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Minority Stress, Relationship Functioning and HIV among Male-Male Couples

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Minority Stress, Relationship Functioning and HIV among Male-Male Couples

By

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Bachelor of Arts
Bates College
2010

Thesis Committee Chair: Rob Stephenson, PhD

An abstract of
A thesis submitted to the Faculty of the
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2014

Abstract

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By Courtney Stachowski

Men who have sex with men (MSM) remain disproportionately affected by the HIV epidemic in the US and estimates suggest that one to two-thirds of new infections occur among main partners. Previous research has focused on individual MSM and their risk for HIV, yet couples' ability to manage risk has been largely understudied. In order to develop effective couple-level interventions, the role that stress and stigma play in shaping the ability of male-male couples to cope with HIV risk must be examined. A sample of 447 gay/bisexual men with main partners was taken from a 2011 survey of gay and bisexual men in Atlanta. Linear regression models were fitted for three couples' coping outcome scales (outcome efficacy, couple efficacy, communal coping) and included covariates measuring minority stress (internalized homophobia, gay discrimination, race discrimination). Findings indicate that reporting of increased levels of internalized homophobia and race discrimination were consistently associated with decreased outcome measures of couples' coping ability around risk management. The results highlight the role that stressors play in male-male couples' relationships and HIV risk, extending the existing literature in the field of same-sex relationships as influenced by minority stress. Understanding internalized homophobia and homophobic discrimination in the context of marriage equality in the US is a critical step in the reduction of sexual risk-taking behaviors and the development of effective interventions to improve health among all same-sex couples in the US.

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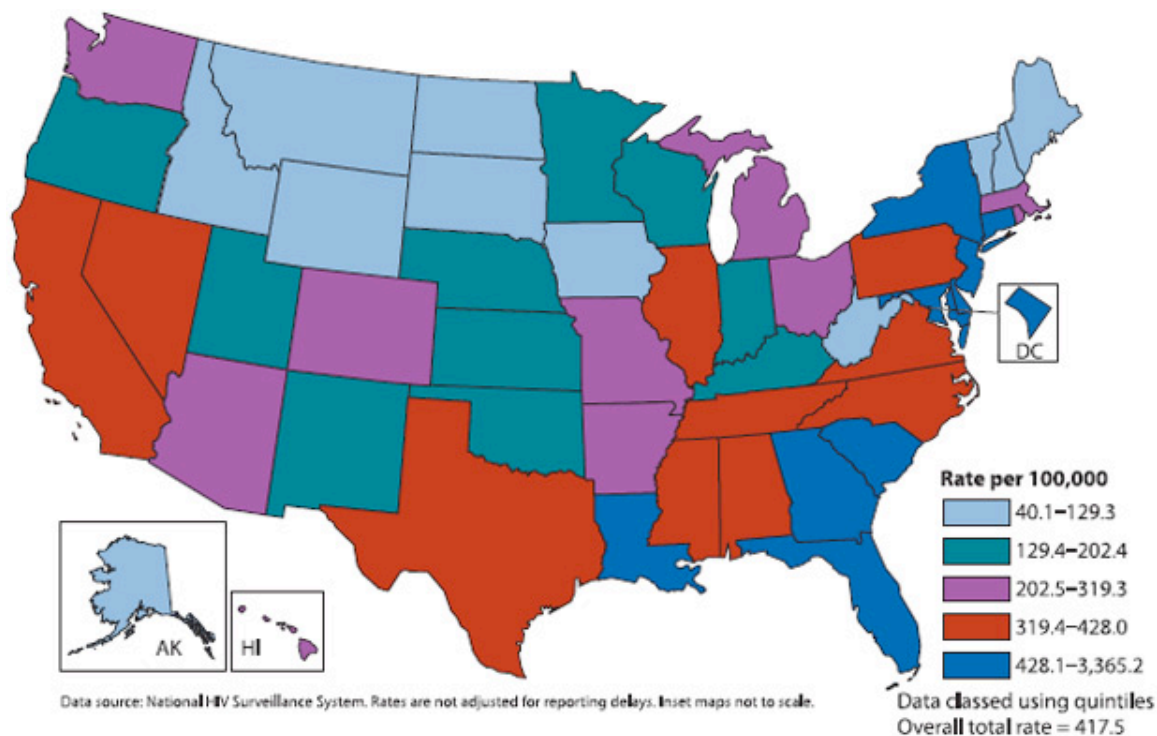
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CHAPTER 1: BACKGROUND AND INTRODUCTION

Nearly 1.1 million people are estimated to be living with HIV in the US today, 16% of whom are unaware of their infection (CDC, 2013b). Figure 1 depicts the rate of individuals living with an HIV diagnosis according to 2008 CDC surveillance data (CDC, 2012). The HIV epidemic is concentrated in the Southern region of the US, with nearly 16,000 AIDS diagnoses and a case rate of 13.7 per 100,000 people (CDC, 2012). It is followed most closely by the Northeast, with nearly 7,000 AIDS diagnoses and a case rate of 12.3 per 100,000 (CDC, 2012). In each of these regions, HIV is concentrated in urban areas. In 2011, the cities that experienced the most AIDS cases per 100,000 people included: Baton Rouge, LA, Miami, FL, Atlanta, GA, New Orleans, LA, and Baltimore, MD (CDC, 2013a).

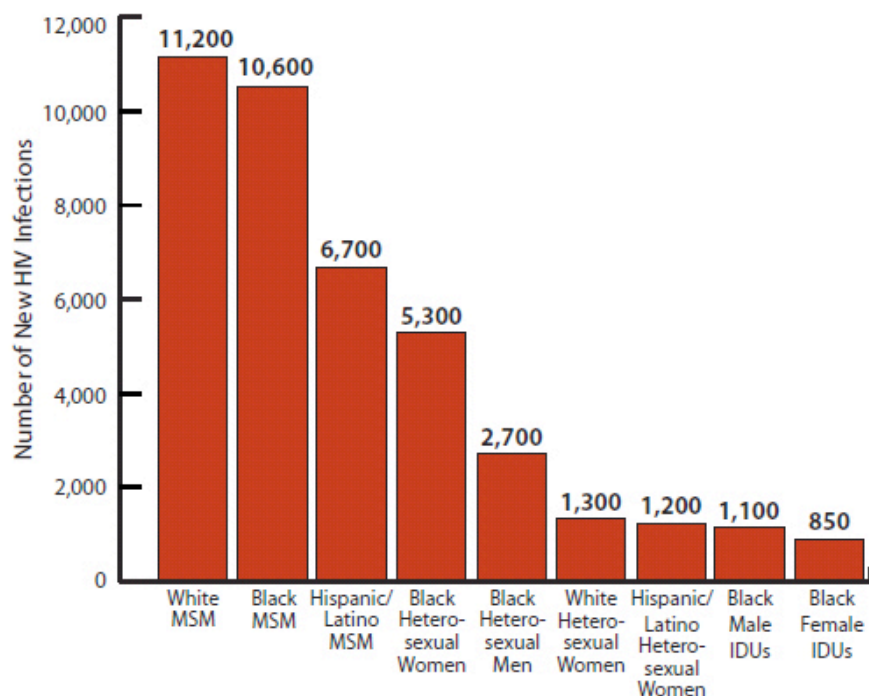
Figure 1: Rates of Persons Aged 18-64 years Living with a Diagnosis of HIV Infection, United States, 2008



Source: CDC. Estimated HIV incidence in the United States, 2007–2010. [HIV Surveillance Supplemental Report 2012;17\(4\)](#). Published December 2012.

The past 30 years have seen great strides in reduction of HIV incidence from roughly 130,000 new cases per year at the peak of the epidemic in the mid-1980s, to approximately 50,000 new cases per year today (CDC, 2012). However, despite this reduction of new infections by nearly two-thirds, the HIV incidence in the US has remained stable over the past decade (CDC, 2012). This is due, in part, to the increase in HIV incidence among the risk group that carries the greatest burden of HIV infection: men who have sex with men (MSM) (CDC, 2012). After more than three decades of the US HIV epidemic, MSM remain disproportionately affected, representing approximately 63% of all new infections in 2010, yet accounting for only 2% of the US population (CDC, 2012). MSM are the only risk group that has experienced an increase in HIV incidence in the US. From 2008 to 2010, new HIV infections increased 22% among young MSM (aged 13-24), and increased 12% among MSM overall (CDC, 2012). Figure 2 depicts estimates of new HIV infections in the US for the most affected subpopulations in 2010, with MSM showing the highest incidence levels of all subpopulations.

Figure 2: Estimated New HIV Infections in the United States for the Most Affected Subpopulations, 2010



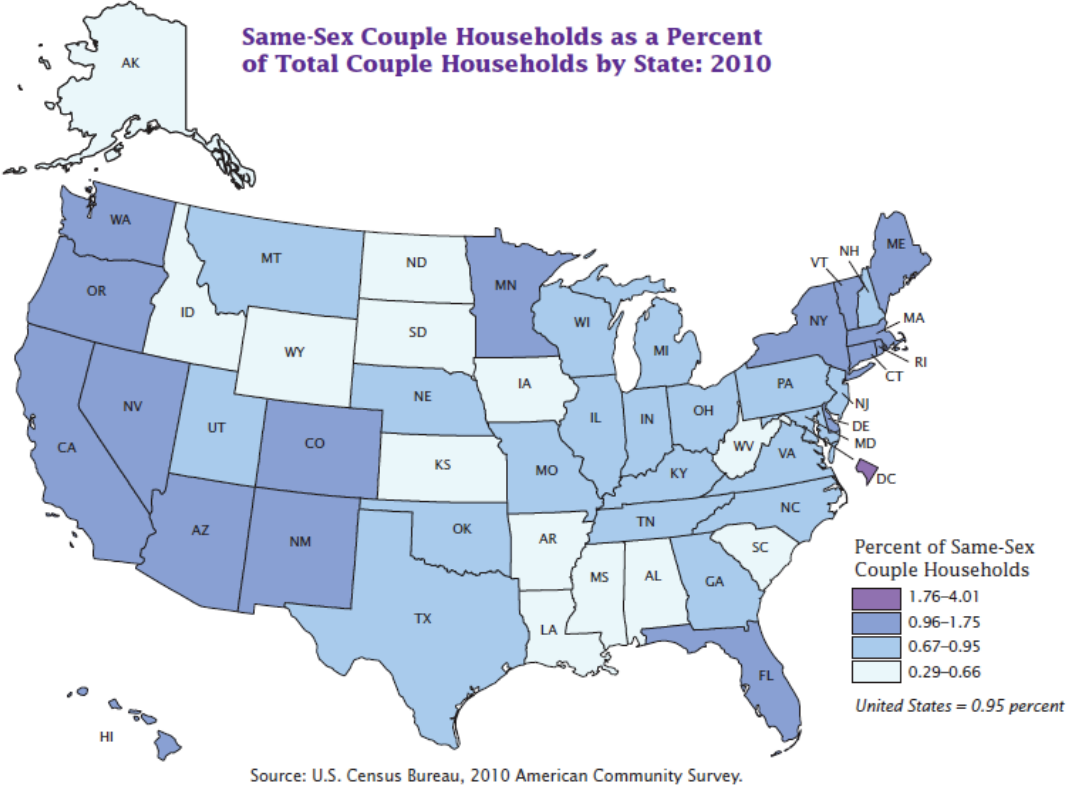
Subpopulations representing 2% or less of the overall US epidemic are not reflected in this chart.

Source: CDC. Estimated HIV incidence in the United States, 2007–2010. [HIV Surveillance Supplemental Report 2012;17\(4\)](#). Published December 2012.

Although research and programmatic efforts have largely focused on the individual risk factors associated with HIV acquisition among MSM, a growing body of research has shown the importance of examining HIV in the context of male-male relationships (Darbes, Chakravarty, Beougher, Neilands, & Hoff, 2012; Gomez et al., 2012; Mitchell & Petroll, 2013; Sullivan, Salazar, Buchbinder, & Sanchez, 2009). Recent modeling work suggests that between one to two thirds of new HIV infections among MSM occur among main partners in a relationship (Goodreau et al., 2012; Sullivan, et al., 2009). Due to the evidence in support of the high rates of HIV transmission among male-male couples, it is important to consider stress as a relationship-level health risk. Marriage inequality in the US is one potential source of stress for male-male couples and the link between stress and HIV risk needs to be further understood.

Same-sex couples are becoming increasingly more visible in the US, in part due to changing attitudes and legislation. The 2010 US Census reported 594,000 same-sex couples living in the US, totaling 1% of all US couple households (Lofquist, 2011). Figure 3 depicts same-sex couple households as a percent of total couple households by state, according to US Census data collected in 2010. This figure shows the highest proportion of same-sex households to total couple households in the Northeast and Western regions (Lofquist, 2011).

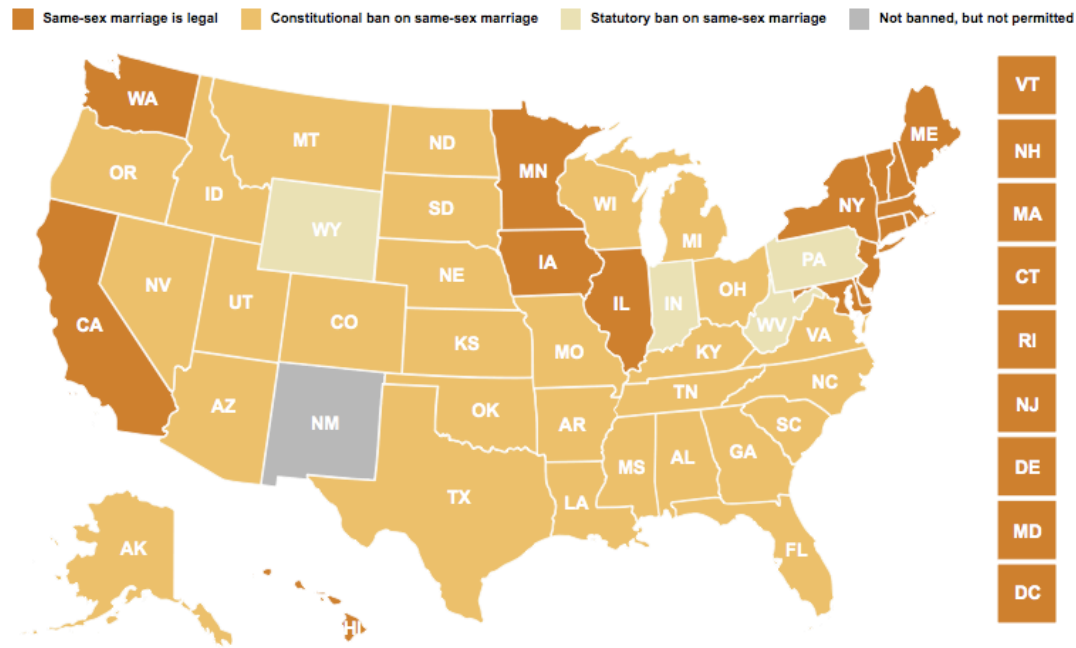
Figure 3: Same-Sex Couple Households as a Percent of Total Couple Households by State: 2010



Source: <http://www.census.gov/prod/2011pubs/acsbr10-03.pdf>

The increasing visibility of same-sex couples has grown hand-in-hand with marriage equality in the US. Currently, seventeen states and the District of Columbia allow same-sex marriage by law, as depicted in Figure 4 (NCSL, 2014).

Figure 4: State Recognition of Same-Sex Marriage in the United States

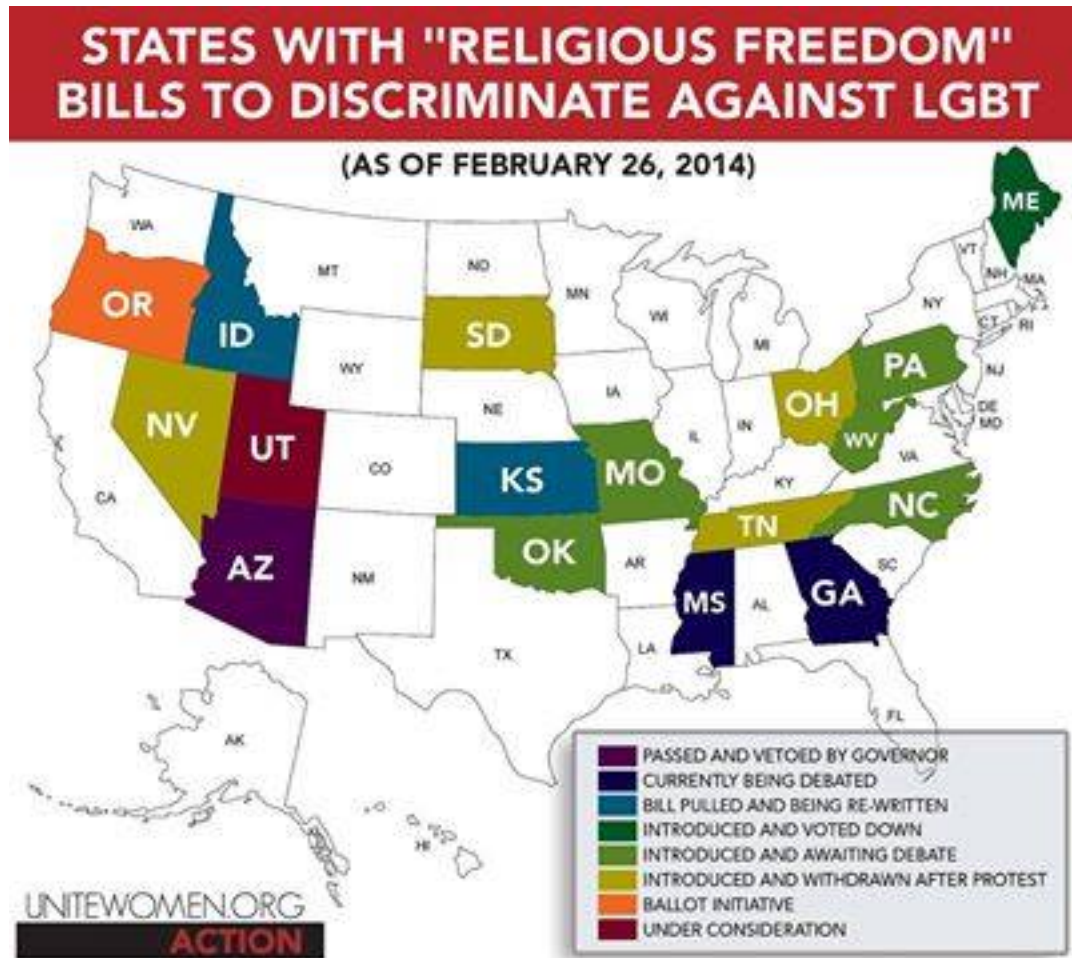


Sources: Pew Forum, Human Rights Campaign

Source: <http://www.cnn.com/interactive/us/map-same-sex-marriage/>

However, the progress toward increased access to legalized marriage for same-sex couples has largely been made in the past decade. As of 2000, 40 states had legal provisions limiting marriage to members of the opposite-sex (NCSL, 2014). Civil unions began to recognize same-sex relationships in 2000, and the legalization of same-sex marriage was first recognized in 2004 by the state of Massachusetts, based on the court ruling that denying same-sex couples access to civil marriage was unconstitutional (NCSL, 2014). Same-sex marriage remains an issue that individual states are strongly divided on. Despite the recent progress made, there are still 33 states that prohibit same-sex marriage, including states with explicit bills being passed that allow for the discrimination of LGBT individuals, as shown in Figure 5 (NCSL, 2014).

Figure 5: States with 'Religious Freedom' Bills to Discriminate Against LGBT Individuals, 2014



Source: www.unitewomen.org

Same-sex marriage in the US and its impact on MSM couples' relationship quality and health effects has been largely understudied. A small body of research has examined the impact of same-sex marriage legalization on the mental health of sexual minorities. Among a sample of lesbian, gay, and bisexual (LGB) and heterosexual residents of California, same-sex married LGB individuals were found to be significantly less distressed than those who were not in a legally recognized relationship, while heterosexual individuals showed no significant difference in distress (Wight, LeBlanc, & Badgett, 2013). These findings are consistent with other research in showing that legal marriage recognition has the ability to offset the experience of minority

stress, depression, and institutionalized discrimination that can lead to mental health disparities (Riggle, Rostosky, & Horne, 2010; Wight, et al., 2013).

Homophobia is one example of minority stress that is linked to marriage inequality and can affect the health behavior of same-sex couples. Levels of homophobia in the US have been changing over time, but nationally-representative survey results from over 30,000 individuals between 1973-2008 have shown that 68% of participants reported that homosexuality was “always wrong” (Glick & Golden, 2010). The experience of external homophobia has been linked to risk factors for HIV. For example, among a sample of African American MSM in the US, those who experienced homophobia in the last 12 months were more likely to engage in unprotected anal intercourse than those who did not (Jeffries, Marks, Lauby, Murrill, & Millett, 2013). The experience of unfair treatment or name-calling was found to be associated with UAI among HIV-negative MSM, while any level of homophobic discrimination was found to be associated with UAI among HIV-positive MSM, suggesting a difference in psychosocial ability to manage HIV stress and stigma (Jeffries, et al., 2013).

Homophobia is a source of stress for male-male couples that can be experienced externally from others or internally as struggles with same sex attraction and sexual orientation. Internalized homophobia (IH) is the acceptance of negative homosexual attitudes and assumptions by homosexuals that leads to feelings of inferiority (Ross et al., 2013; Ross, Kajubi, Mandel, McFarland, & Raymond, 2013). The internalization of negative homophobic emotions has been consistently shown in the literature to have an adverse impact on health among MSM, leading to depression, anxiety, fear, and nondisclosure of sexual orientation, all of which increase HIV risk (Choi, Paul, Ayala, Boylan, & Gregorich, 2013; Jeffries, et al., 2013; Ross, Berg, et al., 2013; Ross, Kajubi, et al., 2013; Santos et al., 2013; Shoptaw et al., 2009; White &

Stephenson, 2014). Similarly, in a study of MSM in 38 countries worldwide, higher levels of IH were found to be most strongly associated with increased sexual risk taking and decreased HIV testing, driven by fear, stigmatization, inability to access condoms, and a lack of sexual control (Ross, Berg, et al., 2013). The effects of the stress resulting from internalized homophobia can be mitigated or exacerbated, depending on the composition of MSM social networks. Research has shown HIV risk among MSM to be influenced by social networks through the provision of access to culturally appropriate LGBT services, role models, and social support in the community (Stephenson, Sato, & Finneran, 2013).

HIV remains prevalent in the US and given recent findings of the high proportion of new HIV infections that are attributable to main partners in male-male couples, it is imperative to develop efficacious dyadic focused interventions. The CDC's current guidelines for effective HIV interventions do not include couple-level interventions to reduce HIV risk. Foundational to developing these interventions is the understanding of how male couples communicate and act to manage the risk of HIV in their relationship. Largely missing from the literature to date is an understanding of how stressors shape the ability of male-male couples to cope with HIV risk. The purpose of this study is to address this gap by examining how minority stressors influence the relationship functioning of male-male couples and shape their ability to communicate about HIV risk.

Minority Stress, Relationship Functioning and HIV among Male-Male Couples

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Minority Stress, Relationship Functioning and HIV among Male-Male Couples

Abstract

Introduction: Men who have sex with men (MSM) remain disproportionately affected by the HIV epidemic in the US and estimates suggest that one to two-thirds of new infections occur among main partners. Previous research has focused on individual MSM and their risk for HIV, yet couples' ability to manage risk has been largely understudied. In order to develop effective couple-level interventions, the role that stress and stigma play in shaping the ability of male-male couples to cope with HIV risk must be examined.

Methods: A sample of 447 gay/bisexual men with main partners was taken from a 2011 survey of gay and bisexual men in Atlanta. Linear regression models were fitted for three couples' coping outcome scales (outcome efficacy, couple efficacy, communal coping) and included covariates measuring minority stress (internalized homophobia, gay discrimination, race discrimination).

Results: Findings indicate that reporting of increased levels of internalized homophobia and race discrimination were consistently associated with decreased outcome measures of couples' coping ability around risk management.

Conclusion: The results highlight the role that stressors play in male-male couples' relationships and HIV risk, extending the existing literature in the field of same-sex relationships as influenced by minority stress. Understanding internalized homophobia and homophobic discrimination in the context of marriage equality in the US is a critical step in the reduction of sexual risk-taking behaviors and the development of effective interventions to improve health among all same-sex couples in the US.

Keywords: United States, HIV, minority stress, relationship functioning, MSM, male-male couples, marriage equality

Introduction

After more than three decades of the US HIV epidemic, men who have sex with men (MSM) remain disproportionately affected, representing approximately 63% of all new infections in 2010, yet accounting for only 2% of the US population (CDC, 2012). MSM are the only risk group that has experienced an increase in HIV incidence in the US. From 2008 to 2010, new HIV infections increased 22% among young MSM (aged 13-24), and increased 12% among MSM overall (CDC, 2012). Although research and programmatic efforts have largely focused on the individual risk factors associated with HIV acquisition among MSM, a growing body of research has shown the importance of examining HIV in the context of male-male relationships (Darbes, et al., 2012; Gomez, et al., 2012; Mitchell & Petroll, 2013; Sullivan, et al., 2009). Recent modeling work suggests that between one to two thirds of new HIV infections among MSM occur among main partners in a relationship (Goodreau, et al., 2012; Sullivan, et al., 2009). As reported by Sullivan et al. (2009), high rates of HIV transmission between main partners are shaped by three synergistic processes: a higher number of sexual acts with main partners, a higher likelihood of receptive anal intercourse with main partners, and lower levels of condom use for anal intercourse with main partners, yet research and programs remain largely focused on individuals.

The role of the male dyad in shaping HIV risk has received considerable research attention recently. Previous studies have examined how relationship characteristics, including relationship duration, relationship label, perception of commitment, communication style, and partner-provided support are associated with HIV risk among male-male couples (Darbes, et al., 2012; Darbes, Chakravarty, Neilands, Beougher, & Hoff, 2014; Gomez, et al., 2012; Hoff, Chakravarty, Beougher, Neilands, & Darbes, 2012; Mitchell, 2013, 2014; Mitchell & Petroll,

2013; Mustanski, Newcomb, & Clerkin, 2011). Some studies have shown that increased HIV-specific social support from main partners lessens the likelihood of engaging in unprotected anal intercourse (UAI) with outside partners, likely to be influenced by reduced stigma and increased comfort in discussing HIV with partners (Darbes, et al., 2012; Darbes, et al., 2014). However, this finding was not upheld for general social support, possibly because increased emotional support includes a greater tolerance for risky behavior, suggesting that it is important to consider the type of support provided by main partners in relation to HIV risk (Darbes, et al., 2012).

Additionally, much attention has been paid to the role that sexual agreements, influenced by factors such as relationship duration, perception of commitment, and communication style, have in shaping HIV risk among male-male couples (Gass, Hoff, Stephenson, & Sullivan, 2012; Gomez, et al., 2012; Hoff, et al., 2012; Mitchell, 2014; Mitchell & Petroll, 2013). Sexual agreements have been shown to be a common element of male-male relationships. Among a sample of 732 MSM in main partnerships, 91% of respondents reported having a sexual agreement with their main partner, while 16% of those with an agreement reported ever having broken it (Gass, et al., 2012). Additionally, Hoff et al., 2012 found that among broken sexual agreements leading to UAI with an outside partner, over half of outside partners' HIV statuses were unknown or discordant (Hoff, et al., 2012). Reported reasons for broken sexual agreements among main partners have been found to be spontaneous in nature (Gomez, et al., 2012), suggestive of a troubling trend with the potential to undermine prevention efforts and put both partners at risk for HIV, as MSM have been shown to be less likely to use condoms with main partners (Hoff, et al., 2012; Sullivan, et al., 2009). Despite this body of work that has examined how the contexts and characteristics of male-male relationships may shape HIV risk, there is a

paucity of research that has examined the role of social stressors in shaping a couple's ability to work together to manage the risks of HIV infection.

One potential source of stress for same sex couples is homophobia, which can be experienced externally from others or internally as struggles with same sex attraction and sexual orientation. Internalized homophobia (IH) is the acceptance of negative homosexual attitudes and assumptions by homosexuals that leads to feelings of inferiority (Ross, Berg, et al., 2013; Ross, Kajubi, et al., 2013). The internalization of negative homophobic emotions has been consistently shown in the literature to have an adverse impact on health among MSM, leading to depression, anxiety, fear, and nondisclosure of sexual orientation, all of which increase HIV risk (Choi, et al., 2013; Jeffries, et al., 2013; Ross, Berg, et al., 2013; Ross, Kajubi, et al., 2013; Santos, et al., 2013; Shoptaw, et al., 2009; White & Stephenson, 2014). Similarly, in a study of MSM in 38 countries worldwide, higher levels of IH were found to be most strongly associated with increased sexual risk taking and decreased HIV testing, driven by fear, stigmatization, inability to access condoms, and a lack of sexual control (Ross, Berg, et al., 2013). The effects of the stress resulting from internalized homophobia can be mitigated or exacerbated, depending on the composition of MSM social networks. Research has shown HIV risk among MSM to be influenced by social networks through the provision of access to culturally appropriate LGBT services, role models, and social support in the community (Stephenson, et al., 2013).

Levels of homophobia in the US have been changing over time, but nationally-representative survey results from over 30,000 individuals between 1973-2008 have shown that 68% of participants reported that homosexuality was "always wrong" (Glick & Golden, 2010). The experience of external homophobia has been linked to risk factors for HIV. For example, among a sample of African American MSM in the US, those who experienced homophobia in

the last 12 months were more likely to engage in unprotected anal intercourse than those who did not (Jeffries, et al., 2013). The experience of unfair treatment or name-calling was found to be associated with UAI among HIV-negative MSM, while any level of homophobic discrimination was found to be associated with UAI among HIV-positive MSM, suggesting a difference in psychosocial ability to manage HIV stress and stigma (Jeffries, et al., 2013).

Given recent findings of the high proportion of new HIV infections that are attributable to main partners in male-male couples, it is imperative to develop efficacious dyadic focused interventions. Foundational to these interventions is the ability for male-male couples to communicate openly and act to manage the risk of HIV in their relationship. Research has shown the importance of considering both internal and external stressors in understanding HIV risk among male-male couples. However, largely missing from the literature to date is an understanding of how these stressors shape the ability of male-male couples to cope with HIV risk. The purpose of this study is to address this gap in the literature by examining how minority stressors influence relationship functioning and HIV risk among male-male couples in the US.

Methods

Study participants were recruited in the Atlanta Metropolitan area from September – December 2011 using venue-based sampling. In venue-based sampling, sampling occurs within prescribed blocks of time at specific venues (Stephenson, et al., 2013). Venue-based sampling uses a sampling frame of venue-time units to target hard-to-reach populations. Venue-time units consist of locations and times where there is a higher prevalence of the target population as compared to the general community (Stephenson, et al., 2013). The venue sampling frame for this study consisted of over 160 venue-time units and included a variety of gay-friendly venues in the Atlanta area to target a diverse group of gay and bisexual men (Stephenson, et al., 2013).

At least one recruitment event was selected per day using a randomized computer program that assigned venue-time units on a monthly basis.

Venues consisted of a variety of gay-friendly locations, including Gay Pride events, gay fundraising events, downtown areas, gay bars, bathhouses/sex clubs, and an AIDS service organization. During recruitment, study recruiters approached every n th man (n varied between 1 and 3) who crossed an imaginary line drawn by the recruiters at the venue (Stephenson, et al., 2013). The man was asked if he would be interested in finding out if he was eligible for a research study, and if so, a series of 8 questions were asked to determine his eligibility, including his sexual orientation, recent sex with a man, age, race, and place of residency (Stephenson, et al., 2013). Personal palm-held computers were used to record all responses for eligibility criteria. If determined eligible, a short script was read to explain how to complete the 20-minute self-administered, web-based survey (at home or on-site at specific venues) and a card was provided containing the web address and a unique identifier to link recruitment data to survey data. Compensation for survey completion was provided in the form of a \$30 gift card.

The survey contained questions demographics, recent sexual behavior with male partners, intimate partner violence (IPV), couples' coping and communication, social network characteristics, and minority stress (Stephenson, et al., 2013). In total, 4,903 men were approached for the study, and 2,936 (59.9%) agreed to be screened for eligibility (Stephenson, et al., 2013). Of those screened, 2,093 men (71.3%) were determined to be eligible to participate in the study and 1,965 (93.9%) of eligible men were interested in study participation (Stephenson, et al., 2013). The survey was completed by a total of 1,075 men (51.4% of those eligible) (Stephenson, et al., 2013). Approximately half (49.3%) of the 1,075 men who completed the

survey reported having a main partner, 447 of which were included in the final analysis due to complete data on all covariates of interest (Table 1).

Development and validation of the outcome scales has been described previously (Salazar, Stephenson, Sullivan, & Tarver, 2011). Briefly, three outcome scales examining communal coping were considered in this analysis: decision-making around outcome efficacy to reduce HIV threat, decision-making around couple efficacy to reduce HIV threat, and decision-making around communal coping to reduce HIV threat. It has been shown that changes in dyadic characteristics (outcome efficacy and couple efficacy) specifically related to HIV risk behavior offer promising insight into sustained behavior change (Salazar, et al., 2011). Interdependence theory, as described by Lewis et al., suggests that MSM couples' responses to HIV may be influenced by factors such as perceived threat of HIV, preferences for outcomes (consequences experienced from interacting), relationship functioning, and communication style (Salazar, et al., 2011). The dyadic scales were developed using the Lewis et al. model and designed specifically to measure HIV-related behaviors for MSM couples, for which other measures do not exist (Salazar, et al., 2011).

Scale development was informed by a literature review and qualitative data on relationship satisfaction, community support, coping mechanisms, decision-making processes, and confidence in shared-goal attainment among gay men in relationships (Salazar, et al., 2011). Experts in the field of HIV/AIDS prevention assessed each scale for face and content validity, and revisions were made based on feedback (Salazar, et al., 2011). To determine reliability and validity, the scales were distributed to an online convenience sample of MSM. The scales (decision-making around outcome efficacy to reduce HIV threat, decision-making around couple

efficacy to reduce HIV threat, and decision-making around communal coping to reduce HIV threat) were developed as follows.

Outcome efficacy is defined as the belief of the couple about the effectiveness of communicating and making decisions together (communal coping) for healthy behavioral change (Salazar, et al., 2011). The stem question used for the decision-making around outcome efficacy scale was, “Making decisions together is an effective strategy for?” (Salazar, et al., 2011). Respondents were asked to respond to 7 statements following the stem question (*e.g.*, “...using condoms when we have sex with each other,” “...limiting the number of other sex partners,” and “...using condoms when either of us has sex outside our relationship.”) with response options ranging from “Strongly disagree” to “Strongly agree” on a five-point Likert scale, with a potential scale range of 7-35 (Salazar, et al., 2011). A higher score indicated higher levels of outcome efficacy to reduce HIV threat (Salazar, et al., 2011).

Couple efficacy is defined as the confidence a couple has in believing that they can communicate and make decisions together (communal coping) to reduce a health threat (Salazar, et al., 2011). The stem question used for the decision-making around couple efficacy scale was, “How confident are you that you and your partner can make decisions together to?” (Salazar, et al., 2011). Respondents were asked to respond to the same 7 statements (referenced above), with response options ranging from “Not at all confident” to “Very confident” on a five-point Likert scale, with a potential range of 7-35. A higher score indicated higher levels of couple efficacy to reduce HIV threat (Salazar, et al., 2011).

Communal coping includes the constructs of outcome efficacy and couple efficacy, as described previously, to measure how couples engage in joint efforts to make decisions to reduce health threats (Salazar, et al., 2011). The stem question used for the decision-making around

communal coping scale was, “To what extent do you and your partner make decisions about?” (Salazar, et al., 2011). Respondents were asked to respond to the same 7 statements referenced above, with response options ranging from “Never” to “Always” on a five-point Likert scale, with a potential range of 7-35. A higher score indicated greater frequency in engaging in communal coping strategies (Salazar, et al., 2011).

The three covariates of interest used to measure minority stress were: internalized homophobia, gay discrimination, and race discrimination (each analyzed in 3 categories based on the distribution of the tertiles). The internalized homophobia scale was constructed from a modified version of the Gay Identity Questionnaire (Brady & Busse, 1994). Internalized homophobia was assessed using a five-point Likert scale (strongly disagree to strongly agree) for a series of 20 statements (e.g., “*I doubt that I am homosexual/bisexual but still am confused about who I am sexually*” and “*I am very proud to be gay/bisexual and make it known to everyone around me*”) (Stephenson, et al., 2013). The theoretical range of the scale from -40 to +40 was adjusted to 0 to 80 for ease of conceptualization. A score of 0 on the scale was suggestive of homosexual openness and pride, a score of 40 suggested neutrality, and an increasing score from 40 to 80 suggested increased internalized homophobia and decreased homosexual pride (Stephenson, et al., 2013). Gay discrimination was measured using a scale of 11 yes/no statements (e.g., “*Due to your sexual orientation have you ever been made fun of as an adult?*” and “*Have you ever experienced job discrimination due to your sexual orientation?*”) (Stephenson, et al., 2013). An increasing score was suggestive of increased experience of gay discrimination. Lastly, race discrimination was measured using a scale of 10 yes/no statements (e.g., “*Due to your race have you ever been treated rudely or unfairly?*” and “*Due to your race*

have you ever been rejected for sex?”), where an increasing score was suggestive of increased experience of racial discrimination (Stephenson, et al., 2013).

Analysis considered the following control variables: age (categorical variable), race (white, black, other), education level (high school or less, some college/2 year degree, college degree or more), employment status, HIV status, any recent intimate partner violence (IPV) (defined as physical or sexual violence in the last 12 months), same race as main partner, same sexual orientation as main partner, and main partner age difference (5+ years older, same age or 1-4 years older, 1-4 years younger, 5+ years younger). The control variables were chosen based on a review of the literature.

The data was analyzed using STATA 12. For each of the three outcomes of interest, a linear model was fitted. Each model included all control variables and the three covariates of interest.

Results

The final sample of 447 participants had a mean age of 35.7 years (18-71 years) and was 55% white, non-Hispanic, 31% black/African American, and 14% Latino/other. Over half of the sample (55%) reported a college education or higher, while 29% reported some college or a two-year degree, and 16% reported a high school education or less. Twenty-eight percent of participants reported recent (< 12 months) IPV and the majority of participants reported homosexual/gay sexual orientation (93%), current employment (83%), and a negative HIV status (79%).

In reporting characteristics of participants’ main partners, 89% reported that they were the same sexual orientation as their main partner and 69% of participants reported that they were the same race. Main partner age difference was distributed evenly among the four age

categories: main partner 5 or more years older (25%), main partner same age or 1-4 years older (28%), main partner 1-4 years younger (22%), and main partner 5 or more years younger (25%).

At the bivariate level (Table 2), those who were older (45+ years) reported higher mean scores on the communal coping scale (Mean: 32.0; SD: 4.8), compared to those who were younger (35-44 years) (Mean: 30.9; SD: 5.7). Also on the communal coping scale, African American men reported lower mean scores (Mean: 29.7; SD: 6.5) compared to white men (Mean: 31.3; SD: 5.1). Those who reported gay sexual orientation also reported higher mean scores on the couple efficacy scale (Mean: 31.2; SD: 4.9), while those who reported that they were bisexual reported lower mean scores on the same scale (Mean: 29.5; SD: 4.8). Those who reported any recent IPV also reported lower mean scores on both the couple efficacy scale (Mean: 29.6; SD: 5.5) and the communal coping scale (Mean: 29.8; SD: 6.2). Those who reported that they were not the same sexual orientation as their main partner also reported lower mean scores on both the couple efficacy scale (Mean: 29.5; SD: 5.9) and the communal coping scale (Mean: 28.9; SD: 7.1). Those who reported higher levels of internalized homophobia also reported lower mean scores on all three scales: couple efficacy (Mean: 29.7; SD: 5.3), communal coping (Mean: 29.6; SD: 6.3), and outcome efficacy (Mean: 30.5; SD: 5.5). Those who reported an increase in experience of gay discrimination also reported lower mean scores on the couple efficacy scale (Mean: 30.6; SD: 5.5). Lastly, those who reported higher experience of race discrimination also reported lower mean scores on all three scales: couple efficacy (Mean: 30.3; SD: 5.8), communal coping (Mean: 30.2; SD: 6.4), and outcome efficacy (Mean: 30.9; SD: 5.5). No variation in reporting was found by education level, employment status, HIV status, same race as main partner, social network composition, or main partner age difference.

Table 3 shows the results of the final adjusted model. After controlling for all covariates, two key outcome variables had a consistent association with measures of relationship quality: internalized homophobia and race discrimination. Participants who reported higher scores on the internalized homophobia index (suggesting increased internalized homophobia) reported lower mean scores on all three outcome variables: outcome efficacy—3rd tertile (Beta: -1.84; SE: 0.67), couples efficacy—2nd tertile (Beta: -1.37; SE: 0.57) and 3rd tertile (Beta: -2.73; SE: 0.59), and communal coping—3rd tertile (Beta: -1.57; SE: 0.74). Similarly, participants who reported higher scores on the race discrimination index (suggesting increased experience of racial discrimination) reported lower mean scores on the couple's efficacy outcome variable—3rd tertile (Beta: -1.36; SE: 0.67).

Discussion

Same-sex couples are becoming increasingly more visible in the US, in part due to changing attitudes and legislation. The 2010 US Census reported 594,000 same-sex couples living in the US, totaling 1% of all US couple households (Lofquist, 2011). However, despite this growing visibility, stigma and discrimination against same-sex couples still persists. In addition to ongoing negative attitudes towards same-sex couples, male-male couples remain disproportionately affected by the HIV epidemic in the US, with recent estimates suggesting that one to two thirds of new HIV infections among MSM occur within main partnerships (CDC, 2012; Goodreau, et al., 2012; Sullivan, et al., 2009). Although previous HIV research has focused on HIV transmission at the individual level, couple-level interventions remain largely understudied. In order to develop effective couple-level interventions, we must first understand the role that stress and stigma play in shaping the ability of male-male couples to cope with HIV risk, influencing their ability to adopt risk reduction and prevention efforts. The results

presented in this study show that two factors, internalized homophobia and racial discrimination, are significantly associated with at least one of the three couples' coping outcome scales.

Respondents who reported higher levels of internalized homophobia reported significantly lower mean scores on all three outcome scales: outcome efficacy (the belief of the couple about the effectiveness of communicating and making decisions together), couple efficacy (the confidence a couple has in believing that they can communicate and make decisions together), and communal coping (how couples engage in joint efforts to make decisions). The finding that increased levels of internalized homophobia are associated with lowered ability to communicate and manage HIV in a relationship point to a potential pathway for HIV transmission within couples. The results from this study are consistent with findings from prior studies that show internalized homophobia to be associated with HIV risk behavior among individuals. Previous studies have illustrated that the experience of minority stress, which includes internalized homophobia, is associated with several outcomes known to be linked to HIV risk, including depression/hopelessness, lower levels of HIV testing, and lower levels of perceived control over safe sex (Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008; Jeffries, et al., 2013; Ross, Berg, et al., 2013; Santos, et al., 2013). The results presented here suggest that internalized homophobia may also limit an individual's ability to communicate and participate in HIV prevention strategies with their partner.

Respondents who experienced higher levels of racial discrimination reported significantly lower mean scores on the couples efficacy outcome scale, suggesting that experiencing racial discrimination decreased a couples' confidence in their ability to make decisions together to reduce their risk for HIV. The experience of racial discrimination has been shown to be associated with depression and anxiety among MSM (Choi, et al., 2013; Diaz, Ayala, Bein,

Henne, & Marin, 2001). It is possible that for couples where one or both partner experiences racism, this stress manifests as the impaired desire or ability to communicate about HIV risk. Perhaps, increased stress from the experience of racial discrimination can lead to depression and anxiety, which hampers the ability of couples to make decisions together and puts them at greater risk for engaging in high-risk sexual behaviors.

Taken together, these findings not only support, but add a new dimension to the minority stress theory (Meyer, 1995), suggesting that internalized homophobia and racial discrimination result in increased stress on both the individual- and couple-level. Increased minority stress can lead to poor relationship functioning and difficulty communicating about HIV risk behavior. However, unlike previous research showing external stressors to be the cause of minority stress (Choi, et al., 2013; Hatzenbuehler, et al., 2008; Ross, Berg, et al., 2013), the finding that internalized homophobia is significantly associated across all three outcomes with a decrease in couples' relationship functioning suggests that the mechanisms leading to minority stress in a relationship are internal rather than external.

The finding that social networks do not influence relationship functioning was not expected. Previous research has illuminated the role of social networks on sexual risk-taking behavior among MSM, suggesting that social networks provide positive LGBT role models and social support (Darbes, et al., 2012; Latkin et al., 2012; Stephenson, et al., 2013). However, the results from this study showing the non-effect of social networks on relationship functioning could suggest that respondents' social networks were not a source of positive LGBT culturally-specific social and emotional support. This study only measured the social network dimensions of age, gender, race, sexual orientation, relationship status, and participant disclosure of sexual

orientation to social network member, but perhaps other unmeasured elements of social networks are important.

Limitations

The results of the present study should be interpreted in the context of several limitations. First, the lack of dyadic data is limiting in that it only provides the perspective of one partner in a relationship, which is a shortcoming when exploring couples relationship coping mechanisms. Second, the use of venue-based sampling to recruit study participants, though not the gold-standard, has been previously demonstrated to provide a sample of similar composition to random sampling for hard-to-reach populations (Kaschak, 2001). Lastly, the cross-sectional nature of the study design does not allow for the inference of causal relationships between minority stressors and relationship functioning.

Conclusion

The current study results highlight the role that stressors play on male-male couples' relationships and HIV risk, extending the existing literature in the field of same-sex relationships as influenced by minority stress. Previous work has focused on factors affecting individual MSM and their risk for HIV, yet couples' ability to manage risk has been largely understudied despite the high rates of HIV transmission among male-male couples. Understanding the impact of internalized homophobia and homophobic discrimination on the health of male-male couples in the context of marriage equality in the US is a critical step in the reduction of sexual risk-taking behaviors. This study illuminates the clear need for a greater focus in understanding how minority stressors affect relationship functioning and health outcomes among all same-sex couples. This information is critical to facilitate the development of effective interventions to reduce stress and improve health among same-sex couples in the US.

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Table 1. Background characteristics of 447 gay and bisexual men who self-report having a main partner

Respondent Characteristics	% (n) N = 447	Mean/Range
Age		35.7(18-71)
18-24	18% (83)	
25-34	30% (132)	
35-44	30% (138)	
45+	22% (103)	
Race		
White	55% (246)	--
Black	31% (138)	--
Other	14% (63)	--
Education Level		
High School or Less	16% (69)	--
Some College or 2-year Degree	29% (131)	--
College or More	55% (247)	--
Employment Status		
Employed	83% (369)	--
Unemployed	17% (78)	--
Sexual Orientation		
Gay	93% (416)	--
Bisexual	7% (31)	--
HIV Status		
Negative/DK	79% (351)	--
Positive	21% (96)	--
Recent IPV (any)		
No	72% (323)	--
Yes	28% (124)	--
Same Race as Main Partner		
No	31% (138)	--
Yes	69% (309)	--
Same Sexual Orientation as Main Partner		
No	11% (51)	--
Yes	89% (396)	--
Proportion of Social Network That is LGBT		0.67 (0-1)
0	9% (41)	
0.2 - 0.5	20% (91)	
0.6+	70% (315)	

Main Partner Age Difference		
MP 5+ years older	25% (110)	--
MP same age or 1-4 years older	28% (126)	--
MP 1-4 years younger	22% (100)	--
MP 5+ years younger	25% (111)	--
Internalized Homophobia Index		16.3 (0-57)
1 st Tertile (1%-33%)	29% (132)	
2 nd Tertile (34%-66%)	36% (160)	
3 rd Tertile (67%-100%)	35% (155)	
Gay Discrimination Index		5.8 (0-11)
1 st Tertile (1%-33%)	32% (142)	
2 nd Tertile (34%-66%)	28% (127)	
3 rd Tertile (67%-100%)	40% (178)	
Race Discrimination Index		2.3 (0-10)
1 st Tertile (1%-33%)	38% (168)	
2 nd Tertile (34%-66%)	26% (116)	
3 rd Tertile (67%-100%)	36% (163)	
Couples Coping Scales:		
Couple Efficacy	--	31.1 (7-35)
Communal Coping	--	30.7 (7-35)
Outcome Efficacy	--	31.6 (7-35)

Table 2. Mean scores on scales measuring outcome efficacy, couple efficacy and communal coping by background characteristics among a sample of 447 gay and bisexual men who self-report having a main partner

	(n) N = 447	Outcome Efficacy Mean/SD	Couple Efficacy Mean/SD	Communal Coping Mean/SD
Age				
18-24	83	30.9 (5.3)	30.7 (4.6)	30.0 (6.4)
25-34	132	31.3 (6.2)	30.8 (5.6)	30.3 (6.4)
35-44	132	31.7 (5.0)	31.1 (4.7)	30.9 (5.7)
45+	100	32.3 (4.6)	32.0 (4.3)	32.0 (4.8)
Race				
White	246	32.0 (4.7)	31.4 (4.6)	31.3 (5.1)
Black	138	31.0 (6.2)	30.5 (5.0)	29.7 (6.5)
Other	63	31.4 (5.7)	31.3 (5.5)	30.6 (7.1)
Education Level				
High School or Less	69	31.3 (5.4)	31.1 (5.1)	30.6 (5.5)
Some College or 2-year Degree	131	31.6 (5.4)	30.4 (5.2)	29.9 (6.7)
College or More	247	31.7 (5.4)	31.5 (4.6)	31.2 (5.6)
Employment Status				
Employed	369	31.6 (5.3)	31.3 (4.7)	30.9 (5.7)
Unemployed	78	31.5 (5.7)	30.3 (5.6)	29.9 (6.8)
Sexual Orientation				
Gay	416	31.7 (5.4)	31.2 (4.9)	30.9 (5.9)
Bisexual	31	30.3 (4.8)	29.5 (4.8)	28.7 (6.0)
HIV Status				
Negative/DK	351	31.6 (5.4)	31.3 (4.8)	30.8 (5.9)
Positive	96	31.6 (5.4)	30.4 (5.2)	30.4 (6.2)
Recent IPV (any)				
No	323	31.8 (5.1)	31.7 (4.5)	31.1 (5.8)
Yes	124	30.9 (5.9)	29.6 (5.5)	29.8 (6.2)
Same Race as Main Partner				
No	138	31.1 (5.6)	30.9 (5.1)	30.6 (6.4)
Yes	309	31.8 (5.2)	31.2 (4.8)	30.8 (5.7)
Same Sexual Orientation as Main Partner				
No	51	30.4 (5.9)	29.5 (5.9)	28.9 (7.1)
Yes	396	31.7 (5.3)	31.3 (4.7)	31.0 (5.7)
Proportion of Social Network That is LGBT				
0	41	31.1 (6.0)	31.0 (6.0)	30.0 (6.8)
0.2 - 0.5	91	32.7 (3.8)	31.8 (4.3)	31.2 (5.9)
0.6+	315	31.3 (5.6)	30.9 (4.9)	30.7 (5.8)

Main Partner Age Difference				
MP 5+ years older	110	31.0 (5.5)	30.5 (4.7)	30.7 (5.2)
MP same age or 1-4 years older	126	31.6 (5.4)	31.2 (4.9)	30.5 (6.3)
MP 1-4 years younger	100	31.5 (5.5)	31.0 (5.6)	30.0 (6.7)
MP 5+ years younger	111	32.2 (5.0)	31.7 (4.4)	31.6 (5.4)
Internalized Homophobia Index				
1 st Tertile (1%-33%)	132	32.7 (4.7)	32.6 (4.1)	31.6 (5.4)
2 nd Tertile (34%-66%)	160	31.8 (5.5)	31.3 (4.7)	31.1 (5.8)
3 rd Tertile (67%-100%)	155	30.5 (5.5)	29.7 (5.3)	29.6 (6.3)
Gay Discrimination Index				
1 st Tertile (1%-33%)	142	31.8 (5.2)	31.9 (4.4)	30.6 (6.3)
2 nd Tertile (34%-66%)	127	31.5 (5.1)	31 (4.3)	31.2 (5.1)
3 rd Tertile (67%-100%)	178	31.5 (5.7)	30.6 (5.5)	30.4 (6.2)
Race Discrimination Index				
1 st Tertile (1%-33%)	168	32.3 (4.5)	32.3 (3.9)	31.6 (5.4)
2 nd Tertile (34%-66%)	116	30.9 (5.5)	30.6 (4.8)	30.2 (6.0)
3 rd Tertile (67%-100%)	163	31.4 (6.1)	30.3 (5.6)	30.2 (6.4)

Italics = p<0.05

Table 3. Adjusted odds ratios for scales measuring outcome efficacy, couple efficacy and communal coping by background characteristics among a sample of 447 gay and bisexual men who self-report having a main partner

	Outcome Efficacy Beta/SE	Couple Efficacy Beta/SE	Communal Coping Beta/SE
Age			
18-24	Ref	Ref	Ref
25-34	0.218 (0.820)	-0.507 (0.716)	0.240 (0.905)
35-44	0.591 (0.866)	-0.121 (0.757)	0.811 (0.957)
45+	0.680 (0.949)	0.211 (0.830)	1.534 (1.048)
Race			
White	Ref	Ref	Ref
Black	-0.130 (0.774)	1.185 (0.676)	-0.109 (0.854)
Other	0.342 (0.937)	1.070 (0.819)	0.104 (1.034)
Education Level			
High School or Less	Ref	Ref	Ref
Some College or 2-year Degree	0.401 (0.824)	-0.705 (0.720)	-0.838 (0.910)
College or More	0.051 (0.804)	0.099 (0.703)	-0.280 (0.888)
Employed	-0.005 (0.737)	-0.772 (0.644)	-0.742 (0.814)
Gay Sexual Orientation	-0.339 (1.221)	-0.447 (1.067)	-0.723 (1.348)
HIV Negative	0.044 (0.663)	-0.776 (0.580)	-0.254 (0.733)
Recent IPV	-0.463 (0.616)	-1.383 (0.538)	-0.463 (0.680)
Different Race than Main Partner	0.956 (0.640)	0.412 (0.560)	0.331 (0.707)
Different Sexual Orientation than Main Partner	0.652 (0.982)	0.757 (0.858)	0.707 (1.084)
Proportion of Social Network That is LGBT			
0	Ref	Ref	Ref
0.2 - 0.5	1.435 (1.028)	0.585 (0.898)	0.907 (1.135)
0.6+	0.210 (0.908)	0.090 (0.793)	0.701 (1.002)
Main Partner Age Difference			
MP 5+ years older	Ref	Ref	Ref
MP same age or 1-4 years older	0.604 (0.723)	0.625 (0.632)	-0.144 (0.798)
MP 1-4 years younger	0.388 (0.757)	0.383 (0.661)	-0.915 (0.836)
MP 5+ years younger	1.022 (0.778)	1.143 (0.680)	0.314 (0.859)
Internalized Homophobia Index			
1 st Tertile (1%-33%)	Ref	Ref	Ref
2 nd Tertile (34%-66%)	-0.762 (0.647)	-1.367 (0.566)	-0.487 (0.715)
3 rd Tertile (67%-100%)	-1.842 (0.669)	-2.733 (0.585)	-1.568 (0.739)

Gay Discrimination Index			
1 st Tertile (1%-33%)	Ref	Ref	Ref
2 nd Tertile (34%-66%)	-0.304 (0.683)	-0.658 (0.597)	0.522 (0.754)
3 rd Tertile (67%-100%)	-0.339 (0.687)	-0.786 (0.601)	-0.204 (0.759)
Race Discrimination Index			
1 st Tertile (1%-33%)	Ref	Ref	Ref
2 nd Tertile (34%-66%)	-1.025 (0.674)	-1.064 (0.590)	-0.862 (0.745)
3 rd Tertile (67%-100%)	-0.140 (0.766)	-1.358 (0.670)	-0.671 (0.846)

Italics = p<0.05

CHAPTER 3: PUBLIC HEALTH IMPLICATIONS

The current study results highlight the role that minority stressors play on male-male couples' relationship functioning and communication about HIV risk. These findings offer two points of intervention for public health recommendations: structural interventions focused on decreasing minority stress through research and policy, and dyadic interventions focused on couples' working together to reduce a health risk.

The finding that internalized homophobia as a minority stressor hinders male-male couples' ability to work together and communicate effectively about HIV suggests the need for closer examination of homophobic discrimination as linked to HIV risk. Understanding homophobic discrimination in the context of marriage equality is a critical research gap that needs to be examined given the increasing visibility of same-sex couples in the US with limited access to civil marriage rights. Previous research has examined how marriage equality influences finite health outcomes (e.g. mental health among same-sex married versus not married LGB) (Wight, et al., 2013), yet largely missing from the literature to date is an understanding of how marriage equality shapes the processes that influence health behavior, for example, communication around HIV risk. With increased research attention in this field, the impact of marriage equality on the processes that influence health outcomes can be assessed to enable the development of evidence-based interventions.

Marriage equality should be considered a policy intervention point to decrease minority stress linked to HIV risk among the highest at-risk population in the US: men who have sex with men. Policy-level changes need to address same-sex marriage as a health issue in addition to a human rights issue. By messaging marriage equality as health concern, the grounds for ideological disagreement are removed and policymakers will be forced to address marriage

equality from the standpoint of improving the health of their constituents. It is expected that increasing access to marriage equality for same-sex couples in all states will decrease homophobic discrimination. In doing so, it is expected to decrease minority stress stemming from internalized homophobia and enable couples to better communicate about health behaviors. Policy changes that result in the reduction of minority stress among same-sex couples are expected to increase relationship functioning among male-male couples and ultimately reduce their risk for HIV.

A decline in couples' relationship functioning as influenced by minority stress also lends itself to a dyadic intervention focused on couples' counseling. Couples' counseling has been proven to be an effective method for improving couples' willingness to engage in HIV testing, as shown in research on couples' voluntary counseling and testing (CVCT) (Stephenson, Chard, Finneran, & Sullivan, 2014; Stephenson et al., 2011; Wagenaar et al., 2012). Couples' counseling programs could be modeled after the successful CVCT programs to offer an intervention for the reduction of minority stress. Targeting couples' coping skills through counseling to enable them to be better equipped to manage minority stress has the potential to increase their relationship functioning capability. As decreased couples' coping has been linked to an increase in HIV risk, the dyadic point of intervention could help to reduce male-male couples' risk for HIV through increased relationship communication on health risk behaviors.

In conclusion, understanding the impact of internalized homophobia and homophobic discrimination on the health of male-male couples is a critical step in the reduction of sexual risk-taking behaviors. This study illuminates the clear need for a greater focus on the influence of minority stressors on relationship functioning and health outcomes among same-sex couples. Structural and dyadic points of intervention offer potential pathways to decrease the impact of

minority stress on male-male couples and increase their ability to communicate in their relationships. Further research on the role of marriage equality and homophobic discrimination is critical to facilitate the development of effective dyadic and policy-level interventions to reduce stress and improve health among same-sex couples in the US.

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