviors (Dew & Chaney, 2005; Huebner et al., 2002; Johnson et al. 2008; Meyer & Dean, 1998; Ratti et al., 2000; Rosario et al., 2001); however, findings have been mixed. Meyer and Dean (1998), for instance, determined that higher rates of internalized heterosexism were directly associated with greater URAI and UIAI among young gay and bisexual men. In a study of adult sexual minority men, Huebner and colleagues (2002) determined that internalized heterosexism was negatively associated with condom use self-efficacy (i.e., ability to negotiate the use of condoms during sexual activity with a partner) as well as positively linked to great sexual risk-taking behaviors among these men. Results in a study conducted by Ratti and colleagues (2000) established a similar relation in a separate study concerning bisexual and gay men. Lastly, Puckett and colleagues (2017) revealed that drinking patterns may also impact the association of internalized heterosexism with unprotected anal intercourse among sexual minority men; specifically, the researchers determined that binge drinking mediated the relation between these two variables. Additional research has also supported the notion that internalized heterosexism is associated with elevated substance use (e.g., Dudley et al., 2004; Hatzenbuehler et al., 2008; Kashubesck-West & Szymanski, 2008; Weber, 2008), which may place sexual minority men at increased risk of engaging in risky sexual behaviors more frequently (Cabaj, 2000; Hatzenbuehler et al., 2008; Hallkitis et al., 2015; Kolbin et al., 2006).

On the other hand, additional empirical findings also suggest that internalized heterosexism may not be correlated with increased risky sexual behaviors in sexual minority men (e.g., Dudley et al., 2004; Kashubeck-West & Szymanski, 2008; Farnsworth, 2002; Shidlo, 1994;

Szymanski, Kashubeck-West, & Meyer, 2008). For instance, Kashubeck-West and Szymanski (2008) did not find a statistically significant correlation between internalized heterosexism and risky sexual behaviors. At the same time, researchers argue that divergent findings regarding this relation across studies may be due to the variety of ways that risky sexual behaviors are operationalized across studies (Newcomb & Mustanski, 2010; Packankis et al., 2015; Shrout & Bolger, 2002). Despite this methodological limitation, a recent meta-analysis conducted by Newcomb and Mustanski (2010) further supported the association of internalized heterosexism with risky sexual behaviors, though the effect size was relatively small ($d = .27$). Moreover, scholars also argue that further research regarding the mediating and direct effects of internalization heterosexism is still relevant since 1) there may be within-group difference across gay, bisexual, and queer men that have not been assessed and 2) internalizing discriminatory messages from society can also perpetuate the concealment of one's sexual identity, which has also been associated with sexual health risks among sexual minority men (Ross, Rosser & Smolenski, 2010; Williamson, 2001).

Sexual Identity Concealment

An emerging body of research has considered sexual identity concealment's association with risky sexual behaviors among sexual minority men (e.g., Pachakis et al., 2015; Wang & Pachankis, 2016; White & Stephenson, 2014). A study of 703 gay and bisexual men found heterosexist discrimination was negatively associated with outness (i.e., the degree to which sexual minority people disclose their sexual minority status to others). Similarly, internalized heterosexism is positively associated with identity concealment (e.g., Pachankis et al., 2015; Stokes et al., 1993; Szymanski et al., 2008). In addition, research suggests that sexual minority men who conceal their sexual orientation may engage in higher rates of anonymous sexual

activities with multiple sexual partners, thereby increasing their odds of contracting an STI and/or HIV-seroconversion (Bolding, Davis, Sherr, & Elford, 2007; Klein, 2012; Reece & Dodge, 2003). In the same vein, though few studies have assessed the direct association of sexual identity concealment with risky sexual behaviors among sexual minority men, scholars argue that this method of protecting one's self from discrimination may contribute to increased substance use, which can place sexual minority men at elevated risk for engaging in unsafe sexual practices (Kipke et al., 2007; Klitzman et al., 2002; McKirnan & Peterson, 1989; Thiede et al., 2003; Wong et al., 2008). Therefore, additional research is needed to further understand the associations among heterosexist discrimination, identity concealment, alcohol consumption, and risky sexual behaviors among sexual minority men.

Sexual Identity Centrality

A limited body of empirical research has examined sexual identity centrality's associations with proximal minority stressors, with most studies focusing on its relation to disclosure decisions among sexual minority individuals (e.g., Dyar et al., 2015; Griffith & Hebl, 2002; Mohr & Kendra, 2011). Across studies, sexual identity centrality has consistently yielded significant negative relations with both internalized heterosexism and sexual identity concealment (e.g., Cramer et al., 2018; Dyar et al., 2015; Griffith & Hebl, 2002; Mohr & Kendra, 2011). For example, a scale development study that assessed identity-based experiences among sexual minority men and women (approximately 30% bisexual individuals) determined that sexual identity centrality was negatively associated with sexual identity concealment ($r = -.37$) and internalized heterosexism ($r = -.26$) (Mohr & Kendra, 2011). Similarly, in a sample of gay men and lesbian women, sexual identity centrality was positively associated with sexual orientation outness (i.e., opposite of concealment) to both family members ($r = .25$) and

heterosexual peers ($r = .38$) (Griffith & Hebl, 2002). Taken collectively, these findings suggest that greater sexual identity centrality may be associated with lower proximal stress among sexual minority individuals (Griffith & Hebl, 2002; Mohr & Kendra, 2011).

Although greater sexual identity centrality may be associated with decreased internalized heterosexism and sexual identity concealment among sexual minority individuals broadly (Mohr & Kendra, 2011; Griffith & Hebl, 2002), no studies to date have examined sexual identity centrality among sexual minority men in particular (Cramer et al., 2018; Dyar et al., 2015; Mohr & Kendra, 2011). Nevertheless, empirical studies have not found significant gender differences in mean levels of sexual identity centrality among sexual minority men and women (Mohr & Kendra, 2011; Griffith & Hebl, 2002); thus, it is arguable that sexual identity centrality will also be negatively associated with both internalized heterosexism and sexual identity concealment among sexual minority men. Furthermore, although Fingerhut and colleagues (2010) posit that the extent to which sexual minority men are impacted by experiences of heterosexist discrimination may vary according to the centrality of their sexual identity, this postulation is largely speculative and the nature of sexual identity centrality's moderating role within minority stress theory is unclear (Cramer et al., 2018; Dyar et al., 2015; Mohr & Kendra, 2011; Quinn & Chaudoir, 2009). More specifically, some scholars suggest that identity centrality may mitigate heterosexual discrimination's relations with internalized heterosexism, sexual identity concealment, and risky sexual behavior (Crocker & Major, 1989; Jefferson et al., 2013), while others argue that identity centrality may strengthen these same associations (Quinn & Chaudoir, 2009; Quinn & Earnshaw, 2011, 2013; Thoits, 1999). Considering these conflicting perspectives have yet to be explored in empirical research (e.g., Cramer et al., 2018; Dyar et al., 2015; Mohr & Kendra, 2011), incorporating sexual identity centrality within the broader minority stress

theory framework may be important in terms of further understanding potential variations in sexual minority men's sexual health and responses to heterosexist discrimination. Therefore, additional research is needed to examine sexual identity centrality's interactive associations with proximal minority stressors (e.g., internalized heterosexism) and risky sexual behavior among sexual minority men.

Limitations of Current Research

Though research collectively points to the association of minority stressors with behaviors that may place sexual minority men at elevated risk for STI contraction and HIV-seroconversion, the aforementioned studies have failed to consider within-group differences among sexual minority men (e.g., differences in experiences of minority stressors). Because bisexual men have relatively higher risk for STI and HIV diagnoses (CDC, 2014; Halkitis et al., 2015; Williams, & Pryor, 1994), it is important to further assess minority stress factors that may perpetuate potential sexual health trends among this marginalized population (Eliason, 2001; Fox, 2003). In turn, the following section will provide a framework for understanding bisexuality, its invisibility in psychosocial research, and the unique forms of minority stress that bisexual men encounter from society.

Bisexuality

Historically, there has been a heavy emphasis placed on the dichotomization of sexual identity in the United States; specifically, Rust (2002) posits that there is a dominant either-or perspective regarding intimate relationships and sexual identity in America, wherein a person can 1) either self-identify as gay/lesbian or heterosexual and 2) either be sexually, romantically, emotionally, and/or intimately attracted to a man or a woman (Cahill, 2005). According to Foucault (1978), the sexual identity binary of the Western world derives predominantly from the

medicalization of sexual orientation during the 19th century, wherein psychiatrists and physicians sought out “sexually deviant” individuals (i.e., “homosexuals”, p. 43), who defied the accepted sexual norms (i.e., heterosexuality) of the time. In turn, it became normative for all members of western society to label individuals as either homosexual or heterosexual by the early 20th century (Callis, 2017; Halperin, 2009), and by the 1950s the modern gay-heterosexual sexual identity binary was firmly established (Anderlini-D’Onofrio, 2003; Hemmings, 1997). As a result of this sociopolitical landscape, sexual identity became – and still remains – rigidly defined and strictly dichotomized; therefore, the experiences of gay/lesbian and heterosexual individuals have been at the forefront of scientific and psychological research for several decades (Eliason, 1997; Fox, 2003; Israel & Mohr, 2004). In particular, the dominance of gay/lesbian and heterosexual paradigm has contributed to a severe lack of bisexuality research throughout most of the 1970s – a trend that continued for most of the mid 20th century (Rust, 2002).

Buhrke, Ben-Ezra, Hurley, and Rupercht (1992), for instance, found that between 1978 and 1989 none of the six major counseling psychology journals possessed any writing on bisexual issues or identity. Similarly, in a ten-year archival study conducted by Powell and colleagues (1996), merely four out of the 353 psychology articles centralizing on sexual minority issues concentrated on bisexuality. More recently, a review of sexualities scholarship from 1970 to 2015 in the United Kingdom and United States, in which they found that bisexuality tended to be subsumed within the larger sexual minority umbrella for the vast majority of social science research or completely overlooked; results also demonstrated that bisexuality and bisexual issues were less frequently mentioned relative to lesbian and gay experiences in the reviewed body of literature (Monro, Hines, & Osborne, 2017). Lastly, a 2012 content analysis of articles regarding bisexual individual’s physical health, in which findings indicated that less than 20% of the

literature analyzed physical health data for bisexual individuals separately from other sexual minority groups (Kaestle & Ivory, 2012). These findings support the claims of Petford (2003) and Angelides (2001), who stated that bisexuality and bisexual issues in field of psychology are almost completely disregarded or, if they are referenced, will be named once and subsequently omitted from the larger discussion.

Over the last several decades, there has been a steady increase in the visibility of bisexual individuals and their unique experiences as it relates to discrimination, stigma, as well as physical and psychological health (Brewster et al., 2013; Israel, 2010; Israel & Mohr, 2004). Researchers attribute much of this proliferation with the emergence of bisexual characters – predominantly female – on mainstream television, as well as the recent empirical, theoretical, and autobiographical writings regarding bisexuality as a valid and unique sexual orientation (Brewster & Moradi, 2010; Eliason, 1997; Mohr, Israel, & Sedlacek, 2001; Udis-Kessler, 1996). Based on recent findings, scholars argue that individuals who identify as bisexual encounter discrimination from both heterosexual and lesbian/gay communities, resulting in their dual-marginalization status (Fox, 2003; Mohr & Rochlen, 1999). According to Fox (2003), the dual-marginalization of bisexuals parallels the prevailing dichotomization of sexual orientation in modern American society, which fails to consider bisexuality as a legitimate sexual identity from either end of the socially-prescribed binary. Moreover, Troiden (1998) suggests that the perpetual rejection and lack of recognition of bisexuality from society at large may prevent individuals from maintaining a bisexual identity, forcing them to choose either end of the gay/lesbian and heterosexual sexual orientation dichotomy. Scholars also argue that bisexual individuals endure unique manifestations of discrimination in their daily lives that derive from commonly held stereotypes, including being sexually promiscuous, disloyal, and interpersonally

mistrustful. Furthermore, research suggests that bisexual men may be more likely to encountering these stereotypes relative to their female counterparts (Eliason, 2001; Herek, 2002; Israel & Mohr, 2004; Ochs, 2007; Spalding & Peplau, 1997).

Bisexual Minority Stress

Anti-bisexual Discrimination

Bisexual individuals are erroneously described as being less marginalized relative to gay men and lesbian women due to their perceived heterosexual privilege (e.g., passing as heterosexual in mix-gender couples), which therefore decreases their odds of encountering discrimination and other forms of victimization (Eliason, 2002; Fox, 2003). However, studies suggest that bisexual individuals experience similar rates of sexual identity based harassment and discrimination as other sexual minority groups (Herek, 2002; Herek, Cogan, & Gillis, 1999). For instance, in a study comparing experiences of heterosexist discrimination in a sample of lesbian, gay, and bisexual adults ($N= 2,259$), 28% of gay men ($n= 898$), 19% of lesbian women ($n = 980$), 27% of bisexual men ($n= 191$), and 15% of bisexual women ($n= 190$) endorsed at least one incident of heterosexist discrimination since the age of 16 (Herek et al., 1999). Similar to the adverse physical and mental health consequences linked with gay men and lesbian women experiences of heterosexist discrimination (Hatzenbuehler et al., 2008; Pachankis et al., 2015; Mereish & Poteat, 2015; Feinstein et al., 2012), empirical findings consistently suggest an association of anti-bisexual discrimination with higher psychological distress (Brewster et al., 2013; Dodge et al. 2012; Pascoe & Richman, 2009; Ross et al. 2010), eating disorder symptomology (Brewster et al., 2014), as well as decreased psychological well-being (Brewster et al., 2013) among bisexual individuals.

To further understand and evaluate the underlying components of anti-bisexual

discrimination, Mohr and Rochlen (1999) developed a measure of non-bisexual persons' attitudes towards bisexuality and bisexual people. An exploratory factor analysis revealed two factors of anti-bisexual prejudice: 1) bisexuality as a tolerable, moral sexual orientation (Tolerance) and 2) bisexuality as a stable, legitimate sexual orientation (Stability). Expanding upon Mohr and Rochlen's (1999) study, Brewster and Moradi's (2010) evaluated the construct of anti-bisexual prejudice by validating an alternative instrument (i.e., the Anti-Bisexual Experiences Scales; ABES) to assess perceived experiences of anti-bisexual sentiments encountered by bisexual individuals. Three-hundred and fifty male and female bisexual participants were asked to report their experiences of discrimination from lesbian, gay, and heterosexual people. Exploratory factor analysis resulted in a 17-item instrument composed of three factors, including Sexual Orientation Instability and Interpersonal Hostility factors. Notably, these two factors parallel aspects of anti-bisexual prejudice identified by Mohr and Rochlen (1999). Brewster and Moradi's (2010) also found a third factor of anti-bisexual discrimination: Sexual Irresponsibility. Sexual Irresponsibility items (e.g., "People have treated me as if I am likely to have an STD/HIV because I identify as bisexual") reflected experiences of being treated as disloyal in romantic relationships, STI/HIV transmitters, and hypersexual. Though findings indicated that bisexual individuals encounter all three forms of anti-bisexual discrimination from both heterosexual and gay/lesbian individuals, bisexual men and women reported experiencing discrimination based on sexual orientation instability and sexual irresponsibility more frequently compared to interpersonal hostility. Furthermore, bisexual individuals also reported experiencing more anti-bisexual sentiments from heterosexual people relative to gay and lesbian individuals (Brewster & Moradi, 2010).

Although the two aforementioned studies and their corresponding instruments have used

different samples, their findings reveal somewhat overlapping dimensions of anti-bisexual sentiments. In turn, the proceeding section will explore the researching findings associated with each of the three aforementioned dimensions of anti-bisexual discrimination to provide a contextual understanding of the stereotypes associated with, and the experiences of discrimination encountered by bisexual individuals. In particular, gender-based differences of anti-bisexual discrimination will also be discussed to further contextualize the experiences of bisexual men in American society. Next, the author will discuss the unique internalization and sexual identity concealment processes that are linked to the anti-bisexual discrimination of bisexual individuals. Lastly, the general limitations of the present body of bisexual literature is presented to highlight the near invisibility of bisexual men in empirical research.

Bisexual individuals as sexually irresponsible. Bisexual individuals, and particularly bisexual men, have been considered a major reason for HIV becoming a health risk for the heterosexual community, which reflects the broader sentiment that bisexual individuals are sexually irresponsible, dishonest, and mistrustful romantic parts (Ault, 1996; Brewster & Moradi, 2010; Brewster et al., 2013; Herek, 2002; Rust, 2002; Spalding & Peplau, 1997). For instance, Eliason and Raheim (1996) conducted interviews with heterosexual undergraduate students regarding their perceptions of bisexuality, in which one student explicitly stated, “I feel they are the people who spread AIDS” (p. 140). Following this study, Spalding & Peplau (1997) further investigated the perceptions of bisexuality among 353 young heterosexual adults. Participants read a vignette of a couple dating for six months, in which gender (man or woman) and sexual orientation (gay/lesbian, bisexual, or heterosexual) of the partners in the couple were manipulated across vignettes. Participants in all conditions were informed that the relationship of the couple was going very well, and they were asked to rate the couple on the following

dimensions: monogamy, sexual riskiness, trust, sexual talent, and relationship quality. Analyses indicated that participants rated bisexuals as more likely than heterosexuals to be dating another person in addition to their partner, to cheat on their partners, and to transmit STDs to their partners. Bisexual people were also perceived as more likely to engage in risky sexual practices (e.g., more likely to give an STD to a same-gender partner) relative to gay or lesbian people. Similar findings were also found in Eliason's (1997) study of undergraduate student's negative perceptions of bisexuality; specifically, findings indicated that 27% percent of responders agreed that bisexual individuals had more sexual partners than heterosexuals, and 31% agreed that bisexual spread AIDS to heterosexuals.

Spalding and Peplau's (1997) study also clearly demonstrated that that bisexual men were rated as more likely to give their partners STIs and to engage in riskier sexual behavior than bisexual women. Research findings suggest that such beliefs are correlated with non-bisexual individuals' reduced willingness to engage in a sexual or romantic relationship with bisexual men (Armstrong & Reissing, 2014; Feinstein, Dyar, Bhatia, Latack, & Davilia, 2014; Kleese, 2005). According to Eliason (2001), attitudes toward bisexual women may be less overtly negative because they are hypersexualized and fetishized by our patriarchal society. For example, several men in a 1997 study indicated that they would have a sexual relationship with a female bisexual partner because it would permit them to have a threesome (Eliason, 1997). At the same time, more recent findings suggest that bisexual women tend to be described more positively by participants relative to bisexual men, regardless of the responder's gender (Yost & Thomas, 2012). On the other hand, heterosexual men may perceive bisexual men as a threat in terms of physical health (Eliason, 1997; Spalding & Peplau, 1997). Taken collectively, these results highlight the importance of considering the bisexual men's experiences of anti-bisexual

discrimination as they relate to negative mental and physical health consequences, particularly for those negative outcomes that have been stereotypically linked with members of this population (e.g., risky sexual behaviors).

Interpersonal hostility toward bisexual people. Researchers have devoted significantly more attention to the negative, hostile attitudes heterosexual individuals have regarding bisexuality and bisexual people (Eliason, 2001; Herek, 2002; Zivony & Lobel, 2014). In a study of 225 heterosexual undergraduate students' perceptions of bisexual men and women, most participants indicated that they did not have a bisexual friend (76%) or a bisexual acquaintance (64%) (Eliason, 2001). Despite limited exposure to bisexual individuals in general, bisexual men and women were perceived as being "very unacceptable" by 26% and 12% of the sample, respectively. Similarly, though 22% of the sample rated both lesbian women and gay men as "very acceptable," bisexual women and bisexual men were rated as "very acceptable" among 14% and 12% of the participants, respectively. Bisexual men also represented the sexual minority population that received the highest ratings of hostility (i.e., 2.5% for bisexual men and 1% for all other groups). In terms of having a sexual relationship with a bisexual person, the majority of the sample endorsed that it was "very unlikely" (52%) or "somewhat unlikely" (25%) for such an event to occur; on the other hand, 3.5% (i.e., five men and three women) indicated having a sexual relationship with a bisexual person.

Similarly, Herek (2002) used data from a 1999 national survey to examine the stability of heterosexual adults' attitudes towards bisexual men and women from 1999 to 2002. Initial findings indicated heterosexual individuals' feelings/perceptions of bisexuality and bisexual people in 2002 did not statistically significantly differ from those endorsed in 1999; thus, this suggests that the perceptions of most groups remained relatively stable over time. Furthermore,

perceptions of bisexual men and women did not differ, in which overall attitudes towards this group on the part of heterosexuals was less favorable than towards any other group except injecting drug users. More specifically, bisexual men and women received a rating of zero more often and a rating of 100 less often in comparison to most other groups, and 11% of the sample gave the lowest rating scores for bisexual men. These findings are consistent with the results of a 2014, which specifically concerned heterosexual's individuals of bisexual men – namely, participants were asked to read and evaluate the following relationship types: 1) a bisexual man dating a heterosexual woman, 2) a bisexual man dating a gay man, 3) a heterosexual man dating a heterosexual woman, and 4) a gay man dating a gay man (Zivony & Lobel, 2014). MANOVA analyses revealed that participants tended to evaluate bisexual men as more untrustworthy, less open to new experiences, and not as able to maintain a long-term relationship compared to gay and heterosexual men (Zivony & Lobel, 2014).

Although the aforementioned studies clearly indicate that heterosexual individuals may perceive bisexuality, and particularly bisexual men, negatively, scholars also indicate that this antipathy or prejudice is also present within gay and lesbian communities (Burlison, 2005; Friedman et al., 2014; Ochs, 2007). Mohr and Rochlen (1999), for instance, conducted a study to assess gay, lesbian, heterosexual individuals' attitudes of bisexuality; findings revealed that 32% of gay and lesbian participants sampled reported they would not date a bisexual person, and 25% indicated that they would not consider having a bisexual man or woman as a best friend. More recently, Friedman and colleagues (2014) also indicate that lesbian women and gay men hold anti-bisexual beliefs of bisexual men and women; however, findings suggest that non-bisexual sexual minorities may tend to be slightly less anti-bisexual relative to their heterosexual counterparts, which may relate to their own perceived experiences of discrimination (Anselmi et

al., 2015; Mohr & Rochlen, 1999; Rust, 2002). Regardless, scholars postulate that lesbian and gay people's attitudes toward bisexuality stem from the fact that bisexual people have the capacity to conceal their sexual identity and pass as heterosexual in different social contexts, thereby leading bisexual individuals to feel essentially othered in queer spaces (Anselmi et al., 2015; Elia & Eliason, 2012; Hartman, 2013). These findings further demonstrate how bisexual men and women may encounter double discrimination from the general population, thereby contributing to their feelings of dual isolation and confusion (Ault, 1996; Brewster & Moradi, 2010; Burlleson, 2005).

Instability and illegitimacy of bisexual identity. Bisexuality is often characterized as a sexual orientation that cannot be maintained; instead, non-bisexuals assume that bisexual people are merely confused about their sexual orientation, and that they will eventually adopt a gay or heterosexual identity (Diamond, 2008; Eliason, 1997; Eliason, 2001; Herek, 2002; Troiden, 1998). In turn, these commonly held beliefs about bisexuality correspond to the notion that it is both an unstable or illegitimate sexual identity (Ault, 1995; Rust, 2002, 1993). Few studies, however, have empirically assessed this dimension of anti-bisexual discrimination for bisexual individuals in general and particularly for bisexual men (Eliason, 2001); nonetheless, findings suggest that heterosexual, gay, and lesbian individuals hold these perceptions of bisexuality (e.g., Brewster et al., 2013; Burlleson, 2005; Eliason, 1997; Eliason, 2001; Rust, 1992). Rust (1993), for instance, developed the first survey to evaluate lesbian women's beliefs of bisexual women, in which the survey's content stemmed from interviews she conducted with lesbian and bisexual women. Using a sample of 346 lesbian-identified women, most of whom were White, findings indicated lesbian women tend to perceive bisexual women as lesbians who were not yet conscious of their true sexual identities. In addition, lesbian women believed that bisexual

women: 1) were more likely than lesbian women to deny or reject their true sexual orientation, 2) were more likely to be in a state of transition in terms of their sexual orientation than lesbian women and 3) had a greater desire to pass as heterosexual than lesbian women. At the same time, a lesbian-identified participant in Rust's (1992) study indicated the following: "bisexuality scares and bothers me because [bisexuals] just don't seem committed" (p. 382). Such a statement reflects the commonly held belief that bisexual individuals are fence-sitters who are attempting to avoid heterosexist discrimination (Mohr & Rochlen, 1999; Rust, 1993).

Although Rust's (1993) study concerned the lesbian women's perceptions of female bisexuality, research has demonstrated that gay, lesbian, and heterosexual individuals tend to have comparable perceptions of bisexuality as a sexual orientation (Burlison, 2005; Eliason, 1997; Eliason, 2001; Rust, 1992, 1993). Moreover, despite beliefs and attitudes of bisexual men not being included in this study, research has already established that bisexual men may be perceived more negatively than bisexual women (Eliason, 1997; Spalding & Peplau, 1997; Yost & Thomas, 2012). The pervasive presence of being perceived as confused, illegitimate, and unstable individuals has been shown to have detrimental consequences on bisexual individual's psychological wellbeing (Brewster & Moradi, 2010; Brewster et al., 2013). Simultaneously, bisexual people may begin to feel invalidated, frustrated, confused, and isolated as a result of the internalization of these messages from society, which in turn contributes to the emergences of internalized biphobia in this community (Brewster et al., 2010; Brewster et al., 2013, Mohr & Israel, 2004; Rust, 1992).

Internalized Biphobia

Because bisexual individuals encounter discrimination from sexual minority and heterosexual communities on a perpetual basis, scholars argue that they may begin to internalize

these covert and overt messages through a process known as internalized biphobia (Brewster et al., 2013; Watson et al., 2016). Similar to internalized heterosexism, internalized biphobia involves the internal degradation of bisexuality, bisexual people, bisexual communities, and oneself as a bisexual person (Brewster et al., 2010; Brewster et al., 2013; Newcomb & Mustanski, 2010; Ochs, 2007). According to Obradors-Campos (2011), most – if not all – bisexual individuals experience internalized biphobia. Supporting this claim, Herek and colleagues (2009) determined that bisexual individuals experience higher rates of self-stigma (i.e., internalized biphobia) compared to gay, lesbian, and heterosexual individuals. Furthermore, Alarie and Gaudet (2013) found that individuals who indicated bisexual behavior or attraction often denied the existence of bisexuality across the lifespan; instead, they perceived themselves as eventually adopting a heterosexual or gay/lesbian identity. In turn, these findings reflect the internalization of the instability dimension of anti-bisexual discrimination, which may lead bisexual individuals to feel confused about their sexual identity and a sense of isolation (Alarie & Gaudet, 2013; Anselmi et al., 2015).

Research studies have clearly demonstrated that internalized heterosexism is directly positively associated with negative psychological health (e.g., substance use and abuse, suicidal ideation) and well-being (e.g., greater isolation) outcomes among bisexual men and women (e.g., Brewster & Moradi, 2010; Brewster et al., 2013; Lea, de Wit, & Reynolds, 2014; Lewis, Kholodkov, & Derlega, 2012). Kuerbis and colleagues (2017) found that internalized heterosexism was significantly associated with heavy drinking, alcohol problems, substance use, and psychological distress in a sample of sexual minority men. Additional research has also found an association of internalized heterosexism with increased alcohol use among sexual minority men (Amadio, 2006; Szymanski, Kashubeck-West, & Meyer, 2008). However, an

important limitation of these studies is that they assess the impact of internalized heterosexism and not internalized biphobia, which are two distinct constructs according to the bisexuality literature (Brewster et al., 2013; Fox 2003; Ochs, 2007). Despite this, previous research has demonstrated a positive association of internalized biphobia with psychological distress in bisexual men and women (Brewster & Moradi, 2010).

Although no study has directly assessed the association of internalized biphobia with risky sexual behaviors, previous research concerning internalized heterosexism on the part of sexual minority men's sexual risk taking has been well documented (e.g., Dudley et al., 2004; Kashubeck-West & Szymanski, 2008; Farnsworth, 2002; Shidlo, 1994; Szymanski et al., 2008). In turn, considering the extent of discrimination encountered by bisexual individuals in general and bisexual men in particular, it is arguable that a similar association will emerge between internalized biphobia and risky sexual behaviors among bisexual men. More importantly, because internalizing the assumption that bisexuality is unstable may contribute to bisexual individuals' sense of feeling confused about their sexual identity (Alarie & Gaudet, 2013), it is likely that they may also enact other stereotypical behaviors associated with anti-bisexual discrimination (i.e., sexual irresponsibility).

Bisexual Identity Concealment

Scholars posit that perceived experiences of anti-bisexual discrimination and internalized biphobia may encourage bisexual men and women to conceal their sexual identity as a way of protecting themselves from added harassment and victimization in American society (Brewster & Moardi, 2010; D'Augelli & Grossman, 2001; Lichtenstein, 2000; Stokes, Damon, & McKirnan, 1997; Stokes, McKirnan, & Burzette, 1993). However, empirical studies have also consistently found that bisexual people may be more likely to conceal their sexual orientation

relative to gay men and lesbian women (Balsam & Mohr, 2007; Rosario et al., 2008).

Furthermore, because bisexual men are perceived as one of the main reasons HIV/AIDS entered the heterosexual community, they may be more inclined to conceal their sexual orientation as a way of avoiding anti-discrimination (Balsam & Mohr, 2007; Legate, Ryan, & Weinstein, 2011; Lewis, Derlega, Brown, Rose, & Henson, 2009; Rosario, et al., 2008; Wheeler, Lauby, Liu, Van Sluytman, & Murrill, 2008). Stokes and colleagues (1993) also found that greater internalized heterosexism among bisexual men was associated with bisexual identity concealment. In turn, higher rates of concealment due to previous anti-bisexual discrimination and internalized biphobia may place bisexual men at increased risk for mental and physical health concerns relative to other sexual minority men (Bostwick, Boyd, Hughes, & McCabe, 2010; Conron et al., 2010; Jorm, Korten, Rodgers, Jacomb, & Christensen, 2002; Mills et al., 2004).

Research on the association of sexual identity concealment with poor health outcomes among sexual minority individuals has been mixed; specifically, some studies suggest that higher levels of sexual identity concealment are associated with negative health concerns (Juster, Smith, Ouellet, Sindi, & Lupien, 2013; Selvidge et al., 2008), while others have not (Frost, Lehavot, & Meyer, 2013). Moreover, most studies fail to consider how concealment's association with negative physical and mental health outcomes vary depending according to one's sexual orientation; instead, most studies tend to assess sexual minorities as a homogenous group (Battle & Lemelle, 2002; Choi, Kumekawa, & Dang, 1999; Greene, 2000). Furthermore, no study – at least to the author's knowledge – has specifically assessed the association of sexual identity concealment with risky sexual behaviors among bisexual individuals; however, previous research has established that sexual identity concealment may mediate the association of internalized heterosexism with risky sexual behaviors among sexual minority men (Pachankis et

al., 2015). Moreover, scholars argue that the relationship of sexual identity concealment with risky sexual behaviors is mediated by rates of substance use among sexual minority men – that is, higher rates of sexual identity concealment are associated with increased substance use, which in turn promotes higher rates of risky sexual behaviors (Kipke et al., 2007; Klitzman et al., 2002; McKirnan & Peterson, 1989; Thiede et al., 2003). Consequently, it is arguable that the relationship of bisexual identity concealment with risky sexual behavior will also be mediated by rates of substance use among bisexual men.

Bisexual Identity Centrality

Bisexual identity centrality can be broadly conceptualized as the significance of a bisexual identity to an individual's overall self-concept across contexts (Dyar et al., 2014; Dyar & London, 2018; Quinn et al., 2014). Although few studies have considered the role of bisexual identity centrality among bisexual individuals (e.g., Davila, Jabbour, Dyar, & Feinstein, 2018; Dyar et al., 2014; Dyar & London, 2018), results are consistent with those found in sexual identity centrality research focusing on sexual minority individuals in general (e.g., Dyar et al., 2015; Griffith & Hebl, 2002; Mohr & Kendra, 2011). For instance, one study determined that bisexual individuals (approximately 47% of the sample) did not significantly differ from gay/lesbian individuals with respect to sexual identity centrality, and sexual identity centrality was negatively associated with both sexual identity concealment ($r = -.30$) and internalized heterosexism ($r = -.16$) (Cramer et al., 2018). Another study examined the relations of bisexual identity centrality with several bisexual minority stress constructs (e.g., anti-bisexual discrimination, bisexual identity disclosure) among 397 non-monosexual (e.g., bisexual, queer, pansexual) individuals, in which approximately 71% of participants self-identified as bisexual (Davila et al., 2018). Findings revealed that bisexual identity centrality was significantly

positively correlated with experiences of anti-bisexual discrimination ($r = .25$) and bisexual identity disclosure ($r = .39$). Collectively, these findings suggest that bisexual individuals whose bisexual identity is more central to their self-concept may be less likely to conceal their bisexual identity and experience internalized biphobia (Davila et al., 2018; Dyar & London, 2018).

However, similar to sexual identity centrality in general, little is known about bisexual identity centrality's potential moderating role in the associations of anti-bisexual discrimination with internalized biphobia, bisexual identity concealment, and negative health outcomes (e.g., risky sexual behaviors) among bisexual men (Davila et al., 2018; Dyar & London, 2018). As previously indicated, some scholars posit that sexual identity centrality may strengthen heterosexual discrimination's relations with internalized heterosexism, sexual identity concealment, and physical health outcomes (e.g., risky sexual behaviors) (Mohr & Kendra, 2011; Quinn & Chaudoir, 2009; Thoits, 1999), while other theorists argue that sexual identity centrality may weaken these same associations (Crocker & Major, 1989; Jefferson et al., 2013). However, no studies to date – at least to our knowledge – have tested these theories (Cramer et al., 2018; Quinn & Chaudoir, 2009; Quinn & Earnshaw, 2011, 2013). Nevertheless, because anti-bisexual discrimination has been positively associated with internalized heterosexism, sexual identity concealment, and risky sexual behavior among sexual minority men (Eliason, 2001; Herek, 2002; Israel & Mohr, 2004; Ochs, 2007; Spalding & Peplau, 1997), it may be particularly important to determine if bisexual identity centrality potentially attenuates or exacerbates anti-bisexual discrimination's relations with these constructs (Davila et al., 2018). Thus, additional research is needed to examine bisexual identity centrality's interactive associations with bisexual minority stressors (e.g., internalized biphobia) and risky sexual behavior among bisexual men (Davila et al., 2018; Dyar & London, 2018).

Additionally, the Rejection-Identification Model (RIM) (Branscombe, Schmitt, & Harvey, 1999) argues that individuals of marginalized communities (e.g., sexual minority people) experience rejection from the dominant culture (e.g., heterosexual individuals), which in turn is associated with psychological distress. However, experiences of rejection may simultaneously increase identification with one's marginalized community – that is, greater identity centrality – and greater in-group identification is associated with decreased mental health concerns (e.g., psychological well-being). As such, the RIM suggests that identity centrality may mediate the relation of discrimination with psychological well-being (Branscombe et al., 1999), and these posited associations have been empirically supported with members of different marginalized populations such as women (Schmitt et al., 2002), people of color (Branscombe et al., 1999; Schmitt, Spears, & Branscombe, 2003), and sexual minority individuals (Doyle & Molix, 2014). Despite these research findings, the aforementioned studies have predominantly focused on the association of perceived discrimination with psychological well-being and none have considered alternative outcome variables (e.g., risky sexual behavior). Moreover, no studies to date – at least to our awareness – have specifically examined the mediating role of bisexual identity centrality in the association of anti-bisexual discrimination with risky sexual behavior. Taken collectively, additional research is needed to understand the potential mediating role of bisexual identity centrality, particularly as it relates to minority stress theory framework.

General Limitations in Current Bisexuality Research

Despite the increase in sexual minority research concerning bisexuality in the present day, there are several inherent limitations in this body of literature that are worth addressing. Firstly, the vast majority of empirical studies focused on bisexual people have contained largely homogenous samples of women – with White, college-aged, middle-class women as the

prototypical sample population (Eliason, 2002; Fox, 2003; Israel & Mohr, 2004). With considerable attention being placed on the experiences of bisexual women, much of what is known about bisexual men remains largely speculative (Eliason, 2002). Though some studies have demonstrated how anti-bisexual discrimination and internalized biphobia are positively associated with rates of bisexual identity concealment and psychological distress in the general bisexual population (Brewster & Moradi, 2010a; Brewster, et al.2013), none have specifically considered the experiences of bisexual men nor how sexual health consequences are associated with minority stressors experienced among members of this community. Such limitations in bisexuality research are particularly troublesome since bisexual men are a subpopulation of sexual minority men who 1) are at increased risk for contracting STIs and HIV (CDC, 2014; Halkitis et al., 2015) and 2) are perceived more negatively relative to bisexual women and other sexual minorities (Eliason, 2001; Herek, 2002). Similarly, although public health studies concerning behaviorally bisexual men of various ethnic/racial backgrounds have found positive associations among minority stressors, alcohol consumption and risky sexual behavior (Bedoya et al., 2010; Jeffries and Dodge, 2007) they also 1) fail to consider how sexual identity is a multifaceted dimension of an individual's self-concept, rather than solely defined by sexual and intimate behavioral practices and 2) do not reflect the lived experiences of men who explicitly identify as bisexual (Callis, 2017; Rust, 2002). Thus, taken collectively, there is an evident need to further expand the current body of bisexuality research by not only integrating bisexual men in to the conversation, but by also considering the way in which other physical health outcomes (i.e., risky sexual behavior) may correspond with the unique minority stressors experiences by bisexual men.

CHAPTER III

METHOD

Restatement of Research Question and Hypotheses

Taken collectively, the emerging body of research concerning sexual minority men suggests that adverse experiences, including minority stressors are associated with increased risky sexual behaviors among this population of men. Despite recent findings, sexual minority men have consistently been perceived as homogenous group, in which few empirical studies have accounted for within-group differences among sexual minority men (Eliason, 2002; Fox, 2003; Israel & Mohr, 2004; Mohr & Rochlen, 199). In turn, the unique experiences of bisexual men have remained nearly completely absent from sexual minority research in general and sexual health research in particular, though this community has been consistently stigmatized (i.e., being associated with emergence of HIV/AIDS in the heterosexual community).

The first four hypotheses pertain to a series of unique, direct relations among the variables of interest. First, it was hypothesized that anti-bisexual discrimination would yield direct positive relations with internalized biphobia, bisexual identity concealment, and risky sexual behavior (Hypothesis 1). Internalized biphobia was expected to yield direct positive relations with substance use and risky sexual behavior (Hypothesis 2). It was also predicted that bisexual identity concealment would yield a direct positive relation with substance use (Hypothesis 3). In turn, it was hypothesized that substance use would yield a direct positive relation with risky sexual behavior (Hypothesis 4).

Our next predictions pertain to hypothesized indirect relations. Specifically, anti-bisexual discrimination was expected to yield a significant positive indirect relation with substance use via the mediating roles of both internalized biphobia and bisexual identity concealment

(Hypothesis 5). Anti-bisexual discrimination was hypothesized to yield a significant positive indirect relation with risky sexual behavior via a chain of mediated relations involving internalized biphobia, bisexual identity concealment, and substance use (Hypothesis 6). It was also hypothesized that internalized biphobia and bisexual identity concealment would yield significant positive indirect relations with risky sexual behavior through the mediating roles of substance use (Hypothesis 7).

The role of bisexual identity centrality was also examined in the model. First, based on previous sexual identity centrality research (e.g., Cramer et al., 2018; Dyar, Feinstein, & London, 2015; Mohr & Kendra, 2011), it was hypothesized that bisexual identity centrality would yield negative direct associations with both internalized biphobia and identity concealment (Hypothesis 8). However, given the scarcity of research regarding sexual identity centrality in general – and bisexual identity centrality in particular – exploratory analyses were conducted to further examine bisexual identity centrality’s potential direct association with risky sexual behavior. Additional exploratory analyses examined the moderating role of bisexual identity centrality among the variables of interest. Specifically, it was hypothesized that bisexual identity centrality would moderate the associations of anti-bisexual discrimination with internalized biphobia, bisexual identity concealment, and risky sexual behaviors; however, due to the two competing perspectives regarding the moderating role of sexual identity centrality, the nature of these interaction effects was not specified.

Participants

Participants ($N = 508$) in the final sample ranged in age from 18 to 76 years old ($M = 26.65$, $Mdn = 23$, $SD = 10.65$). Due to some missing descriptive data, all subsequent demographic percentages may not sum to 100%. In terms of gender, approximately 48% ($n =$

246) of the sample identified as cisgender men, 43% ($n = 220$) as transgender men, and 8% ($n = 40$) as genderqueer or gender nonconforming (e.g., masculine non-binary, male-presenting). No participant in the final sample identified as a cisgender or transgender woman. With regard to race or ethnicity, approximately 69% ($n = 352$) of participants identified as White or European American, 10% ($n = 49$) as Biracial or Multiracial, 8% ($n = 38$) as Latino or Hispanic, 3% ($n = 17$) as Asian/Pacific Islander (API) or API American, 3% ($n = 17$) as African American or Black, 2% ($n = 9$) as some other racial/ethnic identity (e.g., Roman Gypsy), <1% ($n = 2$) as Middle Eastern or North African, and <1% ($n = 2$) as American Indian or Native American. In terms of sexual orientation, approximately 69% ($n = 348$) of participants identified as bisexual, 10% ($n = 49$) as some other sexual orientation (e.g., pansexual, sexually fluid), 9% ($n = 46$) as queer, 5% ($n = 25$) as mostly gay, 3% ($n = 14$) as mostly heterosexual, and 1% ($n = 4$) as asexual.

Participants who identified their sexual orientation as mostly gay, mostly heterosexual, or queer were included in the sample given that individuals who identify as bisexual may not experience equal attraction to all genders and may use diverse labels to capture experiences associated with their sexual identity (e.g., Brewster et al., 2014; Rodriguez & Rust, 2000; Watson et al., 2015).

No participant in the final sample identified as exclusively gay or heterosexual. Also, as described in the procedures section, all respondents verified that they self-identified as bisexual prior to participating in the survey.

In terms of highest level of education, approximately 39% ($n = 196$) possessed some college, 20% ($n = 100$) possessed a bachelor's degree, 14% ($n = 71$) had a high school diploma, 9% ($n = 43$) had a master's degree, 6% ($n = 30$) possessed an associate's degree, 4% ($n = 20$) had some high school, 3% ($n = 16$) possessed a doctorate, and 2% ($n = 10$) had some other level of education (e.g., trade school, GED). With respect to self-reported social class, approximately

34% ($n = 175$) identified as middle class, 34% ($n = 172$) as working class, 14% ($n = 69$) as upper-middle class, 12% ($n = 62$) as living in poverty, and 2% ($n = 8$) as upper class. In terms of current employment status, approximately 36% ($n = 183$) identified as full-time, 33% ($n = 166$) as part-time, 25% ($n = 123$) as unemployed, and 2% ($n = 11$) as retired. In addition, approximately 51% ($n = 261$) of participants reported their residence as suburban, 33% ($n = 169$) as urban, and 11% ($n = 56$) as rural.

With respect to relationship status, approximately 47% ($n = 236$) of participants identified as single or casually dating, 20% ($n = 99$) as married or being in a domestic partnership, 17% ($n = 88$) as dating long-term, and 16% ($n = 85$) as being in a polyamorous relationship. In terms of ever being tested for HIV, approximately 59% ($n = 301$) of the sample reported yes and 41% ($n = 207$) reported no. In terms of STI testing, approximately 51% ($n = 260$) reported never testing positive for an STI, 37% ($n = 187$) reported never receiving STI, and 12% ($n = 60$) as previously testing positive for an STI. With respect to HIV status, approximately 73% ($n = 373$) of the sample reported being HIV-negative, 22% ($n = 111$) as having an unknown HIV status, and <1% ($n = 2$) as being HIV-positive. In terms of PrEP used, approximately 94% ($n = 487$) of participants reported not using PrEP and 1% ($n = 6$) reported using PrEP. Participants in the sample also resided in 48 of the 50 states and the District of Columbia.

Procedures

Prior to commencing recruitment, the present study was approved by the Institutional Review Board (IRB) of Teachers College, Columbia University. Once approved, the online survey was posted online via Qualtrics – a HIPAA-compliant, secured database system. Participants were recruited using emails, listservs, flyers, and online communities (e.g.,

Facebook, Tumblr) that cater to sexual minority men, and bisexual men in particular. The study was advertised as an examination of bisexual men's experiences of stigma and sexual health on these platforms. Recruitment materials also clearly emphasized that people who identify as bisexual, transgender men can participate in the study. All recruitment materials invited interested persons over the age of 18 to complete the online survey, in which recruitment materials included the Internet address of the online survey as well as the contact information for the study's principal investigator. In addition, recruitment materials indicated that participants could opt to enter a raffle for a 1 in 25 chance of winning a \$10 Amazon gift card.

Individuals who followed the study's link were presented with the study's description and were asked to indicate whether they met the inclusion criteria of the study (i.e., identify as a man, identify as bisexual, are currently 18 years of age or older, and currently reside in the U.S.). If individuals did not agree with the terms in the informed consent, they were brought to a "thank you for your consideration" page and were not allowed to continue to take the survey.

Individuals who met all inclusion criteria were allowed to provide their informed consent and to complete the survey. Before starting the survey, participants were instructed that validity check items (e.g., "Please selected 'Strongly disagree'") were dispersed throughout the survey to ensure they were responding in an attentive manner. All instruments were presented in random order except for the demographic questionnaire, which was always presented to participants last. At the end of the survey, participants were provided with the opportunity to enter a raffle for a 1 in 25 chance of winning a \$10 Amazon.com gift card. Participants entered the raffle by providing their email address. These emails were entered in a separate Qualtrics survey, so participants' responses could not be connected to their responses to the primary survey.

Data from 508 bisexual men were analyzed in the present study. Participants were recruited via social networking sites (e.g., Facebook, Tumblr), email, and online resource websites for bisexual individuals. To participate in the online survey, participants confirmed that they (1) identified as bisexual, (2) identified as a man (cisgender or transgender), (3) currently residing in the United States, and (4) were 18 years of age or older. To maintain confidentiality, no identifying information was recorded aside from (1) an Internet Protocol (IP) address to ensure participants took the survey only once.

A total of 785 individuals viewed the study's description page. Of these individuals, six (<1%) people did not meet inclusion criteria and were thus prevented from providing informed consent and continuing the survey. An additional 107 (14%) cases were removed from the data set because they stopped the survey immediately after providing consent (i.e., they provided no data). It is possible that some of these individuals returned to complete the survey at a later time; however, because this identifying information was not collected, this cannot be confirmed. Another 143 (18%) cases were removed from the dataset because they were missing more than 50% of the data analyzed in this study. One participant (<1%) was removed from the sample because they identified as a woman of transgender experience. One (<1%) participant was also removed because the person resided outside of the United States. In addition, eleven (1%) individuals were removed from the data set because they responded incorrectly to more than half of the validity check items. Moreover, eight cases (<1%) were removed because they were identified as multivariate outliers. These procedures resulted in a final sample of 508 participants (i.e., 65% of individuals who read the study's description), which is comparable to retention rates in online research with bisexual individuals (e.g., Brewster et al., 2014; Lambe, Cerezo, & O'Shaughnessy, 2017; Watson, Velez, Brownfield, & Flores, 2016). Of these 508 respondents,

451 (89%) were missing no data, 51 (10%) were missing zero to 30% of the data, and six (1%) were missing between 30% and 50% of the data.

Little's Missing Completely at Random (MCAR) Test was used to determine whether data were systematically or randomly missing in the final sample. The results of this test were nonsignificant, $\chi^2(1936) = 1979.87, p = .239$, which indicates that the data were MCAR. Thus, missingness was handled by using maximum likelihood (ML) estimation in the primary analysis, which were conducted using MPlus 7.2 (Muthén & Muthén, 2012).

Measures

Perceived anti-bisexual discrimination. The 17-item Anti-Bisexual Experiences Scale (ABES; Brewster & Moradi, 2010) was used to assess perceived anti-bisexual discrimination. Participants responded to items regarding their experiences of anti-bisexual discrimination (e.g., “People have acted as if my bisexuality is only a sexual curiosity, not a stable sexual orientation”) using a 6-point scale (1= *If this has NEVER happened to you* to 6= *If this has happened to you ALMOST ALL OF THE TIME [more than 70% of the time]*). Item responses were averaged, with higher scores indicating more frequent anti-bisexual. ABES items have yielded Cronbach's alphas of .93–.96 in samples of bisexual men and women (Brewster & Moradi, 2010; Brewster et al., 2013). With respect to validity, Brewster and Moradi (2010) also found that ABES scores were positive correlated with measures of stigma awareness. Cronbach's alpha in the current study was .95.

Internalized biphobia. The 5-item Internalized Binegativity (IB) subscale of the Bisexual Identity Inventory (BII; Paul, Smith, Mohr, & Ross, 2014) was used to measure participants' internalized biphobia. Participants will respond to items regarding negative perceptions of oneself as a bisexual individual (e.g., “My life would be better if I were not

bisexual”) using a 7-point scale (1= *strongly disagree* to 7 = *strongly agree*). Appropriate items were reversed scored and item ratings were averaged, with higher scores reflecting greater internalized biphobia. IB subscale items demonstrated strong internal consistency ($\alpha = .84$; Paul et al., 2014). In terms of validity, scores on the IB subscale were positively associated with perceptions of bisexuality as an illegitimate sexual identity and negatively correlated with bisexual identity affirmation (Paul et al., 2014). Cronbach’s alpha in the present study was .84.

Bisexual identity concealment. The 6-item Sexual Orientation Concealment Scale (SOCS; Jackson & Mohr, 2015) was used to measure participants’ active concealment of their sexual minority status in the past 2 weeks. Using a 5-point scale (1 = *Not at all*, 3 = *Somewhat*, 5 = *All the time*), participants were asked to respond to items (e.g., “In the past 2 weeks, I have allowed others to assume I am straight without correcting them”) regarding their bisexual identity concealment. Item responses were averaged, with higher scores indicating greater levels of bisexual identity concealment. Jackson and Mohr (2016) reported adequate internal consistent ($\alpha = .78$) for the SOCS in a sample of sexual minority people. With respect to validity, the SOCS was positively associated with measures of general concealment and concealment motivation among sexual minority individuals (Jackson & Mohr, 2016). Cronbach’s alpha in the current sample was .83.

Bisexual identity centrality. The 5-item Identity Centrality Subscale (ICS) of the Lesbian, Gay, & Bisexual Identity Scale (LGBIS; Mohr & Kendra, 2011) was used to assess the degree to which participants’ bisexuality is central to their overall identity. Using a 6-point rating scale (1 = *Disagree strongly*, 3 = *Disagree somewhat*, 6= *Agree strongly*), participants responded to items (e.g., “My sexual orientation is a central part of my identity) concerning the overall importance of their bisexual identity. Three items were slightly modified for this study to

specifically apply to the intended population of the study. Specifically, one item was changed from “To understand who I am as a person, you have the know that I am LGB” to “To understand who I am as a person, you have to know that I am bisexual.” The second item was changed from “Being an LGB person is a very important aspect of my life” to “Being a bisexual man is a very important aspect of my life.” Finally, the original item “I believe being LGB is an important part of me” was changed to “I believe being bisexual is an important part of me.” Appropriate items were reversed scored and item responses were averaged, with higher score indicating greater levels of bisexual identity centrality. ICS items have yielded Cronbach’s alphas of .83-.86 in a sample of sexual minority men and women (approximately 30% of the sample identified as bisexual) (Mohr & Kendra, 2011). With respect to convergent validity, the Mohr and Kendra (2011) found that ICS scores were positively associated with other measures of identity salience. Cronbach’s alpha in the current sample was .85.

Alcohol consumption. The 10-item Alcohol Use Disorder Identification Test (AUDIT; Babor et al., 2001) was used to assess the frequency and amount of alcohol consumption (three items), alcohol dependencies (three items), and problems associated with alcohol consumption (four items). The AUDIT provides participants with general information and a visual display of a single drink serving in the United States before they provide their item responses. Participants responded to AUDIT items using four different rating scales. More specifically, one item (i.e., “How often do you have a drink containing alcohol?”) assessed for general frequency of alcohol consumption (0 = *Never*, 2 = *2 to 4 times a month*, 4 = *4 or more times a week*); one item (i.e., “How many drinks containing alcohol do you have on a typical day when you are drinking?”) assessed for an average quantity of alcohol consumed at a single outing (0 = *1 or 2*, 2 = *5 or 6*, 4 = *4 or more times a week*); six items (e.g., “How often do you have 5 or more drinks on one

occasion.”) assessed alcohol consumption dimensions over the last year (0 = *Never*, 2 = *Monthly*, 4 = *Daily or almost daily*); and two items (e.g., “Have you or someone else been injured because of your drinking?”) asked participants to rate negative consequences of alcohol consumption (0 = *No*, 2 = *2 to 4 times a month*, 4 = *4 or more times a week*). Scores on the AUDIT were summed, with higher scores reflecting higher levels of alcohol dependency. Based on AUDIT protocol, a summed score of eight or higher was considered clinically significant, with a maximum total score of 40 (Babor et al., 2001; Reinert & Allen, 2007). Reinert and Allen (2007) reported strong internal consistency ($\alpha = .83$) for the AUDIT following a comprehensive review of 18 empirical studies. Additional research has demonstrated adequate internal consistency ($\alpha = .74$) for the AUDIT with a sample of bisexual men and women (Ross, Bauer, MacLeod, Robinson, MacKay, & Dobinson, 2014). In terms of validity, the AUDIT was positively correlated with other self-report measures of substance use, including the DAST, among sexual minority people (Weber, 2008). Cronbach’s alpha in the current sample was .83.

Drug use. The 10-item Drug Abuse Screening Test (DAST-10; Skinner, 1982) was used to assess respondents’ use and abuse of substances other than alcohol in the last 12 months. Participants responded to items (e.g., “Do you ever feel bad or guilty about your drug use?”) using a dichotomous response option (0= *No*, 1= *Yes*). Scores on the DAST-10 were summed, with higher scores reflecting greater drug use. Following previous research protocols, DAST-10 scores of three or higher were identified as clinically significant in this study, with a maximum total score of ten (Grossman, D’Augelli, & Hershberger, 2000; Skinner, 1982) (DAST-10 items have yielded Cronbach’s alphas of .61-.75 in diverse samples of sexual minority men and women (Grossman et al., 2000). Regarding validity, the DAST-10 is positively correlated with other substance use indices (Cocco & Carey, 1998). In this study, Cronbach’s alpha was .72.

Risky sexual behaviors. The 22-item Sexual Risk Survey (SRS; Turchik & Garske, 2009) was used to assess sexual health. SRS items (e.g., “How many times have you had anal sex without a condom?”) measure one’s risky sexual behaviors over the last 6 months. In the original version of the SRS, participants are asked to provide estimated numerical responses for each item; however, in the present study, participants responded to items using one of two rating scales (which one varies by item): a 5-point scale estimating number of partners (1 = 0 to 5 = 10 or more) and a 5-point scale estimating frequency of a specific behavior (1 = 0 to 5 = 51 or more). Items on the SRS measure the following sexual behaviors: unprotected vaginal intercourse, unprotected anal intercourse, alcohol use prior to or during sexual activity, number of sexual partners, and unprotected oral sex with male- and female-identified partners. An additional item (i.e., “Are you currently in a monogamous sexual/romantic relationship with a single partner?”) was added to the original SRS as a way of accounting for relationship status, which may impact responses to subsequent items. Item responses were averaged to derive scale scores, with higher scores reflecting higher levels of risky sexual behavior. In a sample of sexual minority men, Dispenza and Watson (2015) found strong internal consistency for this modified version of this scale ($\alpha = .88$). Turchik and Garske (2009) also reported strong internal consistency for the Sexual Risk Taking with Uncommitted Partners ($\alpha = .88$), Risky Sex Acts ($\alpha = .80$), Impulsive Sexual Behaviors ($\alpha = .78$), and Intent to Engage in Risky Sexual Behaviors ($\alpha = .89$) subscales. Moreover, using a large archival data set comprised for studies from 2006 to 2013, Turchik, Walsh and Marcus (2014) found strong internal consistency for the SRS when used in samples of men ($\alpha = .92$) and sexual minority individuals ($\alpha = .90$). Watson and Dispenza (2014) had comparable internal consistency in a separate sample of sexual minority men ($\alpha = .92$). The SRS has also demonstrated strong predictive validity with greater adverse

health consequences (e.g., STI contraction) in the past 6 months (Turchik & Garske, 2009). In this study, Cronbach's alpha was .91.

Demographic questionnaire. A 20-item demographic survey was constructed by the researcher to obtain information about the sample's demographic composition. The questionnaire asked participants to provide information regarding race/ethnicity (e.g., African American/Black, Asian or Asian American, Latino/Hispanic, White), gender identity (e.g., man of transgender experience), age, and education level (e.g., some high school, some college). Moreover, participant responded to a single item regarding their HIV-seroconversion status (i.e., "Please indicate your HIV status."). Participants were asked to select one of the following options: 1) Negative, 2) Positive, 3) Status Unknown. Comparable methods have been used in previous research with sample of sexual minority men to measure HIV-status (e.g., Grov et al., 2013; Halkitis et al., 2013; Jacobs et al., 2010).

CHAPTER IV

RESULTS

Preliminary Analyses

All variables met benchmarks for univariate normality (i.e., skewness < 3.0, kurtosis < 10.0; Weston & Gore, 2006). However, inspection of Mahalanobis distances indicated that eight cases were multivariate outliers ($ps < .001$). These cases were removed from the sample, resulting in a final sample of 508 participants.

Bivariate Correlations

Means, standard deviations, ranges, and Cronbach's alphas for and bivariate correlations among the variable of interest are presented in Table 1 (Appendix B). Bivariate correlations were examined as preliminary tests of the hypotheses. Correlations are described as small ($r = .10$), medium ($r = .30$), or large ($r = .50$) based on Cohen's (1992) benchmarks. Correlations were largely consistent with our predictions. Consistent with Hypothesis 1, anti-bisexual discrimination was significantly positively correlated with internalized biphobia, bisexual identity concealment, and risky sexual behavior; correlations ranged in size from small to medium. In partial support of Hypothesis 2, internalized biphobia yielded significant small to medium positive correlations with alcohol consumption and risky sexual behavior; however, internalized biphobia yielded a nonsignificant correlation with drug use. Contrary to Hypothesis 3, bisexual identity concealment yielded nonsignificant correlations with alcohol consumption and drug use. Furthermore, consistent with Hypothesis 4, both alcohol consumption and drug use were significantly positively correlated with risky sexual behavior, with effect sizes being small and medium. In partial support of Hypotheses 8, bisexual identity centrality yielded a significant small negative correlation with internalized biphobia. However, contrary to expectation, bisexual

identity centrality's correlation with bisexual identity concealment was nonsignificant. Lastly, age yielded a small significant positive correlation with risky sexual behavior and a small significant negative correlation with drug use.

Exploratory Analyses

Prior to conducting primary analyses, exploratory analyses were conducted to further examine potential group differences among participants in relation to the variables of interest. Using the clinical cut-off scores for the AUDIT and DAST, participants' scores on these respective scales were recoded into an overall substance use variable containing the following levels: (1) non-clinically significant AUDIT score, non-clinically significant DAST score (i.e., No Clinical Significance), (2) non-clinically significant AUDIT score, clinically significant DAST score (i.e., Clinically Significant DAST Group), (3) clinically significant AUDIT score, non-clinically significant DAST score (i.e., Clinically Significant AUDIT Group), and (4) clinically significant AUDIT score, clinically significant DAST score (i.e., Both Clinically Significant). Following this process, approximately 68% ($n = 345$) of participants comprised the Both Non-Clinically Significant group; 14% ($n = 69$) comprised the Clinically Significant DAST only group; 11% ($n = 54$) comprised the Clinically Significant AUDIT only group; and 8% ($n = 40$) comprised the Both Clinically Significant group. An Analysis of Variance (ANOVA) was conducted to determine whether there were mean differences in risky sexual behaviors across these four groups. The ANOVA results are displayed in Table 2 (Appendix C). Findings revealed that this substance use group variable was significantly associated with risky sexual behavior [$F(3, 504) = 15.47, p < .001, \eta^2 = .08$]. Bonferroni-adjusted post-hoc analyses indicated that participants in the No Clinical Significance group engaged in significantly less risky sexual behavior than participants in the (a) Clinically Significant DAST group [$\Delta M = -.20, p < .05; d = -$

.41], (b) Clinically Significant AUDIT group [$\Delta M = -.30, p < .001, d = -.58$], and (c) Both Clinically Significant group [$\Delta M = -.48, p < .001; d = -.87$]. In addition, participants in the Clinically Significant DAST group engaged in less risky sexual behavior than participants in the Both Clinically Significant group [$\Delta M = -.28, p < .001; d = -.52$]. No additional mean differences in risky sexual behavior were indicated across these groups.

In addition, a Multivariate Analysis of Covariance (MANCOVA) was used to determine whether there were significant mean differences across variables of interest (i.e., anti-bisexual discrimination, bisexual identity centrality, internalized biphobia, bisexual identity concealment, alcohol consumption, drug use, and risky sexual behavior) in relation to (a) race/ethnicity (1 = African American/Black, 2 = Asian/Asian American, 3 = Biracial/Multi-racial, 4 = White/Caucasian, 5 = Latino/Hispanic American, 6 = Pacific Island/Pacific Islander American, 7 = Other), (b) education level (1 = Some high school, 2 = High school diploma, 3 = Some college, 4 = Bachelor's/Associate's degree, 5 = Advanced degree, 6 = Other), (c) HIV status (0 = Negative, 1 = Status Unknown), (d) STI testing (0 = No, 1 = Yes, 2 = Never tested), (e) relationship status (0 = Single or casually dating, 1 = Dating long-term, 2 = Domestic partnership or married, 3 = Polyamorous), (f) gender identity (0 = Cisgender man, 1 = Transgender man or Genderqueer), (g) HIV testing (0 = Yes, 1 = No), and (h) social class (0 = Living in poverty, 1 = Working class, 2 = Middle class, 3 = Upper-middle/upper class). Age was included as a continuous covariate in the analysis. Results indicated that there was no significant multivariate effects of race/ethnicity [$F(35, 2415) = 1.17, \text{ Pillai's Trace} = .08, p = .23$], education level [$F(35, 2415) = 1.04, \text{ Pillai's Trace} = .07, p = .45$], HIV status [$F(7, 479) = 1.72, \text{ Pillai's Trace} = .03, p = .10$], STI testing [$F(14, 960) = 1.26, \text{ Pillai's Trace} = .04, p = .23$], and relationship status [$F(21, 1443) = 1.42, \text{ Pillai's Trace} = .06, p = .10$]. However, there were significant multivariate

associations for gender identity [$F(7, 479) = 4.69$, Pillai's Trace = .06, $p < .001$, $\eta^2 = .06$], HIV testing [$F(7, 479) = 2.48$, Pillai's Trace = .03, $p < .05$, $\eta^2 = .03$], age [$F(7, 479) = 3.50$, Pillai's Trace = .05, $p < .01$, $\eta^2 = .05$], and social class [$F(21, 1443) = 2.50$, Pillai's Trace = .11, $p < .001$, $\eta^2 = .04$].

Follow-up univariate tests indicated that gender identity had a statistically significant effect on bisexual identity centrality [$F(1, 485) = 7.99$, $p < .01$, $\eta^2 = .02$], internalized biphobia [$F(1, 485) = 5.24$, $p < .05$, $\eta^2 = .01$], bisexual identity concealment [$F(1, 485) = 8.20$, $p < .01$, $\eta^2 = .02$], alcohol consumption [$F(1, 485) = 6.14$, $p < .05$, $\eta^2 = .01$], and risky sexual behavior [$F(1, 485) = 6.75$, $p < .05$, $\eta^2 = .01$]; however, it did not have a significant effect on anti-bisexual discrimination or drug use. As depicted in Table 3 (Appendix D), Bonferroni-adjusted post-hoc comparisons indicated that cisgender bisexual men reported significantly greater internalized biphobia [$\Delta M = .31$, $p < .05$; $d = .21$], bisexual identity concealment [$\Delta M = .27$, $p < .01$; $d = .29$], alcohol consumption [$\Delta M = 1.25$, $p < .05$; $d = .25$] and risky sexual behavior [$\Delta M = .13$, $p < .05$; $d = .23$] and significantly lower bisexual identity centrality [$\Delta M = -.31$, $p < .01$; $d = -.28$] than transgender or genderqueer bisexual men. Moreover, HIV testing had a statistically significant effect on risky sexual behavior [$F(1, 485) = 11.59$, $p < .01$, $\eta^2 = .02$], but it was not significantly associated with anti-bisexual discrimination, bisexual identity centrality, internalized biphobia, bisexual identity concealment, alcohol consumption, or drug use. Specifically, participants who had been tested for HIV reported significantly more risky sexual behavior than participants who had never been tested for HIV [$\Delta M = .25$, $p < .01$; $d = .52$]. Univariate analyses for HIV testing are presented in Table 4 (Appendix E).

Social class was significantly associated with anti-bisexual discrimination [$F(3, 485) = 3.76$, $p < .05$, $\eta^2 = .02$], internalized biphobia [$F(3, 485) = 4.73$, $p < .01$, $\eta^2 = .03$], and risky

sexual behavior [$F(3, 485) = 3.60, p < .05, \eta^2 = .02$]; however, it did not yield a significant association with bisexual identity concealment, alcohol consumption or drug use. Bonferroni-adjusted post-hoc comparisons indicated that upper-middle class or upper-class participants reported fewer experiences of anti-bisexual discrimination than participants living in poverty [$\Delta M = -.60, p < .05; d = -.42$] and working-class participants [$\Delta M = -.44, p < .05; d = -.37$]. Upper-middle or upper class participants also reported higher internalized biphobia than middle class participants [$\Delta M = .63, p < .01; d = .46$]. Participants living in poverty reported more risky sexual behavior than middle class participants [$\Delta M = .21, p < .05; d = .37$]. No other group comparisons were statistically significant. Univariate analyses for social class are presented in Table 5 (Appendix F).

Because of the aforementioned associations of age, gender identity, HIV testing, and social class with variables of interest, they were included as covariates in the primary analyses to provide more stringent tests of the hypotheses.

Primary Analysis

To test the hypothesized associations among variables of interest in our model, a path analysis was conducted in MPlus 7.2 (Muthén & Muthén, 2012). A path model containing two exogenous (i.e., anti-bisexual discrimination and bisexual identity centrality) and four endogenous variables (i.e., internalized biphobia, bisexual identity concealment, substance use, and risky sexual behavior) was tested. In this model, alcohol consumption and drug use manifest variables served as indicators of a substance use latent variable which was supported due to the sizeable overlap between these two variables ($r = .43$). Because of their significant correlations in prior research (e.g., Brewster & Moradi, 2010; Brewster et al., 2013; Livingston et al., 2015; McCabe et al., 2013) as well as their observed significant correlation in the present study (see

Table 1), internalized biphobia and bisexual identity concealment were allowed to correlate. As previously mentioned, age, gender identity, social class, and HIV testing were also included in these analyses as covariates. More specifically, all of the aforementioned demographic variables were allowed to correlate with the two exogenous variables (i.e., anti-bisexual discrimination and bisexual identity centrality) and served as predictors for the four endogenous variables (i.e., internalized biphobia, bisexual identity concealment, substance use, and risky sexual behavior). Because social class is a categorical variable with more than two categories, it was dummy-coded, with middle class serving as the reference group for the resulting three dummy codes.

Model fit was evaluated using the Comparative Fit Index (CFI), the Root-Means-Square of Error of Approximation (RMSEA), and the Standardized Root-Mean-Square Residual (SRMR). Benchmarks for acceptable fit were $CFI \geq .90$ and $RMSEA$ and $SRMR \leq .10$ (Kline, 2005; Weston & Gore, 2006). In addition, in order to compare non-nested models, the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) were evaluated. Lower AIC and BIC values indicate superior fit. Differences in AIC and BIC values greater than 10 provide strong evidence that the model with lower values yields better fit to the data (Burnham & Anderson, 2002; Raftery, 1995). Analyses in Mplus 7.2 were conducted using maximum likelihood (ML) estimation (Muthén & Muthén, 2012).

Observed relations in the hypothesized model are depicted in Figure 2 (Appendix G). The hypothesized model yielded excellent fit to the data, $\chi^2(13) = 37.17$, $CFI = .96$, $RMSEA = .06$ (90% CI: .04, .08), $SRMR = .02$, $AIC = 18103.51$, $BIC = 18488.48$). This model accounted for approximately 18% of the variance in internalized biphobia, 22% of the variance in bisexual identity concealment, 9% of the variance in substance use, and 34% of the variance in risky sexual behavior.

Test of Direct Relations

Observed relations in the hypothesized model are presented in Figure 2 (Appendix F). The findings were mostly consistent with the hypotheses. Consistent with Hypothesis 1, anti-bisexual discrimination was significantly directly positively associated with internalized biphobia, bisexual identity concealment, and risky sexual behavior. Moreover, internalized biphobia was significantly directly positively associated with substance use; however, it did not yield a significant direct association with risky sexual behavior. This finding provided partial support for Hypothesis 2. Contrary to prediction (Hypothesis 3), the link of bisexual identity concealment with substance use was nonsignificant. Consistent with Hypothesis 4, substance use was significantly directly positively associated with risky sexual behavior. Moreover, bisexual identity centrality yielded significant direct negative associations with both internalized biphobia and bisexual identity concealment. This finding was consistent with Hypothesis 8. Finally, contrary to our predictions for exploratory analyses, bisexual identity centrality yielded a nonsignificant association with risky sexual behavior.

Test of Indirect Relations

To examine the hypothesized indirect relations in the model, 95% confidence intervals (CIs) (generated using ML) were examined. If the CI does not contain zero, then the indirect relation is significant at $p < .05$ level, which in turn indicates mediation (Mallinckrodt, Abraham, Wei, & Russell, 2006). Total indirect relations among variables of interest are presented in Table 6 (Appendix H). Contrary to our expectations, the total indirect relations of anti-bisexual discrimination with substance use and risky sexual behavior were nonsignificant. However, inspection of unique indirect relations added nuance to these findings. First, anti-bisexual discriminating yielded a significant positive unique indirect relation with substance use through

the mediating role of internalized biphobia, $B = .21$, 95% CI [.02, .12], $\beta = .07$. Moreover, there was a significant positive unique indirect relation of anti-bisexual discrimination with risky sexual behavior through a serial path including internalized biphobia and substance use, $B = .01$, 95% CI [.003, .02], $\beta = .03$. There were no other significant unique paths from anti-bisexual discrimination to substance use or risky sexual behavior. These findings provide partial support for Hypotheses 5 and 6. Lastly, in partial support of Hypothesis 7, internalized biphobia yielded a significant positive total indirect relation with risky sexual behavior through the mediating role of substance use ($B = .03$, 95% CI [.01, .06], $\beta = .08$). However, the total indirect relation of bisexual identity concealment with risky sexual behavior was nonsignificant (Hypothesis 7).

Test of Moderation

Building upon the hypothesized model, another model was estimated to test the moderating role of bisexual identity centrality in the associations of anti-bisexual discrimination with internalized biphobia, bisexual identity concealment, and risky sexual behavior (Figure 3, Appendix I). More specifically, the only difference between the new and original model is the inclusion of the Anti-Bisexual Discrimination \times Bisexual Identity Centrality interaction term predicting internalized biphobia, sexual identity concealment, and risky sexual behavior. The manifest variables of anti-bisexual discrimination and bisexual identity centrality were centered to compute an interaction term between the predictor and the moderator (Aiken & West, 1991; Hayes, 2005).

This model yielded excellent fit to the data, $\chi^2 (15) = 38.43$, CFI = .96, RMSEA = .06, (90% CI: .03, .08), SRMR = .02, AIC = 19811.89, BIC = 20251.86. The results of the test of moderation are presented in Table 7 (Appendix J). Contrary to expectation, bisexual identity

centrality did not significantly moderate the associations of anti-bisexual discrimination with internalized biphobia, bisexual identity concealment, or risky sexual behavior.

Test of Rejection-Identification Model

Using the Rejection-Identification Model (RIM) as a foundation, a plausible alternative model was also estimated to test the mediating role of bisexual identity centrality in the association of anti-bisexual discrimination with risky sexual behavior (Figure 4, Appendix K). To allow for parsimonious comparisons across the hypothesized and alternative models, bisexual identity centrality was correlated with both internalized biphobia and bisexual identity concealment. These were the only variations across the hypothesized and alternative models. Findings revealed that alternative model yielded the same, excellent fit to the data as the originally hypothesized model, $\chi^2(13) = 37.17$, CFI = .96, RMSEA = .06 (90% CI: .04, .08), SRMR = .02, AIC = 18103.51, BIC = 18488.48). Moreover, the alternative model accounted for approximately 13% of the variance in internalized biphobia, 21% of the variance in bisexual identity concealment, 9% of the variance in substance use, 34% of the variance in risky sexual behavior, and 10% of the variance in bisexual identity centrality. Thus, this finding suggests that the originally hypothesized model, which accounted for slightly greater variance in internalized biphobia and bisexual identity concealment, may be superior to the alternative model. On the other hand, the alternative model yielded comparable direct links among variables of interest relative to the hypothesized model (Figure 4, Appendix K). With respect to indirect links, findings revealed that anti-bisexual discrimination did not yield a significant unique indirect association with risky sexual behavior through the mediating role of bisexual identity centrality. All other total and unique indirect links in the alternative model were comparable to those found

in the hypothesized model. The direct and total indirect relations among variables of interest are depicted in Figure 4 (Appendix K) and Table 8 (Appendix L), respectively.

CHAPTER V

DISCUSSION

This chapter will further expand upon and contextualize the results of the current study. Using a minority stress theory framework (Hatzenbuehler, 2009; Meyer, 2003), the present study was the first of its kind to examine the association of anti-bisexual discrimination with bisexual men's risky sexual behaviors. In addition, bisexual identity centrality, internalized biphobia, bisexual identity concealment, and substance use were tested as mediators of the relations of anti-bisexual discrimination with risky sexual behavior. Furthermore, due to the scarcity of research regarding sexual identity centrality in general – and bisexual identity centrality in particular – exploratory analyses were conducted to further examine bisexual identity centrality's potential (a) direct association with risky sexual behavior and (b) moderating role in the associations of anti-bisexual discrimination with internalized biphobia, bisexual identity concealment, and risky sexual behavior. In the following sections, the findings of the study will be described and their implications for research and practice will be discussed. The strengths and limitations of the study's methodology will be considered and directions for future research will be explored.

Overview of Findings

Bivariate Correlations

The correlation patterns among the variables of interest in this study were mostly consistent with those of prior minority stress and sexual health research concerning sexual minority men, MSM, and MSMW (e.g., Brewster & Moradi, 2010; Cochran & Cauce, 2006; Kipke et al., 2007; Klitzman et al., 2002). First, anti-bisexual discrimination yielded significant positive correlations with internalized biphobia and bisexual identity concealment (Hypothesis

1). Moreover, internalized biphobia yielded significant positive correlations with alcohol consumption and risky sexual behavior. These findings supported the argument that bisexual men who have negative perceptions of bisexuality and their bisexual identities may be at increased risk for (a) concealing their bisexual identity, (b) using unhealthy coping strategies such as alcohol use, and (c) engaging in risky sexual behaviors (Brewster & Moradi, 2010; Brewster et al., 2013; Lea, de Wit, & Reynolds, 2014; Lewis, Kholodkov, & Derlega, 2012). In contrast, internalized biphobia yielded a nonsignificant correlation with drug use and bisexual identity concealment yielded nonsignificant associations with both alcohol consumption and drug use. These findings provided partial support for Hypotheses 2 and 3. Furthermore, both alcohol consumption and drug use were significantly positively correlated with risky sexual behavior which was consistent with Hypothesis 4. Lastly, bisexual identity centrality was associated with decreased internalized biphobia, providing partial support for Hypothesis 8. However, contrary to expectation, bisexual identity centrality's correlation with bisexual identity concealment was nonsignificant (Hypothesis 8). Collectively, these correlations provided support for the posited relations in minority stress theory (Hatzenbuehler, 2009; Meyer, 2003) and served as a foundation for subsequent analyses in the current study.

Exploratory Analyses

Exploratory analyses were conducted to examine potential group differences with respect to the variables of interest in the present study. Findings revealed that overall substance use was associated with risky sexual behavior, which was consistent with prior research findings (e.g., Dermen & Cooper, 2000; Dyer et al., 2013; Eaton et al., 2013; Friedman et al., 2013; Harawa et al., 2012). In particular, bisexual men in the No Clinical Significance Group tended to report less risky sexual behavior relative to bisexual men in all other groups (i.e., Clinically Significant

DAST Group, Clinically Significant AUDIT Group, Both Clinically Significant Group). This finding suggests that bisexual men who do not engage in clinically significant levels of alcohol consumption or drug use may be at decreased risk of engaging in risky sexual behaviors relative to bisexual men who may abuse alcohol and/or drugs. This finding further supports the notion that elevations in any type of substance (ab)use among sexual minority men may place them at increased their odds of engaging in risky sexual behaviors, including unprotected sex with multiple sex partners (Bimbi et al., 2006; Dermen & Cooper, 1994; Dermen & Cooper, 2000). On the other hand, there was no statistically significant differences between the (a) Clinically Significant DAST Group and the Clinically Significant AUDIT group as well as between the (b) Clinically Significant AUDIT Group and the Both Clinically Significant Group. The implications of these findings are twofold; first, the former suggests that having a clinically significant elevation of substance use – regardless of the substance type – may be associated with bisexual men’s engagement in risky sexual behaviors. Second, the latter finding implies that clinically significant elevations in alcohol use is possibly as concerning as (ab)use of both drugs and alcohol with respect to bisexual men’s risky sexual behavior. Moreover, bisexual men in the Clinically Significant DAST Group were less likely to engage in risky sexual behavior relative to bisexual men who were in the Both Clinically Significant Group. In turn, bisexual men who potentially abuse only alcohol *or* both drugs and alcohol may possess the highest odds of engaging in risky sexual behavior, which is also consistent with the arguments and findings of previous empirical research (Dermen & Cooper, 2000; Dyer et al., 2013; Eaton et al., 2013; Friedman et al., 2013; Harawa et al., 2012). However, it is important to note that the AUDIT and DAST clinical cut-off scores used in the present study are based on general population protocols because no prior studies – at least to our knowledge – have established guidelines specifically for

bisexual men (Babor et al., 2001; Grossman, D'Augelli, & Hershberger, 2000; Skinner, 1982; Reinert & Allen, 2007). Therefore, it is uncertain whether the clinical cut-off scores used in the present study are valid for the sampled population.

Next, a MANCOVA was used to determine whether there were significant associations between the variables of interest and demographic variables, including race/ethnicity, education level, HIV status, STI testing, relationship status, gender identity, HIV testing, and social class. Age was included as a continuous covariate in the analysis. Results revealed HIV testing had a statistically significant effect on risky sexual behavior – that is, bisexual men who were previously tested for HIV were statistically significantly more likely to engage in risky sexual behavior relative to bisexual men who were never previously been tested for HIV. This finding was consistent with prior research, which argues that individuals who are regularly tested for HIV may be more likely to engage in sexual activities in general – and risky sexual behaviors in particular – relative to individuals who are not regularly tested for HIV (e.g., Harris et al., 2006; Lefkowitz, Shearer, Gillen, & Espinosa-Hernandez, 2014; Shepler, Johnson, & Width, 2017).

Moreover, results indicated that cisgender participants reported significantly greater internalized biphobia, bisexual identity concealment, alcohol consumption, and risky sexual behavior relative to transgender/genderqueer participants. In terms of proximal minority stressors, qualitative research concerning the sexual identity development of transgender men suggests that recognition and affirmation of their gender identities– in conjunction with the perception that their identities are fluid rather than dichotomous (e.g., male or female, gay or heterosexual) – helped them become increasingly accepting of their sexual identities (Dickey, Burnes, & Singh, 2012). Thus, transgender/genderqueer bisexual men's increased acceptance of their bisexual identities may contribute to their lower internalized biphobia and bisexual identity

concealment relative to cisgender bisexual men. Similarly, research has also determined that transgender men who have experienced gender-based discrimination (i.e., anti-transgender discrimination) may develop healthy coping strategies (e.g., connecting with other transgender/genderqueer people) that can also buffer the detrimental consequences associated with experiences of sexual identity-based discrimination (Dickey et al., 2012). In the same vein, the development of healthy coping strategies among transgender/genderqueer bisexual men may also account for their lower alcohol consumption relative to cisgender bisexual men – a finding that is consistent with prior empirical research (Coulter et al., 2015; Smalley, Warren, & Barefoot, 2016). In addition, scholars also argue that socialization into traditional gender roles and/or standards of masculinity across the lifespan – which includes consuming alcohol to help alleviate emotional distress – may contribute to cisgender men’s increased rates of alcohol (ab)use relative to people of other genders (Ricciardelli, Connor, Williams, & Young, 2001; Shulte, Ramo, Brown, 2009); thus, future empirical studies may consider the potential moderating roles of social support and gender role socialization in the associations of internalized biphobia and bisexual identity concealment with alcohol consumption. On the other hand, cisgender bisexual men’s elevated risky sexual behavior relative to transgender/genderqueer men was unexpected given that previous research has consistently found the opposite pattern (Reisner, Perkovich, & Mimiaga, 2010; Rowniak & Chesla, 2013). With this in mind, it is possible that the operationalization of risky sexual behavior in the present study may have contributed to this inconsistent finding – namely, SRS items did not specify the role of the respondent during risky sexual encounters (e.g., insertive or receptive partner). This is particularly salient given cisgender men are capable of engaging in both the anal insertive and anal receptive role, whereas transgender men who have not undergone reassignment surgery are

only able to engage in the anal receptive role; therefore, this could have influenced participants' responses on the SRS scale. Taken collectively, these elements may partially explain cisgender bisexual men's increased rates of internalized biphobia, bisexual identity concealment, alcohol consumption, and risky sexual behavior relative to transgender/genderqueer bisexual men.

Lastly, findings revealed that middle class participants reported lower internalized biphobia than upper-middle- or upper-class participants and lower risky sexual behavior than participants living in poverty. Due to scarcity of bisexuality research, differences in internalized biphobia among middle class and upper-middle/upper class bisexual men remain unclear.

However, one might speculate that upper-middle/upper class bisexual men are at the apex of social class power/privilege in the United States, which may cause them to be more conscious and critical of their marginalized identity (i.e., bisexuality) within a society that devalues non-heterosexual individuals relative to middle class bisexual men. Also, with regard to social class differences in relation to risky sexual behavior, middle class bisexual men may have access to more resources (e.g., money) that make some safe sex practices (e.g., condom purchasing and use) more accessible relative to bisexual men living in poverty, who may experience financial constraints (Berhan & Berhan, 2015; Kelly, Lawrence, Tarima, DiFranceisco, & Amirhanian, 2016). In contrast, social class did not yield statistically significant mean differences among bisexual men with respect to bisexual identity centrality, bisexual identity concealment, alcohol consumption, and drug use. Taken collectively, age, gender identity, HIV testing, and social class were included as covariates in the primary analyses due to their statistically significant associations with the variables of interest in the hypothesized model.

Direct Associations

After testing bivariate correlations and conducting exploratory analyses, a path analysis was conducted using MPlus 7.2 (Muthén & Muthén, 2012) to test the hypothesized associations among variables of interest in the model. As previously mentioned, age, gender identity, HIV testing, and social class were included as covariates in the primary analyses. Overall, direct associations in the alternative model tended to mirror the aforementioned bivariate correlations and provided further support for the foundational claims of minority stress theory (Hatzenbuehler, 2009; Meyer, 2003). For instance, consistent with minority stress theory and previous research, anti-bisexual discrimination yielded significant direct positive associations with internalized biphobia and bisexual identity concealment (Hypothesis 1). Not only does this finding suggest that experiences of anti-bisexual discrimination may lead bisexual men to have more negative attitudes about themselves as bisexual people, but that they may also engage greater concealment of their bisexual identities to prevent/avoid future experiences of discrimination (Hatzenbuehler, 2009; Meyer, 2003; Velez & Moradi, 2016, Velez et al., 2013).

Particularly important in this study, however, is the significant direct positive association of anti-bisexual discrimination with risky sexual behavior (Hypothesis 1), which remained significant after accounting for intrapsychic factors (e.g., internalized biphobia), substance use, and demographic factors (e.g., age, social class). Given this finding, efforts to address elevated rates of risky sexual behavior among bisexual men may benefit from structural/systemic interventions (e.g., institutional policy reform, multicultural sensitivity trainings for staff members) aimed at reducing anti-bisexual stigma rather than simply focusing on interventions at the individual level (e.g., individual psychotherapy, sexual health education for bisexual people). Furthermore, although prior research has successfully demonstrated that bisexual individuals in

general – and bisexual men in particular – are perceived by non-bisexuals as being sexually irresponsible (Ault, 1996; Brewster & Moradi, 2010; Brewster et al., 2013; Herek, 2002; Rust, 2002; Spalding & Peplau, 1997), empirical studies have failed to consider how anti-bisexual discrimination is associated with the emergence of the stereotypical behaviors expected of individuals within this community (e.g., engaging in risky sexual behavior) (Eliason, 2002; Israel & Mohr, 2004). Therefore, this study provides insight about how experiences of anti-bisexual discrimination among bisexual men may be associated with their engagement in risky sexual behavior and offers a potential explanation for greater prevalence of STIs and HIV among members of this community. More specifically, some scholars argue that stereotype threat, or being at risk of confirming a negative perception about one's social group, may serve as a possible explanation for the behaviors of individuals who occupy specific reference groups (e.g., sexual minorities, people of color, women) (Aronson, Fried, & Good, 2002; Johns, Schmader, & Martens, 2005). Although studies have predominantly examined stereotype threat in relation to academic performance (e.g., Marx & Stapel, 2006; Marx, Stapel, & Muller, 2005), findings from this study suggest that bisexual men who encounter stereotypes from others regarding their bisexual identity may potentially engage in subsequent behaviors that mirror these expectations (i.e., risky sexual behavior). As such, additional research is needed to further examine how anti-bisexual discrimination may be associated with the emergence of other behaviors (e.g., dishonesty in relationships) expected of bisexual men and bisexual individuals broadly.

In addition, internalized biphobia – but not bisexual identity concealment – was directly positively associated with substance use, which in turn was directly positively associated with risky sexual behavior (Hypotheses 2 and 3). Although no studies to date have specifically examined these direct associations among bisexual men, the results of this study provide partial

support for the direct links posited in minority stress theory (Hatzenbuehler, 2009; Meyer, 2003). More specifically, the current study established that bisexual men's internalized biphobia was associated with elevated substance use (Hypothesis 2), which parallels the association of internalized heterosexism with alcohol consumption, drug use, and overall substance use among sexual minority men in general (Dudley et al., 2004; Hatzenbuehler et al., 2008; Kashubesc-West & Szymanski, 2008; Weber, 2008). In turn, elevated substance use among bisexual men may place them at increased risk for engaging in risky sexual behaviors, including consuming substances prior to or during sexual activity as well as unprotected sexual intercourse with sex partners. Namely, bisexual men's substance use may (a) be perceived as making sexual experiences more pleasurable, (b) reduce anxiety during sexual decision-making (e.g., whether or not to use a condom-use), and (c) inhibit one's ability to attend to the potential negative consequences associated with risky sexual behaviors such as HIV seroconversion and STI transmission (Davis et al., 2007; Dermen & Cooper, 2000; George et al., 2009). Collectively, these direct links align with the results of previous research concerning sexual minority men broadly, while also providing further insight into potential factors contributing to bisexual men's greater prevalence of STI's and HIV relative to other sexual minority groups.

However, contrary to previous research, bisexual identity concealment was not directly associated with substance use among bisexual men (Hypothesis 3). This specific finding suggests that bisexual identity concealment may be a less salient coping strategy for bisexual men relative to other sexual minority men; however, due to the scarcity of bisexuality research, the alternative coping strategies that bisexual men may use remain unknown (Eliason, 2001; Herek, 2002; Israel & Mohr, 2004; Ochs, 2007; Spalding & Peplau, 1997). Alternatively, this finding may also be associated with the observed range restriction for bisexual identity concealment – that is, limited

variation in reported bisexual identity concealment among bisexual men in the sample may have attenuated its relations with other variables of interest, thereby contributing to this nonsignificant finding. Lastly, it is also possible that unmeasured constructs may potentially moderate the relation of bisexual identity concealment and substance use in the present study. For instance, scholars posit that greater perceived social support and connectedness to the LGBTQ community may weaken the association of sexual identity concealment with detrimental health outcomes (e.g., substance use, depression, psychological distress) because they may (a) foster a sense of solidarity and acceptance that sexual minority individuals may not generally perceive within a heterosexist society and (b) provide guidance about methods of coping with experiences of minority stress (e.g., Sattler, Wagner, & Christiansen, 2016; Stall, Friedman, & Catania, 2008; Weeks, Heaphy, Donovan, 2001; Weston, 2013). Although empirical findings suggest that connectedness to the LGBTQ community weakened the sexual identity concealment's links with both psychological distress and depression (Sattler et al., 2016; Weston, 2013), its moderating role in the association of sexual identity concealment with substance use among sexual minority individuals has yet to be tested. As such, future research may consider examining these posited links in samples of sexual minority individuals broadly and bisexual men in particular.

Furthermore, results from the current study revealed that bisexual identity centrality was associated with decreased internalized biphobia and bisexual identity concealment among bisexual men (Hypothesis 8). Empirical findings have consistently determined that sexual identity centrality is negatively correlated with both internalized heterosexism and sexual identity concealment as well as positively correlated with outness (i.e., sexual identity disclosure) among sexual minority individuals broadly and bisexual individuals in particular (e.g., Dyar et al., 2015; Fingerhut et al., 2010). However, few studies have specifically examined

bisexual identity centrality and none – to our knowledge – have considered this construct specifically among self-identified bisexual men (Cramer et al., 2018; Dyar et al., 2015; Mohr & Kendra, 2011). Thus, the present study expands upon the current body of minority stress theory research by further suggesting that bisexual identity centrality may (a) represent a willingness to dispute negative societal messages about one’s bisexual identity (Cramer et al., 2018; Dyar & London, 2018; Mohr & Kendra, 2011) and (b) permit bisexual men to feel more affirmed in their sexual identities (Davila et al., 2018; Dyar & London, 2018). More specifically, greater bisexual identity centrality may also entail greater positive self-regard, self-assurance, and pride – as well as decreased shame – in one’s identity as a bisexual person (Dyar & London, 2018; Mohr & Kendra, 2011). In turn, this may potentially account for bisexual identity centrality’s negative associations with internalized biphobia (e.g., negative self-perceptions of one’s bisexuality) and bisexual identity concealment among bisexual men. However, due to the scarcity of research devoted to bisexual identity centrality, little is known about its relations with physical health outcomes (e.g., risky sexual behaviors) among bisexual individuals (Quinn & Chaudoir, 2009; Quinn & Earnshaw, 2011, 2013). In turn, the present study also attempted to explore the association of bisexual identity centrality with risky sexual behavior, in which findings revealed that this direct link was nonsignificant. One possible explanation for this nonsignificant association is that bisexual identity centrality may have more of an influence on psychological and mental health outcomes rather than physical and sexual health concerns among bisexual men; however, additional research is needed to further examine this speculation.

Indirect Associations

After testing for direct associations, indirect associations were explored, demonstrating partial support for our hypotheses. Contrary to our expectations, the total indirect relations of

anti-bisexual discrimination with substance use and risky sexual behavior were nonsignificant. However, anti-bisexual discriminating yielded a significant positive unique indirect relation with substance use through the mediating role of internalized biphobia. Moreover, there was a significant positive unique indirect relation of anti-bisexual discrimination with risky sexual behavior through a serial path including internalized biphobia and substance use. Lastly, in partial support of Hypothesis 7, internalized biphobia yielded a significant positive total indirect relation with risky sexual behavior through the mediating role of substance use. As a whole, these results support the proposed serial pathways presented in the expanded minority stress theory model (Hazenbuehler, 2009). More specifically, bisexual men who encounter anti-bisexual discrimination (i.e., distal minority stress) may experience heightened levels of internalized biphobia (i.e., proximal minority stress), which in turn may contribute to greater levels of substance use among this population. Simultaneously, elevated rates of substance use among bisexual men may also contribute to their greater engagement in risky sexual behavior. Collectively, these findings are consistent with prior research concerning sexual minority men, MSM, and MSMW (Cabaj, 2000; Hatzenbuehler et al., 2008; Hallkitis et al., 2015; Kashubesck-West & Szymanski, 2008; Kolbin et al., 2006; Weber, 2008). It's important to note, however, that internalized biphobia serves as a common factor in each of the aforementioned indirect pathways. As such, this may indicate that bisexual men who possess more negative views about their bisexual identity and bisexuality may be more likely to engage in both substance use and risky sexual behavior, which this holds true regardless of their experiences of anti-bisexual discrimination. It is also important to note, however, that the direct relation of anti-bisexual discrimination with risky sexual behavior remained significant above and beyond the proposed mediators – that is, the mediators did not completely explain the association of anti-bisexual

discrimination with risky sexual behavior. Thus, this raises the possibility that there are additional, untested mediators that may explain this association.

Test of Moderation

Following the test for indirect associations, the moderating role of bisexual identity centrality was tested using the alternative model as a basis. As previously indicated, some scholars posit that sexual identity centrality may strengthen heterosexist discrimination's relations with internalized heterosexism, sexual identity concealment, and physical health outcomes (e.g., risky sexual behaviors) (Mohr & Kendra, 2011; Quinn & Chaudoir, 2009; Thoits, 1999), while other theorists argue that sexual identity centrality may weaken these same associations (Crocker & Major, 1989; Jefferson et al., 2013). Despite these posited links, findings from the present study indicated that bisexual identity centrality did not significantly moderate the associations of anti-bisexual discrimination with internalized biphobia, bisexual identity concealment, and risky sexual behavior. In turn, these results suggest that bisexual identity centrality may not be a salient moderating variable to consider when examining minority stress processes among sexual minority men in general and bisexual men in particular. Rather, there may be unexplored factors (e.g., collective action, low self-esteem) that either mitigate or exacerbate the associations of anti-bisexual discrimination with the aforementioned variables of interest as well as other outcomes variables (e.g., psychological distress, sexual dysfunction). Therefore, considering this study is the first of its kind – at least to our knowledge – to examine the potential moderating role of bisexual identity centrality, additional research is needed to further support these claims.

Test of the RIM

Following the test of moderation, a plausible alternative model – based on the RIM – was also estimated to test the mediating role of bisexual identity centrality in the association of anti-bisexual discrimination with risky sexual behavior. The only variations across the alternative and hypothesized models were that bisexual identity centrality (a) served as a mediator in the association between anti-bisexual discrimination with risky sexual behavior and (b) was correlated with both internalized biphobia and bisexual identity concealment. Findings revealed that anti-bisexual discrimination did not yield a significant unique indirect association with risky sexual behavior through the mediating role of bisexual identity centrality. All other direct and indirect links in the alternative model were comparable to those found in the hypothesized model. Collectively, this finding also raises the possibility that there are additional, untested mediators (e.g., depression, emotional dysregulation) in the association of anti-bisexual discrimination with risky sexual behavior that have yet to be considered in the broader minority stress theory framework. Based on these findings, implications for practice and research are discussed.

Implications for Practice and Research

Implications for Practice

Findings from this study have implications for healthcare service providers (e.g., physicians, nurses) and mental health professionals (e.g., psychologists, social workers) working with bisexual clients. Firstly, this study suggests that experiences of anti-bisexual discrimination are not only associated with bisexual men's potential negative self-perceptions (i.e., internalized biphobia) and bisexual identity concealment, but also their engagement in risky sexual behavior. Given these possible detrimental consequences, healthcare providers and clinicians are

encouraged to reflect on their own assumptions, prejudice, and biases regarding bisexuality and bisexual people as a way of providing culturally-sensitive services to bisexual clients. This is particularly important considering additional research has also demonstrated that anti-bisexual discrimination in therapeutic and medical contexts is associated with bisexual clients' psychological distress as well as their intent to seek future treatment (e.g., Mohr, 2002; Mohr, Israel, & Sedlacek, 2001; Mohr, Weiner, Chopp, & Wong, 2009). Specifically, bisexual clients who experience anti-bisexual discrimination from helping professionals (e.g., physicians, psychologists) are often less likely to seek future treatment from *any* provider, which in turn may exacerbate their physical and mental health concerns (Mohr, 2002; Mohr et al., 2001; Mohr et al., 2009). Thus, as a way of enhancing one's cultural humility, multicultural awareness, and cultural sensitivity when working with bisexual clients, professionals are encouraged to engage with the most the recent psychological, public health, and multicultural research publications (Sue & Sue, 2016). At the same time, bisexual individuals broadly – and bisexual men in particular – may also encounter anti-bisexual discrimination outside of their meetings with healthcare providers, systemic and institutional interventions (e.g., policy reform, multicultural education, and advocacy). As such, clinicians and healthcare providers are encouraged to assist in the collaborative construction of professional development trainings and psychoeducational workshops geared towards informing others about the potential detrimental consequences of anti-bisexual discrimination, while simultaneously advocating for the unique needs of the bisexual community. Moreover, using the current body of public health and psychological research concerning bisexual men and MSWM, helping professionals may also assist in the reformation of institutional policies that may invalidate or be insensitive to self-identified

bisexual people (e.g., no choice for bisexual on intake paperwork, no standardized protocols for anti-bisexual jokes and/or harassment).

Another important consideration for medical and mental health providers is the assessment of the sexual practices of self-identified bisexual men. Findings from this study further support the notion that bisexual men may be at increased risk for contracting STIs and HIV relative to other sexual minority groups as well as heterosexual individuals. Thus, in order to assist with reducing the prevalence of sexual health concerns among this community, clinicians and medical providers should consider inquiring about bisexual men's sexual practices, while also offering psychoeducation about (a) safe sexual practices and (b) association of marginalization with risky sexual behaviors. Similarly, findings from this study point to the importance of integrated healthcare treatment among medical service professionals and clinicians working with bisexual men. In support of this practice implication, scholars stress that frequent communication and collaboration among clinicians and medical professionals can assist in treating the whole person – namely, facilitating the construction of comprehensive treatment plans that simultaneously address clients' biological and psychological concerns (Collins, Hewson, Munger, & Wade, 2016; Johnson, 2013). For instance, as clinicians assist bisexual men with exploring how their potential experiences of bisexual minority stress may be associated with their engagement in both substance (ab)use and risky sexual behaviors, healthcare providers can simultaneously introduce them to methods of reducing their risk of contracting STIs and HIV (e.g., consistent condom use, PrEP, PEP). With this in mind, integrated treatment models may potentially assist in reducing bisexual men's engagement in substance (ab)use and risky sexual behavior, thereby reducing their risk of contracting STIs and HIV. However, scholars also stress that clinicians and health care providers should avoid presuming that the sexual identities of

sexual minority clients are always associated with their presenting concerns (Shelton & Delgado-Romero, 2011; Sue & Sue, 2016). For instance, findings from a qualitative study suggest that sexual minority clients who perceived their therapist as abruptly and/or inappropriately connecting a concern (e.g., academic distress, homesickness) with their sexual orientation reported feeling powerless, invalidated, rejected, and forced to comply with treatment (Shelton & Delgado-Romero, 2011). In turn, because bisexual men may already be particularly sensitive to others perceiving them as sexually irresponsible and/or HIV/STI vectors, helping professionals should avoid immediately associating bisexual clients' sexual identities with their potential engagement in risky sexual behaviors as to prevent contributing to additional psychological harm, thereby upholding ethical clinical practice (i.e., do no harm) (Sue & Sue, 2016).

Furthermore, considering findings from this study suggest that bisexual men's internalized biphobia is associated with increased substance use, which in turn is associated with their increased likelihood of engaging in risky sexual behaviors, medical professionals and clinicians can explore and help challenge the limited, dichotomized definition of sexual identity predominantly upheld in American society, while simultaneously affirming the sexual identity of bisexual clients. Similarly, clinicians may consider introducing healthy, alternative coping strategies at the group (e.g., social support) and individual (e.g., mindfulness, deep breathing) levels when working with bisexual men (Meyer, 2003; Ouellette & DiPlacido, 2001). According to Meyer (2003), sexual minority individuals may cope with minority stress by establishing and maintaining connections to the LGBTQ community. The social support obtained from other sexual minority individuals – and the perceived psychological connectedness with the larger LGBTQ community – is potentially associated with a decrease in the detrimental impact of minority stressors (Frost & Meyer, 2012; Meyer, 2003; Ramirez-Valles, 2002). However,

scholars argue that bisexual individuals in general – and particularly bisexual men – may struggle to obtain social support due to (a) the perceived invisibility of the bisexual community due to the dichotomization of sexual identity in the United States (Cahill, 2005; Rust 2002) and (b) experiences of discrimination from both the heterosexual and queer communities (Brewster et al., 2013; Israel, 2010; Israel & Mohr, 2004). Thus, clinicians may attempt to foster group-level coping through the formation of support groups specifically for bisexual men, which may assist in fostering a sense of community and mitigate some of the detrimental consequences of bisexual minority stressors.

Implications for Research

This study provides a foundation for additional research in terms of continuing to explore the nuanced experiences of bisexual men, particularly in relation to bisexual minority stress. To date, comprehensive models of minority stress theory have largely examined the experiences of gay men and lesbian women, wherein data from bisexual individuals are often aggregated into these samples (Malebranche 2008; Meyer & Wilson 2009; Moradi, Mohr, Worthington, & Fassinger, 2009; Young & Meyer 2005); thus, future studies can build upon the base model of this study (Figure 3, Appendix D) as a way of further examining the association of bisexual minority stressors with alternative health outcomes (e.g., depression, sexual dysfunction, obesity) among bisexual men in particular and the broader bisexual community. In future investigations, it is crucial that research expands upon the current study by making attempts to include underrepresented individuals within the bisexual community, including women, people of color, and people with disabilities. More specifically, these studies may attempt to account for multiple forms of discrimination (e.g., racism, sexism, sexual objectification) when exploring factors that contribute to the manifestation of physical and mental health concerns among bisexual

individuals from a minority stress theory framework. For example, the LGBT People of Color Microaggression Scale (LGBT-POCMS) is a psychometrically sound instrument that measures three types of microaggressions (i.e., forms of discrimination) experienced by racial/ethnic minority LGBT individuals: (1) racism in LGBT communities, (2) heterosexism in racial/ethnic minority communities, and (3) racism in dating and close relationships (Balsam, Molina, Beadnell, Simoni, & Walters, 2011). Findings from the LGBT-POCMS development study determined that experiences of racism in dating and close relationships were positively associated with detrimental mental health outcomes (e.g., anxiety, depression) among sexual minority men of color, and it was the only subscale positively associated with internalized heterosexism (Balsam et al., 2011); however, no studies to date – at least to our awareness – have specifically examined the role of this construct among bisexual men of color. Thus, using the hypothesized model of the present study as a foundation, future research may consider the association of racism in dating and close relationships with bisexual men of color’s internalized biphobia as well as their engagement in risky sexual behavior.

Furthermore, findings from this study suggest that interpersonal experiences of anti-bisexual discrimination are associated with increased engagement in risky sexual behavior among bisexual men. On the other hand, little is known about the role of structural/institutional experiences of anti-bisexual discrimination as they are linked to the physical and mental health concerns of bisexual men. Considering the paucity of research devoted to the bisexual community broadly – and bisexual men in particular – future research studies have the opportunity to (a) examine the role of institutional/structural stigma as it relates to a variety of detrimental health outcomes (e.g., risky sexual behavior, psychological distress, substance use) and (b) explore variations across – and the additive or multiplicative effects of – bisexual men’s

experiences of interpersonal and institutional/structural stigma in relation to the manifestation of the aforementioned health outcomes. Findings from these future studies may potentially offer additional empirical support for systemic and institutional policy reform in the United States, thereby promoting inclusion and support to members of the bisexual community.

In addition, although the present study examined the possible moderating effects of bisexual identity centrality, findings revealed that this specific construct did not significantly moderate the associations of anti-bisexual discrimination with internalized biphobia, bisexual identity concealment, and risky sexual behavior among bisexual men. Despite these findings, future studies may consider exploring individual- and group-level factors that may promote the overall wellbeing and psychosocial functioning on bisexual men in particular – and sexual minority individuals broadly (Meyer, 2003; Russell, 2005). For instance, previous studies within the larger body of minority stress theory research have examined the protective roles of collective action (e.g., DeBlaere et al., 2014; Friedman & Leaper, 2010; Szymanski & Owens, 2009) and social support (e.g., Frost, Meyer, & Schwartz, 2016; Szymanski, 2009) in the associations of minority stressors (e.g., heterosexist discrimination) with physical and mental health outcomes among sexual minority individuals. Specific to bisexual individuals, Brewster and colleagues (2013) examined the moderating roles of bicultural self-efficacy and cognitive flexibility in a sample of bisexual individuals, in which findings indicated that cognitive flexibility – but not bicultural self-efficacy – strengthened the positive direct association of anti-bisexual discrimination with psychological wellbeing. Thus, cognitive flexibility may be an important construct to further explore in relation to bisexual minority stress and other health outcomes (e.g., sexual health). However, no studies known to the author have considered how these protective factors may buffer against sexual minority individual's engagement in risky

sexual behavior, particularly among bisexual men; thus, additional research is needed to further explore constructs that may promote the sexual health of bisexual men.

Similarly, the present study also revealed that bisexual identity concealment was not significantly associated with bisexual men's substance use. Nonetheless, future research may consider exploring additional constructs that potentially moderate and/or mediate the association of bisexual identity concealment with substance use among bisexual men. As previously mentioned, scholars suggest that perceived connectedness to the LGBTQ community may weaken the relation of sexual identity concealment with detrimental health outcomes (e.g., substance use) because it may foster a sense of solidarity and acceptance that sexual minority individuals may not generally experience within a heteronormative society (Meyer, 2003; Sattler et al., 2016; Stall et al., 2008). Put simply, sexual minority people who conceal their identity but feel more connected to the LGBTQ community may be less inclined to use unhealthy coping strategies (e.g., substance use) (Meyer, 2003; Weeks et al., 2001; Weston, 2013). However, no studies to date – at least to our awareness – have examined the moderating role of perceived connectedness to the LGBTQ community in the association of sexual identity concealment with substance use among bisexual men. In addition, theorists posit that that sexual minority men who conceal their sexual identities and uphold standards of masculinity (e.g., using substances to help alleviate emotional distress) are potentially more likely to engage in greater substance use – that is, standards of masculinity may moderate the association of sexual identity concealment with substance (ab)use (Ricciardelli et al., 2001; Shulte et al., 2009). Therefore, future empirical studies may consider adherence to traditional masculine gender roles as a moderator in future minority stress theory research, particularly in the association of bisexual identity concealment with substance use. Lastly, scholars suggest that low self-esteem and emotion dysregulation may mediate the relation

of sexual identity concealment with substance use among sexual minority men (e.g., Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008; Matthews, Hughes, Johnson, Razzano, & Cassidy, 2002; Ziyadeh et al. 2007). More specifically, sexual identity concealment is positively associated with both low self-esteem and emotion dysregulation, which in turn are positively associated with greater substance use (Matthews et al., 2002, Ziyadeh et al., 2007). Taken collectively, research is needed to gain further insight about how these variables may be related to the core constructs and posited links of minority stress theory as well as the unique experiences of bisexual men.

Strengths, Limitations, and Directions for Future Research

The present study possessed several strengths, including its specific focus on self-identified bisexual men – a community that is largely overlooked in the larger body of research concerning the psychological and physical health of sexual minority individuals. More specifically, previous research has predominantly aggregated bisexual men in samples with gay men, which may obscure differences between groups of sexual minority men, or they sample men who have sex with men and women (MSMW) – men who are behaviorally bisexual – who may or may not self-identify as bisexual (Malebranche 2008; Meyer & Wilson 2009; Moradi, Mohr, Worthington, & Fassinger, 2009; Young & Meyer 2005). However, because bisexual men represent a subpopulation of sexual minority men that encounter unique stressors, such as anti-bisexual discrimination (Brewster & Moradi, 2010a; Brewster & Moradi, 2010b; Brewster, Moradi, DeBlare, & Velez, 2013), this study attempted to account for these nuanced experiences among this population. In addition, this is the first study of its kind – at least to our knowledge – to use a comprehensive minority stress theory framework to explore contextual factors that may contribute to bisexual men’s increased risk of contracting STIs and HIV relative

to other sexual minority groups and heterosexual individuals. Similarly, this study – at least to our knowledge – is the first to explore the potential moderating role of bisexual identity centrality in general and in the associations of anti-bisexual discrimination with internalized biphobia, bisexual identity centrality, and risky sexual behavior in particular.

However, as with any study, the present findings need to be considered within the contexts of several limitations. First and foremost, the recruitment and sample characteristics of the current study may limit the generalizability of its findings. This study used an online recruitment strategy and survey method to obtain the desired data. Although this form of recruitment may have enhanced participation from bisexual men who would otherwise be less comfortable being out to researchers in-person, it simultaneously limits participation to individuals who have access to a computer and the Internet (DeBlaere, Brewster, Sarkees, & Moradi, 2010). This may have attenuated our sample's demographic composition with regard to age, education, and race/ethnicity. Consequently, future research initiatives concerning the sexual health of bisexual men may consider more comprehensive approaches to recruiting participants, such as combined in-person and online methods of recruitment.

Furthermore, another inherent limitation of this study is it only focused on bisexuality-related minority stressors and did not consider stressors related to other forms of marginalization. For instance, although the present study contained a high proportion of transgender/genderqueer bisexual men – populations that also encounter gender-based discrimination – it did not simultaneously assess for this specific construct and cannot ascertain its potential role within the tested models. More specifically, because of their intersecting marginalized identities, it may be challenging for transgender/genderqueer bisexual men to disentangle their experiences of anti-bisexual discrimination from their experiences of gender-based discrimination. With this in

mind, future minority stress theory research should consider taking a comprehensive approach to understanding the role of different minority stressors (e.g., anti-bisexual discrimination and gender discrimination), which may involve the development of instruments that measure different forms of minority stress simultaneously (Cho, Crenshaw, & McCall, 2013; Moradi, 2010). On a related note, this study also did not examine variations in experiences of anti-bisexual discrimination among bisexual men from both the heterosexual and queer communities; rather, this study merely requested clients to provide an overall rating for these experiences. In turn, additional research is needed to further understand experiences of anti-bisexual discrimination across settings as well as how these contextual differences may also contribute to variations in bisexual men's engagement in risky sexual behaviors.

With regard to the operationalization of variables of interest, several measures were modified so that they were specific to bisexual men. For instance, the item "Being an LGB person is a very important aspect of my life" was changed to "Being a bisexual man is a very important aspect of my life" on the LGBIS (Mohr & Kendra, 2011). This limitation is common across psychological research, particularly when conducting research with communities that are largely under-represented within the larger body of multicultural research and no identifiable measures exist for the population of interest (Boateng, Neilands, Frongillo, Melgar-Quinonez, Young, 2018; Morgado, Meireles, Neves, Amaral, Ferreira, 2017). In the same vein, although the SRS represents a comprehensive measure that assesses different dimensions of risky sexual behavior, the items may not successfully capture risky sexual behavior specific to bisexual individuals (e.g., assessing for differences in risky sexual behaviors across gender identities of sexual partners), and this may be particularly true for transgender participants in the sample. As such, this emphasizes the need for researchers to consider additional methods of systematically

operationalizing risky sexual behavior among bisexual individuals in particular and sexual minority communities in general (Brawner et al., 2016). Relatedly, although this study was the first of its kind to use a comprehensive minority stress theory framework to assess bisexual men's risky sexual behaviors, additional research is needed to further understand the association of bisexual minority stressors and substance use with other dimensions of sexual health (e.g., sexual satisfaction, difficulties orgasming).

A final limitation of this study was its cross-sectional design (Weston & Gore, 2006). Although a one-time survey may offer insight into bisexual minority stressors, substance use, and risky sexual behavior among bisexual men, such a design prevents one from assessing the direction of relations between variables and making temporal claims about mediators; thus, the correlational nature of the findings prohibits testing causal relations. Moreover, because dimensions of the current study's hypothesized model have been previously tested using longitudinal designs with sexual minority populations, this suggests that the detrimental consequences of minority stressors (e.g., internalized heterosexism, psychological distress) tend to endure over time (Dyar & London, 2018; Wilson, Gilmore, Rhew, Hodge, & Kaysen, 2016). Consequently, future research should consider longitudinal and experimental designs to examine causal relations between the variables of interest and hypothesized associations outlined in the present study. These future initiatives may, in turn, guide the development of therapeutic interventions and manualized treatments that specifically cater to the unique experiences of bisexual men as they relate to their substance use and sexual health.

Summary and Conclusions

Public health trends over the last decade have indicated that bisexual men are at increased risk for contracting STIs and HIV relative to their heterosexual counterparts as well as to other

sexual minority groups (Bailey et al., 2004; CDC, 2016a); yet, self-identified bisexual men remain overlooked within the larger body of psychological and sexual health research. In particular, no studies to date have examined contextual factors that may contribute to sexual health trends among this community (Eliason, 2002; Israel & Mohr, 2004). As such, using a minority stress theory framework (Haztenbuehler, 2009; Meyer, 2003), the present study tested interrelations of bisexual minority stressors (anti-bisexual discrimination, internalized biphobia, bisexual identity concealment), bisexual identity centrality, and substance use with risky sexual behaviors in sample of self-identified bisexual men. Findings suggest that anti-bisexual discrimination may contribute to greater internalized biphobia, bisexual identity concealment, as well as risky sexual behavior among bisexual men. Furthermore, internalized biphobia – but not bisexual identity concealment – is associated with higher rates of substance use, which in turn is associated with increased risky sexual behavior. In addition, bisexual men’s bisexual identity centrality may be associated with lower internalized biphobia and bisexual identity concealment, though it is not linked with risky sexual behavior. On the other hand, internalized biphobia among bisexual men may be linked with increased risky sexual behavior through the mediating role of substance use. As a whole, this study not only expands upon the current body of minority stress and sexual health research focused on sexual minority men, but it also addresses the scarce literature in psychology focused on the unique experiences of bisexual individuals in general and bisexual men in particular. Furthermore, the present study may serve as a foundation for future research concerning bisexual men by providing empirical support for understanding how bisexual minority stress may be associated with their negative coping strategies and sexual health concerns.

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APPENDIX A

Demographics Table

Table 1

Demographic Information

Demographic Variables	Response categories	<i>n</i>	%
Sexual Orientation	Bisexual	348	69
	Other (e.g., pansexual)	49	10
	Queer	46	9
	Mostly gay	25	5
	Mostly heterosexual	14	3
	Asexual	4	1
Gender	Cisgender men	226	45
	Transgender men	220	43
	Some other gender (e.g., agender)	40	8
Race/Ethnicity	White/Caucasian	352	69
	Biracial/Multiracial	49	10
	Latino/Hispanic	38	8
	Asian American/Pacific Islander	17	3
	African American/Black	17	3
	Some other identity (e.g., Gypsy)	9	2
	Middle Eastern/North African	2	<1
	American Indian/Native American	2	<1
Employment	Full-time	183	36
	Part-time	166	33
	Unemployed	123	25
	Retired	11	2

Demographic Information (continued)

Demographic Variables	Response categories	<i>n</i>	%
Education	Some college	196	39
	Bachelor's degree	100	20
	High school diploma	71	14
	Master's degree	43	9
	Associate's degree	30	6
	Some high school	20	4
	Doctorate	16	3
	Other (e.g., trade school)	10	2
Social class	Middle class	175	34
	Working class	172	34
	Upper-middle class	69	14
	Living in poverty	62	12
	Upper class	8	2
Relationship status	Single or casually dating	236	47
	Married or domestic partnership	99	20
	Dating long-term	88	17
	Polyamorous relationship	85	16
HIV Status	HIV-negative	373	73
	HIV status known	111	22
	HIV-positive	2	<1
Prior HIV Testing	Yes	301	59
	No	207	41
Prior STI	No	260	51
	Never tested	187	37
	Yes	60	12

Note. *N* = 508

APPENDIX B

Hypothesized Model

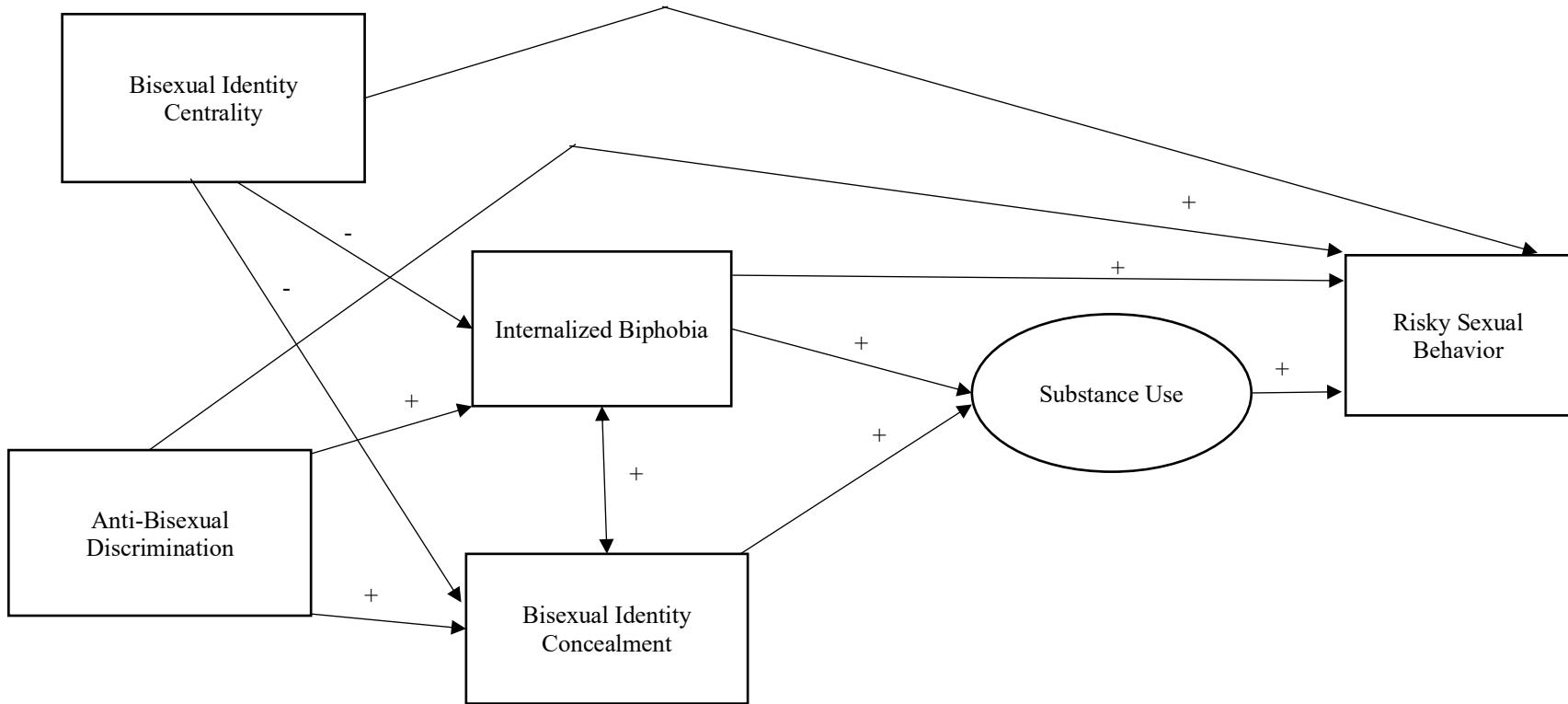


Figure 1. Hypothesized model of direct and indirect relations among variables of interest.

APPENDIX C

Bivariate Correlations Table

Table 1

Descriptive Statistics and Cronbach's Alphas for and Bivariate Correlations Among Variables of Interest

Variable	1	2	3	4	5	6	7	Possible Range	<i>M</i>	<i>SD</i>	α
1. Anti-Bisexual Discrimination	--							1-6	2.96	1.21	.95
2. Bisexual Identity Centrality	.26***	--						1-6	4.34	1.07	.85
3. Internalized Biphobia	.25***	-.16***	--					1-7	2.33	1.34	.84
4. Bisexual Identity Concealment	.39***	-.03	.42***	--				1-5	2.13	0.96	.83
5. Alcohol Consumption	.08	.05	.15**	.04	--			0-40	4.55	4.93	.83
6. Drug Use	.08	.00	.06	.02	.43***	--		0-10	1.52	1.71	.72
7. Risky Sexual Behavior	.19***	.05	.09*	-.04	.34**	.22***	--	1-5	1.59	.53	.91
8. Age	.08	.08	.05	-.06	.01	-.13**	.29***	18-76 ^a	25.56	10.65	--

Note: *N* = 508. **p* < .05. ***p* < .01, ****p* < .001.

Age was examined as a covariate.

^a 18-76 is the observed range of Age.

APPENDIX D

Risky Sexual Behavior by Substance Use Group ANOVA Table

Table 2

ANOVA Comparison for Overall Substance Use Groups

Variable	Neither (1)			DAST (2)			AUDIT (3)			Both (4)			F(1, 485)	Post-hoc
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>		
RSB	345	1.50	.50	69	1.70	.48	54	1.80	.53	40	1.98	.60	15.47***	1 < 2*, 3**, 4*** 2 < 4***

Note. The numbers in parentheses in group names refer to the numbers used in illustrating statistically significant differences. [Neither = No clinical significance; DAST = Clinically significant DAST group; AUDIT = Clinically significant AUDIT group; Both = Both clinically significant group; RSB = Risky sexual behavior]. **p* < .05, ***p* < .01, ****p* < .001.

APPENDIX E

Gender Identity ANOVA Table

Table 3

ANOVA Comparisons for Gender Identity

Variable	Cisgender (1)			Non-Cisgender (2)			<i>F</i> (1, 485)	Post-hoc
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>		
Discrimination	246	3.12	1.27	262	2.97	1.16	.00	n/s
Centrality	246	4.23	1.15	262	4.53	.97	7.99**	1 < 2**
Internalized	246	2.67	1.43	262	2.38	1.22	5.24*	1 > 2*
Concealment	246	2.61	.98	262	2.33	.93	8.20**	1 > 2*
Alcohol	246	7.38	5.12	262	6.14	4.77	6.14*	1 > 2*
Drug	246	1.59	1.46	262	1.70	1.90	.43	n/s
RSB	246	1.70	.57	262	1.58	.47	6.75*	1 > 2**

Note. The numbers in parentheses in group names refer to the numbers used in illustrating statistically significant differences. [Cisgender – Cisgender man; Non-Cisgender = Transgender man or genderqueer; Discrimination = Anti-bisexual discrimination; Centrality = Bisexual identity centrality; Internalized = Internalized biphobia; Concealment = Bisexual identity concealment; Alcohol = Alcohol consumption; Drug = Drug use; RSB = Risky sexual behavior; n/s = Non-significant]. **p* < .05. ***p* < .01. ****p* < .001.

APPENDIX F

HIV Testing ANOVA Table

Table 4

ANOVA Comparisons for HIV Testing

Variable	Yes (1)			No (2)			F(1, 485)	Post-hoc
	n	M	SD	n	M	SD		
Discrimination	304	3.10	1.23	204	3.13	1.15	.02	n/s
Centrality	304	4.44	1.08	204	4.32	1.04	.52	n/s
Internalized	304	2.49	1.35	204	2.58	1.32	.21	n/s
Concealment	304	2.40	.97	204	2.54	.94	.88	n/s
Alcohol	304	6.98	5.17	204	6.54	4.55	.34	n/s
Drug	304	1.89	1.75	204	1.40	1.65	3.59	n/s
RSB	304	1.77	.56	204	1.52	.39	11.59*	1 > 2**

Note. The numbers in parentheses in group names refer to the numbers used in illustrating statistically significant differences. [Yes = Previously tested for HIV; No = Never tested for HIV; Discrimination = Anti-bisexual discrimination; Centrality = Bisexual identity centrality; Internalized = Internalized biphobia; Concealment = Bisexual identity concealment; Alcohol = Alcohol consumption; Drug = Drug use; RSB = Risky sexual behavior; n/s = Non-significant].
* $p < .05$, ** $p < .01$, *** $p < .001$

APPENDIX G

Social Class ANOVA Table

Table 5

ANOVA Comparisons for Social Class.

Variable	Poverty (1)			Working (2)			Middle Class (3)			Upper-Middle/Upper (4)			F(3, 485)	Post-hoc
	n	M	SD	n	M	SD	n	M	SD	n	M	SD		
Discrimination	67	3.92	1.29	177	3.23	1.21	181	3.04	1.18	83	2.79	1.16	3.76*	4 < 1*, 2*
Centrality	67	4.44	.92	177	4.47	1.14	181	4.34	1.07	83	4.28	.98	.79	n/s
Internalized	67	2.34	1.09	177	2.58	1.42	181	2.29	1.19	83	2.92	1.53	4.73**	3 < 4**
Concealment	67	2.31	.95	177	2.60	.96	181	2.46	.93	83	2.51	.99	1.60	n/s
Alcohol	67	6.43	4.58	177	7.11	5.44	181	6.58	4.63	83	6.92	4.94	.49	n/s
Drug	67	1.68	1.78	177	1.76	1.91	181	1.38	1.48	83	1.76	1.58	1.73	n/s
RSB	67	1.74	.68	177	1.66	.50	181	1.53	.48	83	1.64	.56	3.60*	1 > 3*

Note. The numbers in parentheses in group names refer to the numbers used in illustrating statistically significant differences. [Poverty = Living in poverty; Working = Working class; Upper-Middle/Upper = Upper-middle or upper class; Anti-bisexual discrimination; Centrality = Bisexual identity centrality; Internalized = Internalized biphobia; Concealment = Bisexual identity concealment; Alcohol = Alcohol consumption; Drug = Drug use; RSB = Risky sexual behavior; n/s = Non-significant]. * $p < .05$, ** $p < .01$, *** $p < .001$

APPENDIX H

Hypothesized Model Results

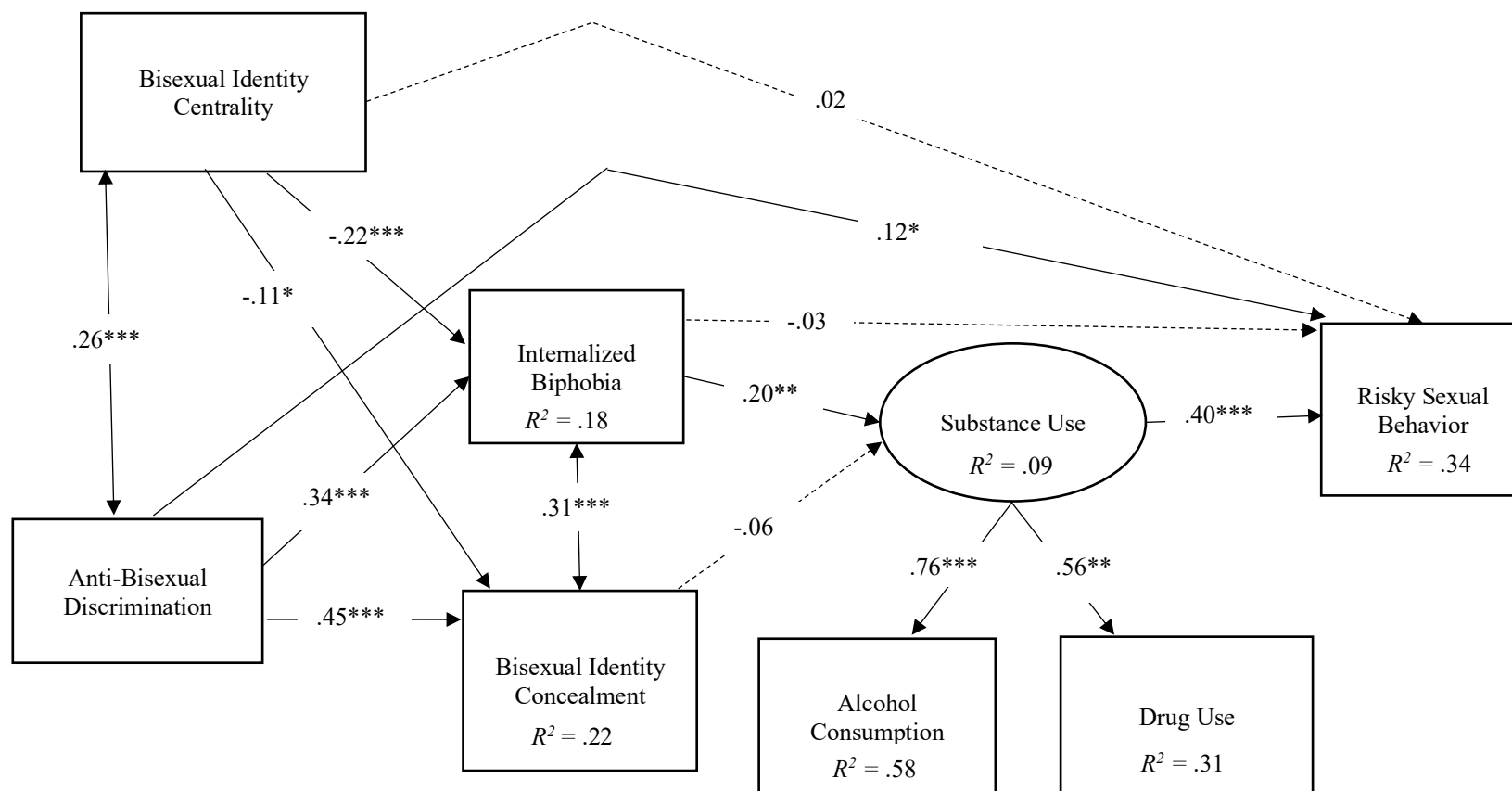


Figure 2. Observed direct relations among variables of interest in hypothesized model. Values reflect standardized parameter estimates. Dashed lines signify nonsignificant relations. The following parameters were also estimated but omitted from the figure for the sake of parsimony: paths from age to internalized biphobia, .00; from age to bisexual identity concealment, -.12**; from age to substance use, -.14*; from age to risky sexual behavior, .22***; from gender identity to internalized biphobia, -.11**; from gender identity to bisexual identity concealment, -.12**; from gender identity to substance use, -.08; from gender identity to risky sexual behavior, -.08; from HIV testing to internalized biphobia, .08; from HIV status to bisexual identity concealment, .10*; from HIV status to substance use, -.20*; from HIV status to risky sexual behavior, -.17***; from living in poverty to internalized biphobia, .00; from living in poverty to bisexual identity concealment, -.09*; from living in poverty to substance use, .02; from living in poverty to risky sexual behavior, .13**; from working class to internalized biphobia, .09; from working class to bisexual identity concealment, .03; from working class to substance use, .09; from working class to risky sexual behavior, .09; from upper-middle/upper class to internalized biphobia, .19***; from upper-middle/upper class to bisexual identity concealment, .05; from upper-middle/upper class to substance use, .04; and from upper-middle/upper class to risky sexual behavior, .07. * $p < .05$. ** $p < .01$. *** $p < .001$.

APPENDIX I

Total Indirect Relations (Hypothesized Model)

Table 6

Magnitude and Significance of Total Indirect Relations (Hypothesized Model)

Predictor	Mediator(s)	Criterion	Standardized indirect relation		Unstandardized indirect relation		95% CI for unstandardized indirect relation	
			β	<i>SE</i>	<i>B</i>	<i>SE</i>	Lower Bound	Upper Bound
Discrimination	Internalized, concealment	Substance use	.04	.03	.13	.09	-.04	.32
	Internalized, concealment, substance use	RSB	.01	.02	.00	.01	-.01	.02
Internalized	Substance use	RSB	.08	.03	.03	.01	.01	.06*
Concealment	Substance use	RSB	-.02	.03	-.01	.02	-.05	.01

Note. CI = confidence interval. [Discrimination = Anti-bisexual discrimination; Internalized = Internalized biphobia; Concealment = Bisexual identity concealment; RSB = Risky sexual behavior]. $p < .05^*$.

APPENDIX J

Moderation Model Results

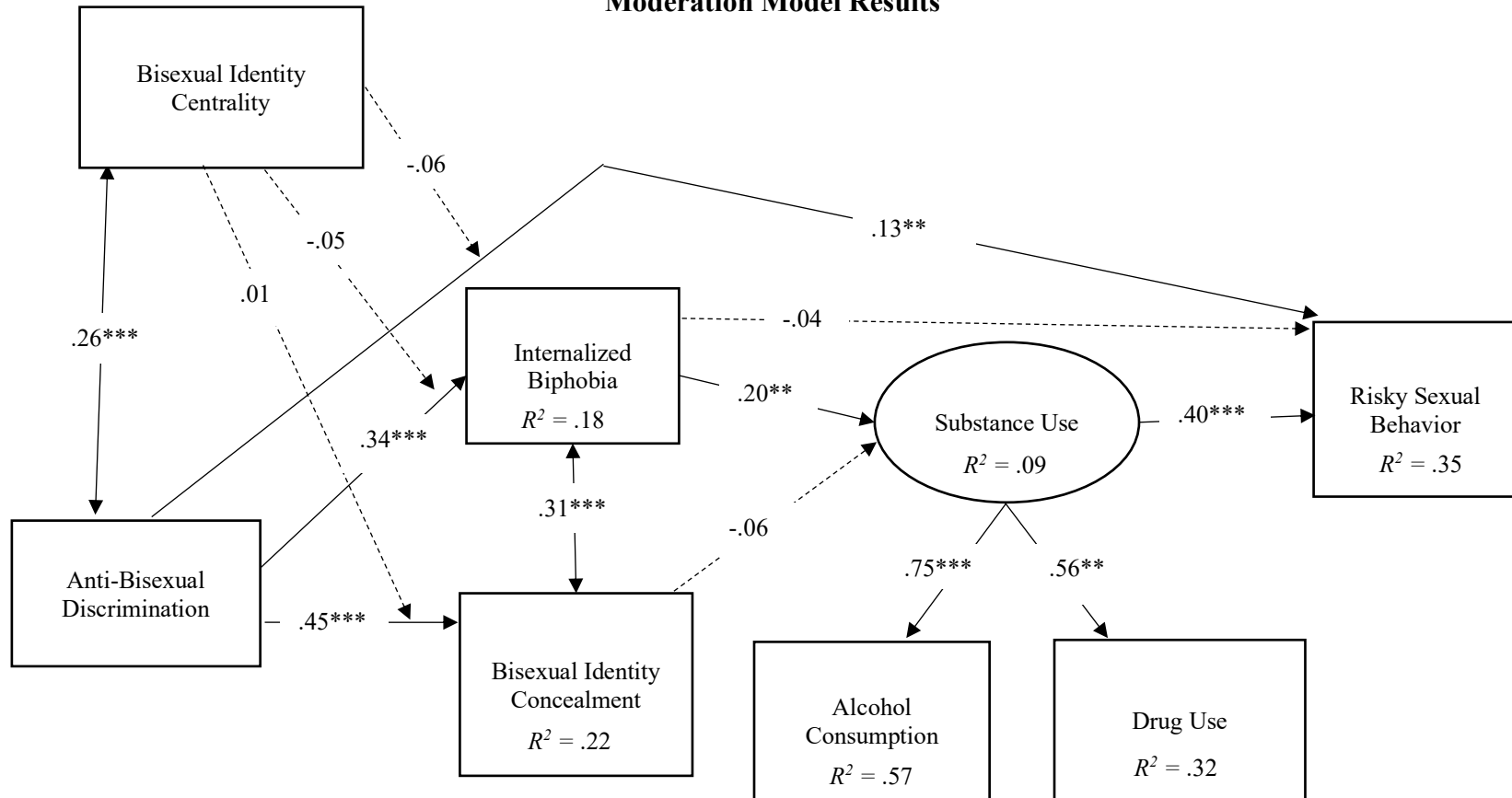


Figure 3. Observed direct relations among variables of interest in the tested model that includes bisexual identity centrality as a moderator. Values reflect standardized parameter estimates. Dashed lines signify nonsignificant relations. The following parameters were also estimated but omitted from the figure for the sake of parsimony: paths from age to internalized biphobia, -.01; from age to bisexual identity concealment, -.12*; from age to substance use, -.14*; from age to risky sexual behavior, .22***; from gender identity to internalized biphobia, -.12**; from gender identity to bisexual identity concealment, -.14**; from gender identity to substance use, -.08; from gender identity to risky sexual behavior, -.09*; from HIV testing to internalized biphobia, .08; from HIV testing to bisexual identity concealment, .10*; from HIV testing to substance use, -.20**; from HIV testing to risky sexual behavior, -.17***; from living in poverty to internalized biphobia, .00; from living in poverty to bisexual identity concealment, -.09*; from living in poverty to substance use, .02; from living in poverty to risky sexual behavior, .12*; from working class to internalized biphobia, .09; from working class to bisexual identity concealment, .03; from working class to substance use, .09; from working class to risky sexual behavior, .09; from upper-middle/upper class to internalized biphobia, .19***; from upper-middle/upper class to bisexual identity concealment, .05; from upper-middle/upper class to substance use, .04; and from upper-middle/upper class to risky sexual behavior, .07. * $p < .05$. ** $p < .01$. *** $p < .001$.

APPENDIX K

Moderation Table

Table 7

Tests of Bisexual Identity Centrality as a Moderator of Predictor-Mediator and Predictor-Criterion Relations

Variable	B (SE)	95% CI of B		β	Z	R ²	R ² for interaction
		Lower bound	Upper bound				
Criterion: Internalized							
Discrimination	.38 (.05)	.28	.46	.34	8.10***	.18	.00
Centrality	-.28 (.05)	-.39	-.19	-.22	-5.33***		
Discrimination × Centrality	-.06 (.05)	-.15	.03	-.05	-1.24		
Criterion: Concealment							
Discrimination	.35 (.03)	.28	.41	.45	10.59***	.22	.00
Centrality	-.01 (.04)	-.18	-.02	-.11	-2.36**		
Discrimination × Centrality	.01 (.04)	-.08	.06	-.01	-0.18		
Criterion: RSB							
Discrimination	.06 (.02)	.02	.09	.13	2.92**	.35	.00
Centrality	-.01 (.02)	-.06	.03	-.03	-0.68		
Internalized	-.01 (.02)	-.05	.00	-.04	-0.81		
Substance	.06 (.02)	.03	.09	.40	3.72***		
Discrimination × Centrality	-.03 (.02)	-.06	.00	-.06	-1.67		

Note. Age, HIV testing, gender identity, and social class were controlled for in this analysis. For parsimony, the parameter estimates for these variables were not included in this table. [Discrimination = Anti-bisexual discrimination; Substance = Substance use; Internalized = Internalized biphobia; Concealment = Bisexual identity concealment; Alcohol = Alcohol consumption; RSB = Risky sexual behavior].

* $p < .05$. ** $p < .01$. *** $p < .001$

APPENDIX L

Alternative Model Results

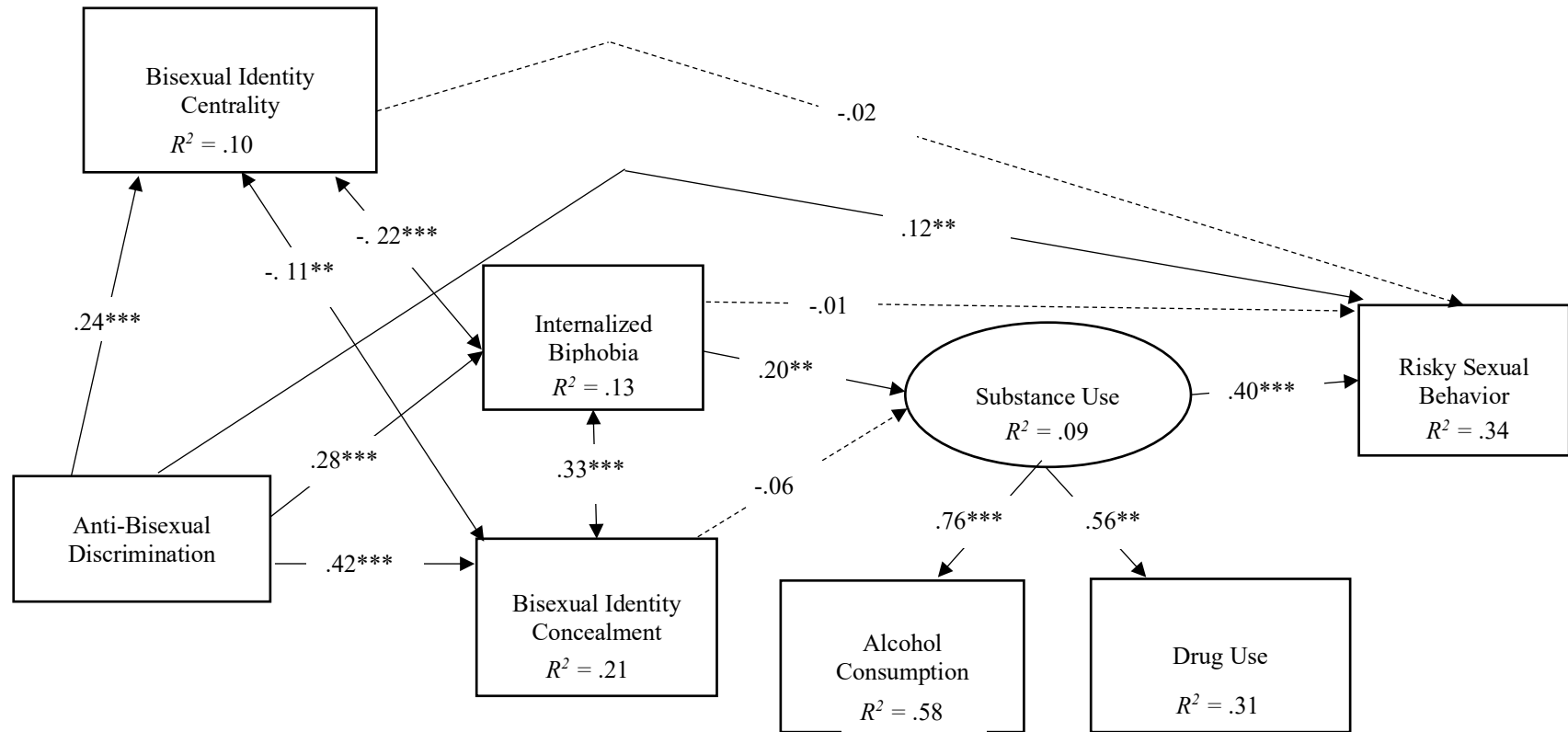


Figure 4. Observed direct relations among variables of interest in the Alternative model. Values reflect standardized parameter estimates. Dashed lines signify nonsignificant relations. The following parameters were also estimated but omitted from the figure for the sake of parsimony: paths from age to bisexual identity centrality, $.11^*$; from age to internalized biphobia, $-.03$; from age to bisexual identity concealment, $-.13^{**}$; from age to substance use, $-.14^*$; from age to risky sexual behavior, $.22^{***}$; from gender identity to bisexual identity centrality, $.16^{**}$; from gender identity to internalized biphobia, $-.16^{**}$; from gender identity to bisexual identity concealment, $-.16^{***}$; from gender identity to substance use, $-.08$; from gender identity to risky sexual behavior, $-.08$; from HIV testing to bisexual identity centrality, $-.05$; from HIV testing to internalized biphobia, $.09^*$; from HIV testing to bisexual identity concealment, $.11^{**}$; from HIV testing to substance use, $-.20^{**}$; from HIV testing to risky sexual behavior, $-.17^{***}$; from living in poverty to bisexual identity centrality, $.01$; from living in poverty to internalized biphobia, $.00$; from living in poverty to bisexual identity concealment, $-.09^*$; from living in poverty to substance use, $.02$; from living in poverty to risky sexual behavior, $.13^*$; from working class to bisexual identity centrality, $.04$; from working class to internalized biphobia, $.08$; from working class to bisexual identity concealment, $.02$; from working class to substance use, $.09$; from working class to risky sexual behavior, $.09$; from upper-middle/upper class to bisexual identity centrality, $.00$; from upper-middle/upper class to internalized biphobia, $.20^{***}$; from upper-middle/upper class to bisexual identity concealment, $.05$; from upper-middle/upper class to substance use, $.04$; and from upper-middle/upper class to risky sexual behavior, $.07$. $*p < .05$. $**p < .01$. $***p < .001$

APPENDIX M

Total Indirect Relations (Alternative Model)

Table 8

Magnitude and Significance of Total Indirect Relations (Alternative Model)

Predictor	Mediator(s)	Criterion	Standardized indirect relation		Unstandardized indirect relation		95% CI for unstandardized indirect relation	
			β	<i>SE</i>	<i>B</i>	<i>SE</i>	Lower Bound	Upper Bound
Discrimination	Internalized, concealment	Substance use	.03	.03	.10	.09	-.06	.28
	Centrality, internalized, concealment, substance use	RSB	.00	.02	.00	.01	-.02	.02
Internalized	Substance use	RSB	.08	.03	.03	.01	.01	.06*
Concealment	Substance use	RSB	-.02	.03	-.01	.02	-.05	.01

Note. CI = confidence interval. [Discrimination = Anti-bisexual discrimination; Centrality = Bisexual identity centrality; Internalized = Internalized biphobia; Concealment = Bisexual identity concealment; RSB = Risky sexual behavior]. $p < .05^*$.

APPENDIX N

Informed Consent

Teachers College, Columbia University
525 West 120th Street
New York NY 10027
212 678 3000
www.tc.edu

INFORMED CONSENT

RESEARCH STUDY: Bisexual Men's Experiences of Stigma and Sexual Health

DESCRIPTION OF THE RESEARCH:

You are invited to participate in an investigation of bisexual men's experiences of stigma and sexual health. We are particularly interested in the experiences of bisexual men of color (e.g., Latina/Hispanic, African American or Black, Asian or Asian American, Native American, Multiracial). Participants will be asked to answer questions on sensitive topics that are highly personal. However, participants **do not need to answer every question** and are **free to stop taking the survey at any time**.

In order to participate in this study, you must:

- 1) Identify as a man (cisgender or transgender).
- 2) Identify as bisexual.
- 3) Be 18 years of age or older.
- 4) Currently reside in the United States.

This study is being conducted by Charles Joseph (CJ) Polihronakis, Ed.M., a counseling psychology doctoral candidate in the Department of Counseling and Clinical Psychology at Teachers College, Columbia University. This study has been approved by the Institutional Review Board of Teachers College, Columbia University (IRB Protocol #18-119).

RISKS AND BENEFITS: No more than minimal risk is anticipated with this study. Such risks may include mild discomfort when thinking about dimension of your personal attitudes. There are no anticipated benefits from participating in this study.

PAYMENTS: Participants have the option of entering a lottery with a 1 in 25 chance of winning an Amazon.com gift card that will be delivered electronically.

DATA STORAGE TO PROTECT CONFIDENTIALITY: Your responses to this survey will be kept private and anonymous. All data collected will be kept confidential and will only be reported in an aggregated format – that is, only reporting combined results, rather than individual results. Only the Principal Investigators will have access to the data. The collected data will be stored in the HIPAA-compliant, secure Qualtrics database until they are deleted by the Primary Investigators.

TIME INVOLVEMENT: Your participation will take approximately 30 minutes.

HOW WILL RESULTS BE USED: Results from this study may be used for article publications, presentations at conferences or meetings, or for educational purposes.

APPENDIX O

Participants Rights

Teachers College, Columbia University
525 West 120th Street
New York NY 10027
212 678 3000
www.tc.edu

PARTICIPANT'S RIGHTS

Principal Investigator: Charles Joseph (CJ) Polihronakis, MA, Ed.M.

Research Title: Bisexual Men's Experiences of Stigma and Sexual Health

- I have read the Research Description above and understand that my participation in this study is completely voluntary.
- I may refuse to participate or withdraw from participation at any time without jeopardy to future medical care, employment, student status or other entitlements.
- The researcher may withdraw me from the research at his/her professional discretion.
- If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue to participate, the investigator will provide this information to me.
- Any information derived from the research project that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
- If at any time I have any questions regarding the research or my participation, I can contact the investigator – Charles Joseph (CJ) Polihronakis, MA, Ed.M. (cjp2155@columbia.edu) - a doctoral student in the Counseling Psychology program at Teachers College – Columbia University, who will answer my questions.
- If at any time I have comments, or concerns regarding the conduct of the research or questions about my rights as a research subject, I should contact the Teachers College, Columbia University Institutional Review Board /IRB. The phone number for the IRB is (212) 678-4105. Or, I can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY, 10027, Box 151.
- For my personal records, I should receive a copy of the Research Description and this Participant's Rights document.
- By checking the “Yes” box below and clicking “Next,” I confirm that I meet the inclusion criteria of this study (i.e., 18 years of age or older, identify as a bisexual, identify as a man, and reside in the United States), and I willingly agree to participate in this study.

I have read and understand the above, and I agree to participate in this study.

Yes _____

No _____

APPENDIX P

Introduction Message

Welcome and thank you for agreeing to participate in this study! We greatly appreciate and value your time and effort.

While taking this survey, we have inserted items that ask you to select certain response (e.g., “Please select ‘Strongly Disagree.’”). These **validity check** items are designed to ensure that participants are responding attentively and actively while taking the survey rather than providing random responses. As you come across these validity check items, please select the response indicated.

Thank you again for your time and cooperation!

1	2	3	4	5	6
NEVER					ALMOST ALL OF THE TIME

9. People have treated me as if I am obsessed with sex because I am bisexual.

1	2	3	4	5	6
---	---	---	---	---	---

10. People have treated me as if I am likely to have an STD/HIV because I identify as bisexual.

1	2	3	4	5	6
---	---	---	---	---	---

11. People have assumed that I will cheat in a relationship because I am bisexual.

1	2	3	4	5	6
---	---	---	---	---	---

12. People have stereotyped me as having many sexual partners without emotional commitments.

1	2	3	4	5	6
---	---	---	---	---	---

13. Validity Check: Please Select "2".

1	2	3	4	5	6
---	---	---	---	---	---

14. I have been alienated because I am bisexual.

1	2	3	4	5	6
---	---	---	---	---	---

15. People have not wanted to be my friend because I identify as bisexual.

1	2	3	4	5	6
---	---	---	---	---	---

16. Others have treated me negatively because I am bisexual.

1	2	3	4	5	6
---	---	---	---	---	---

17. I have been excluded from social networks because I am bisexual.

1	2	3	4	5	6
---	---	---	---	---	---

18. Others have acted uncomfortable around me because of my bisexuality.

1	2	3	4	5	6
---	---	---	---	---	---

APPENDIX R

**Lesbian, Gay, and Bisexual Identity Scale – Identity Centrality Subscale
(LGBIS; Mohr & Kendra, 2011)**

For each of the following questions, please mark the response that best indicates your current experience as an LGB person. Please be as honest as possible. Indicate how you really feel now, not how you think you should feel. There is no need to think too much about any one question. Answer each question according to your initial reaction and then move on to the next.

1	2	3	4	5	6
Disagree Strongly	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Agree Strongly

- | | | | | | | |
|---|---|---|---|---|---|---|
| 1. My sexual orientation is an insignificant part of who I am. | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. My sexual orientation is a central part of my identity. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. To understand who I am as a person, you have to know that I am bisexual. | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. Being a bisexual man is a very important aspect of my life. | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. I believe being bisexual is an important part of me. | 1 | 2 | 3 | 4 | 5 | 6 |

APPENDIX S

Sexual Orientation Concealment Scale (SOCS; Jackson & Mohr, 2016)

The following six items concern behaviors LGB people sometimes use to hide their sexual orientation. Please rate each item to complete the following phrase:

In the last 2 weeks, I have...

	1	2	3	4	5
	Not at all	A little bit	Somewhat	Very much	All the time
1. ...concealed my sexual orientation by telling someone that I was straight or denying that I was LGB.	1	2	3	4	5
2. ...concealed my sexual orientation by avoiding contact with other LGB individuals.	1	2	3	4	5
3. ...avoided the subjects of sex, love, attraction, or relationships to conceal my sexual orientation.	1	2	3	4	5
4. ...allowed others to assume I am straight without correcting them.	1	2	3	4	5
5. Please select “2 – A little bit”.	1	2	3	4	5
6. ...altered my appearance, mannerisms, or activities in an attempt to “pass” as straight.	1	2	3	4	5
7. ...remained silent while witnessing anti-gay remarks, jokes, or activities because I did not want to be labeled as LGB by those involved.	1	2	3	4	5

APPENDIX T

Bisexual Identity Inventory – Internalized Binegativity Subscale (IB; Paul et al., 2014)

For each of the following questions, please mark the response that best indicates your current experience as a bisexual man. Please be as honest as possible. Indicate how you really feel now, not how you think you should feel. There is no need to think too much about any one question. Answer each question according to your initial reaction and then move on to the next.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree

1. My life would be better if I were not bisexual.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

2. I wish I could control my sexual and romantic feelings by directing them to a single gender.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

3. Being bisexual prevents me from having meaningful intimate relationships.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

4. I would be better off if I would identify as gay or straight, rather than bisexual.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

5. It's unfair that I am attracted to people of more than one gender.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

APPENDIX U

Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001)

Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential, so please be honest.

NOTE: In the U.S., a single drink serving contains about 14 grams of ethanol or “pure” alcohol. Although the drinks below are different sizes, each one contains the same amount of pure alcohol and counts as a single drink:



For each question in the chart below, please select which item best describes your answer:

Questions	0	1	2	3	4
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2 to 4 times a month	2 to 3 times a week	4 or more times a week
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more
3. How often do you have 5 or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year

APPENDIX V

Drug Abuse Screening Test (DAST-10; Skinner, 1982)

The following questions concern information about your possible involvement with drugs *not including alcoholic beverages during the past 12 months*.

"Drug abuse" refers to (1) the use of prescribed or over-the-counter drugs in excess of the directions, and (2) any nonmedical use of drugs. The various classes of drugs may include cannabis (marijuana, hashish), solvents (e.g., paint thinner), tranquilizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin). **Remember that the questions do not include alcoholic beverages.**

Please answer every question. If you have difficulty with a statement, then choose the response that is mostly right.

In the past 12 months...

1. Have you used drugs other than those required for medical reasons? Yes No
2. Do you abuse more than one drug at a time? Yes No
3. Are you unable to stop abusing drugs when you want to? Yes No
4. Have you ever had blackouts or flashbacks as a result of drug use? Yes No
5. Do you ever feel bad or guilty about your drug use? Yes No
6. Does your partner (or parents) ever complain about your involvement with drugs? Yes No
7. Have you neglected your family because of your use of drugs? Yes No
8. Have you engaged in illegal activities in order to obtain drugs? Yes No
9. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs? Yes No
10. Have you had medical problems as a result of your drug use (e.g. memory loss, hepatitis, convulsions, bleeding)? Yes No

APPENDIX W

Sexual Risk Survey (SRS; Turchik & Garske, 2009)

Instructions: Please read the following statements and record the number that is true for you over the past 6 months for each question on the blank. If you do not know for sure how many times a behavior took place, try to estimate the number as close as you can. Thinking about the average number of times the behaviors happened per week or per month might make it easier to estimate an accurate number, especially if the behavior happened fairly regularly. If you've had multiple partners, try to think about how long you were with each partner, the number of sexual encounters you had with each, and try to get an accurate estimate of the total number of each behavior. If the question does not apply to you or you have never engaged in the behavior in the question, put a "0" on the blank. Please do not leave items blank. Remember that in the following questions "sex" includes oral, anal, and vaginal sex and that "sexual behavior" includes passionate kissing, making out, fondling, petting, oral-to-anal stimulation, and hand-to-genital stimulation. Please consider only the last 6 months when answering and please be honest.

In the *past six months*:

1. How many partners have you engaged in sexual behavior with but not had sex with?
 - 1) 0
 - 2) 1 – 2
 - 3) 3 – 4
 - 4) 5 – 9
 - 5) 10 or more

2. How many times have you left a social event with someone you just met?
 - 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more

3. How many times have you "hooked up" but not had sex with someone you didn't know or didn't know well?
 - 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more

4. How many times have you gone out to bars/parties/social events with the intent of “hooking up” and engaging in sexual behavior but not having sex with someone?
 - 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more

5. How many times have you gone out to bars/parties/social events with the intent of “hooking up” and having sex with someone?
 - 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more

6. How many times have you had unexpected and unanticipated sexual experience?
 - 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more

7. How many times have you had a sexual encounter you engaged in willingly but later regretted?
 - 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more

For the next set of question, follow the same directions as before. However, for questions 8-23, if you have never had sex (oral, anal, or vaginal), please put a “0” on each blank.

8. How many partners have you had sex with?
 - 1) 0
 - 2) 1 – 2
 - 3) 3 – 4
 - 4) 5 – 9
 - 5) 10 or more

9. How many times have you given fellatio (oral sex on a man) without a condom?
- 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more
10. How many times have you given (oral sex on a woman) without a dental dam or “adequate protection”?
- 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more
11. How many times have you had anal sex without a condom?
- 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more
12. How many times have you or your partner engaged in anal penetration by a hand (“fisting”) or other object without a latex glove or condom followed by unprotected anal sex?
- 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more
13. How many times have you given or received analingus (oral stimulation of the anal region, “rimming”) without a dental dam or “adequate protection.”
- 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more

14. How many people have you had sex with that you know but are not involved in any sort of relationship with (i.e., “friends with benefits”)?

- 1) 0
- 2) 1 – 3
- 3) 4 – 14
- 4) 15 – 50
- 5) 51 or more

15. How many times have you had sex with someone you don’t know well or just met?

- 1) 0
- 2) 1 – 3
- 3) 4 – 14
- 4) 15 – 50
- 5) 51 or more

16. How many times have you or your partner used alcohol before or during sex?

- 1) 0
- 2) 1 – 3
- 3) 4 – 14
- 4) 15 – 50
- 5) 51 or more

17. How many times have you had sex with a new partner before discussing sexual history, IV drug use, disease status and other current sexual partners?

- 1) 0
- 2) 1 – 3
- 3) 4 – 14
- 4) 15 – 50
- 5) 51 or more

18. Validity Check: Please select “15-50”

- 1) 0
- 2) 1 – 3
- 3) 4 – 14
- 4) 15 – 50
- 5) 51 or more

19. How many times (that you know of) have you had sex with someone who has had many sexual partners?
- 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more
20. How many partners (that you know of) have you had sex with who had been sexually active before you were with them but had not been tested for STIs/HIV?
- 1) 0
 - 2) 1 – 2
 - 3) 3 – 4
 - 4) 5 – 9
 - 5) 10 or more
21. How many partners have you had sex with that you didn't trust?
- 1) 0
 - 2) 1 – 2
 - 3) 3 – 4
 - 4) 5 – 9
 - 5) 10 or more
22. How many times (that you know of) have you had sex with someone who was also engaging in sex with others during that same period?
- 1) 0
 - 2) 1 – 3
 - 3) 4 – 14
 - 4) 15 – 50
 - 5) 51 or more
23. Are you currently in a monogamous sexual/romantic relationship with one partner?
- 1) Yes
 - 2) No

APPENDIX X

Demographic Questionnaire

Please tell us a little about yourself. This information will be used to describe the sample as a group.

For each question below, we have tried to provide a number of options. However, we recognize that these options will not capture everyone's identities or characteristics. Therefore, we have included an "Other" option for some of the questions so you can describe yourself in your own words. Thank you for telling us about yourself!

What is your age? _____

What is your gender?

- Man, not transgender
- Man of transgender experience (Trans man, Transsexual man, FtM)
- Woman, not transgender
- Woman of transgender experience (Trans woman, Transsexual woman, MtF)
- Genderqueer
- Gender identity not listed (Please type in your gender identity): _____

What is your race/ethnicity?

- African/African American/Black
- American Indian/Native American
- Asian/Asian American
- Biracial/Multiracial
- Caucasian/European American/White
- Hispanic/Latina/o American
- Middle Eastern or North African
- Pacific Islander/Pacific Islander American
- Race/ethnicity not listed (Please specify): _____

How do you identify your sexual orientation?

- Exclusively gay
- Mostly gay
- Bisexual
- Mostly Heterosexual
- Exclusively heterosexual
- Queer
- Asexual
- Sexual orientation not listed (Please specify): _____

What is your relationship status? Select all that apply.

- Single
- Dating, casual
- Dating, long term
- Domestic (living together) partnership
- Married or Civil Union
- Polyamorous
- Relationship status(es) not listed (e.g., please specify): _____

What is your current employment status?

- Full-time
- Part-time
- Unemployed
- Retired

What is your highest level of education?

- Some High School
- High School Diploma
- Some College
- Associates Degree
- Bachelors
- Masters
- Doctorate
- Other (please describe): _____

How would you best characterize your social class?

- Living in Poverty
- Working Class
- Middle Class
- Upper-Middle Class
- Upper Class

In which environment do you currently reside?

- Urban
- Suburban
- Rural

In which state do you currently reside?

State: _____

Have you ever been tested for HIV and/or other STIs?

- Yes
- No

Have you been tested for HIV and/or other STIs within the last 6 months?

- Yes
- No

Please indicate your HIV status.

- Negative
- Positive
- Status Known

Please indicate whether you are currently taking Pre-exposure prophylaxis, or PrEP (also known as Truvada).

- Yes
- No

How long have you been taking PrEP?

- Less than one month
- Approximately one month
- More than one month.
- Not Applicable

Have you ever taken PEP, or Post-Exposure Prophylaxis?

- Yes
- No

How many times have you taken PEP?

- Less than 5 times
- Less than 10 times
- More than 10 times
- Not Applicable

When was the last time you took PEP?

- Less than a month ago
- Approximately one month ago
- More than one month ago
- Not Applicable

Please indicate if you have tested positive for any of the following STIs (Select all that apply).

- Chlamydia
- Gonorrhea
- Papillomavirus (HPV)
- Syphilis
- Genital herpes
- Chancroid
- Lymphogranuloma venereum
- Nongonococcal urethritis
- Crabs
- Hepatitis A
- Hepatitis B
- Hepatitis C
- None of the above
- I have never been tested for STIs

How did you hear about this survey?

- Qualtrics
- Email Listserv
- Internet message board
- From a friend/coworker/family member
- Social media (e.g., Facebook, Twitter, Instagram, Tumblr)
- Other (please describe): _____

APPENDIX Y

Debriefing and Resources

Thank you for completing this questionnaire and participating in this study! Your participation will help us better understand bisexual men’s experiences of oppression and sexual experiences, behavior, and health.

Considering some of the questions in the survey were of a personal nature, you will find a list of resources below. If at any time you have any questions regarding the research you can contact the investigator, Charles Joseph (CJ) Polihronakis, M.A., Ed.M. (cjp2155@columbia.edu).

National Resources

Organization	Website	Number	Details
Bisexual Resource Center	https://biresource.org/resources/	N/A	The Bisexual Resource Center is committed to providing support to the bisexual community and raising public awareness about bisexuality and bisexual people.
National Sexual Assault Telephone Hotline	www.rainn.org/	800.656.H OPE (4673)	24/7 support from a trained staff member for sexual assault victims.
National Sexual Assault (Online Support)	hotline.rainn.org/online	N/A	The Online Hotline provides confidential, one-on-one crisis support.
National Alliance on Mental Illness	www.nami.org	1-703-524- 7600	Offers general information on mental illness, local referrals, and support and empathy for callers. (M-F, 10AM –6PM)