AN EMPIRICAL EXAMINATION AND EXTENSION OF THE PSYCHOLOGICAL MEDIATION FRAMEWORK AMONG GAY AND BISEXUAL MEN: A MIXED METHODS STUDY

by

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AUTHOR'S DECLARATION

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Abstract

An Empirical Examination and Extension of the Psychological Mediation Framework Among Gay and Bisexual Men: A Mixed Methods Study

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Compared to heterosexual men, gay and bisexual men (GBM) are at an increased risk of adverse mental and sexual health outcomes. Minority Stress Theory (MST) proposes that GBM experience an increased prevalence of poor mental health outcomes as a result of minority stress. Building upon MST, the Psychological Mediation Framework (PMF) posits that minority stress leads to changes in general cognitive, affective, and social psychological processes, thereby leading to negative mental health outcomes. The present mixed methods study focused on three primary objectives in a sample of 261 GBM: (a) testing the indirect effects of general psychological processes in the relationship between minority stress and poor mental health outcomes; (b) evaluating whether these processes also account for the relationship between minority stress and poor sexual health outcomes; and (c) qualitatively exploring and further clarifying the PMF. Quantitative results provided support for the PMF by demonstrating that experiences of objective stigma were associated with elevations in psychological risk factors, which were in turn associated with adverse mental health outcomes. When each mediator was examined separately, affective processes had a significant effect on mental health outcomes, whereas cognitive and social processes were non-significant. For sexual health, the total indirect effect of general psychological mediators in the relationship between stigma and sexual health

outcomes was non-significant. However, when mediators were examined separately, cognitive processes did appear to have a significant indirect effect in this relationship, whereas affective and social processes were non-significant. Qualitative results provided partial support for the PMF; many, but not all, of the key components of the model were discussed by participants, and a number of novel themes emerged that expand beyond variables described in the PMF. These findings have important theoretical implications by helping to refine the PMF and future studies of minority stress. Further, by offering a better understanding of the mechanisms linking minority stress and poor health outcomes, this study may help guide future psychological interventions aimed at improving the health of GBM.

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I would like to thank the members of the HIV Prevention Lab, who assisted with all stages of my dissertation and whose contributions were vastly helpful in allowing me to complete this project in a timely manner. I am particularly indebted to Carolyn James and Amrita Ghai, who have been a constant source of support, learning, and (most importantly) laughter. To my Ryerson cohort, thank you for providing me with so many fond memories. Who knew graduate school could be so much fun?

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Table of Contents

List of Tables

List of Figures

List of Appendices

Chapter 1: Introduction

Compared to heterosexual men, gay and bisexual men (GBM) are at increased risk for a host of adverse mental health outcomes (Bolton & Sareen, 2011; Cochran & Mays, 2000, 2009; Cochran, Sullivan, & Mays, 2003; Frisell, Lichtenstein, Rahman, & Langstrom, 2010; Gilman et al., 2001; Jorm, Korten, Rodgers, Jacomb, & Christensen, 2002; King et al., 2008; Meyer, 2003) and sexual health outcomes (Brennan, Ross, Dobinson, Velhuizen, & Steele, 2010; Hirshfield et al., 2010; Wolitski & Fenton, 2011). Building upon Minority Stress Theory (MST; Meyer, 1995, 2003) and the Psychological Mediation Framework (PMF; Hatzenbuehler, 2009), this mixed methods study explored the factors accounting for adverse mental and sexual health outcomes in a sample of GBM.

This paper begins with an overarching introduction, which provides an overview of the mental health status of GBM, describes two theoretical models (MST and the PMF), and highlights the applications of these models to mental and sexual health outcomes in this population. The quantitative study objective and hypotheses are then discussed, followed by an overview of the qualitative study objectives and hypotheses. The method, results, and discussion sections are divided into quantitative and qualitative sections, followed by a general discussion of the overall study findings.

1.1 Models of Mental Health Outcomes Among GBM

The term sexual minority refers to individuals who engage in same-sex sexual behaviour, are sexually or emotionally attracted to individuals of the same sex, or identify as gay, lesbian, or bisexual (e.g., Russell, 2003; Savin-Williams, 2001). More broadly, sexual minority individuals are individuals who do not identify as heterosexual (Hatzenbuehler, 2009). Past research has consistently reported higher prevalence rates of depression and anxiety disorders among sexual

minority individuals compared to heterosexual individuals. For example, a nationally representative U.S. study examining the association between sexual orientation and mental health outcomes reported that the lifetime prevalence of mood and anxiety disorders, respectively, were 42.3% and 45.8% among gay men; 36.9% and 40.6% among bisexual men; versus only 19.8% and 21.4% among heterosexual men (Bolton & Sareen, 2011). These results are consistent with findings from other population-based studies (Cochran et al., 2003; Cochran & Mays, 2000; 2009; Frisell et al., 2010; Gilman et al., 2001) and meta-analyses (King et al., 2008) reporting that GBM experience greater psychological morbidity than heterosexual men. In light of these findings, a number of theoretical models have been proposed to explain this increased risk of adverse mental health outcomes among GBM.

1.1.1 Minority Stress Theory

One theory that has received extensive research attention is MST (Meyer, 1995, 2003). Meyer (1995) describes minority stress as "the juxtaposition of minority and dominant values and the resultant conflict with the social environment experienced by minority group members" (p. 39). He posits that sexual minority individuals are a stigmatized group given their sexual minority status in the context of a heterosexist society. As a result of minority-related stigmatization, they face unique and chronic stressors (called minority stress) in addition to the general stressors experienced by non-minority individuals. This minority stress places sexual minority individuals at an increased risk for psychological disorders and help to explain the worse mental health outcomes within this population (Meyer, 1995, 2003).

Four specific types of minority stressors are proposed by MST: (a) objective experiences of discrimination and violence; (b) perceived stigma, referring to expectations of rejection and associated vigilance; (c) internalized homophobia, referring to the incorporation of negative

societal attitudes about being a sexual minority into one's self-concept; and (d) concealment of sexual orientation from others (Meyer, 1995, 2003). These minority stressors occur along a spectrum, ranging from distal minority stress (i.e., objective experiences that do not depend on individuals' perceptions and appraisals) to proximal minority stress (i.e., subjective experiences that rely on individuals' perceptions and appraisals) (Meyer, 2003). Objective discrimination is therefore operationalized in the MST as a distal minority stressor, whereas internalized homophobia, perceived stigma, and concealment of sexual orientation are considered proximal minority stressors. Proximal minority stressors are likely to have a greater impact on sexual minority individuals' mental health as they involve the integration of negative attitudes into individuals' self-identities (Meyer, 2003). MST proposes that both distal minority stress and proximal minority stress mediate the relationship between sexual minority status and poor psychological outcomes among gay men.

1.1.2 Psychological Mediation Framework

Building on MST, Hatzenbuehler (2009) proposed the PMF to explain the mechanisms underlying the relationship between minority stress and poor mental health outcomes among sexual minority individuals. Whereas MST focuses exclusively on the impact of group-specific processes (i.e., risk factors that apply specifically to members of a stigmatized group), the PMF highlights the role of general psychological processes (i.e., risk factors that apply to all individuals) in addition to group-specific processes. These general psychological processes include the cognitive, affective, and social determinants of mental health outcomes (see Figure 1 for the original PMF).

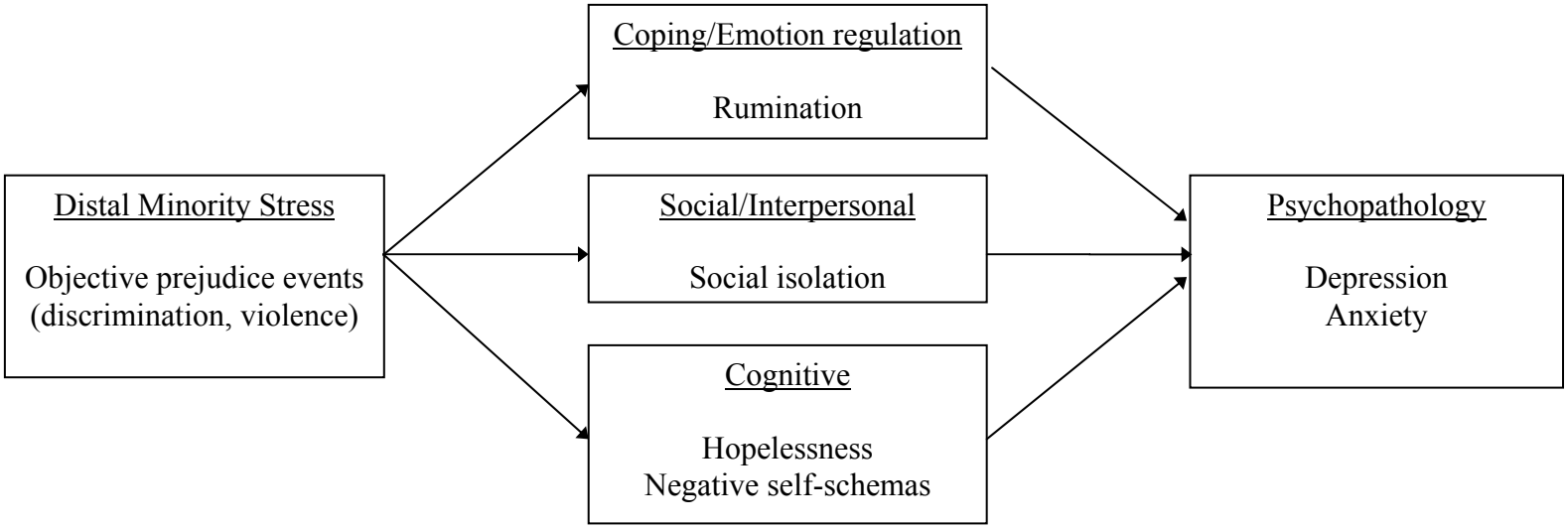

Figure 1. Psychological Mediation Framework proposed by Hatzenbuehler (2009), demonstrating general cognitive, affective, and social psychological processes as mediators in the relationship between distal minority stress and poor mental health outcomes.

According to the PMF, (a) sexual minority individuals encounter distal minority stress (i.e., objective experiences of discrimination) as a result of their disadvantaged status in society; (b) distal minority stress leads sexual minority individuals to experience elevated general psychological risk factors relative to heterosexuals; and (c) these psychological risk factors mediate the relationship between distal minority stress and adverse mental health outcomes.

Hatzenbuehler (2009) further extended the PMF by proposing an integrative PMF that incorporates both distal and proximal minority stress into the model. According to the integrative PMF, distal minority stress leads to changes in both general psychological processes and group-specific processes (i.e., proximal minority stress), which interact and lead to poor mental health outcomes. Within this model, cognitive, affective, and social processes are grouped together as general psychological processes, and proximal minority stress, including internalized homophobia and concealment of sexual orientation from others, are grouped together as group-specific processes. This model also proposes a number of potential moderators that may impact the nature and severity of stress experiences. Figure 2 depicts the integrative PMF presented by Hatzenbuehler (2009).

1.2 Minority Stress and Mental Health Outcomes Among GBM

A substantial amount of research has examined the relationship between minority stress and mental health outcomes among GBM (see Meyer, 2003 for a review). Meyer (1995) tested MST in a community sample of 741 gay men and found that each minority stressor (discrimination, perceived stigma, and internalized homophobia) was independently associated with a range of adverse mental health outcomes. Further,

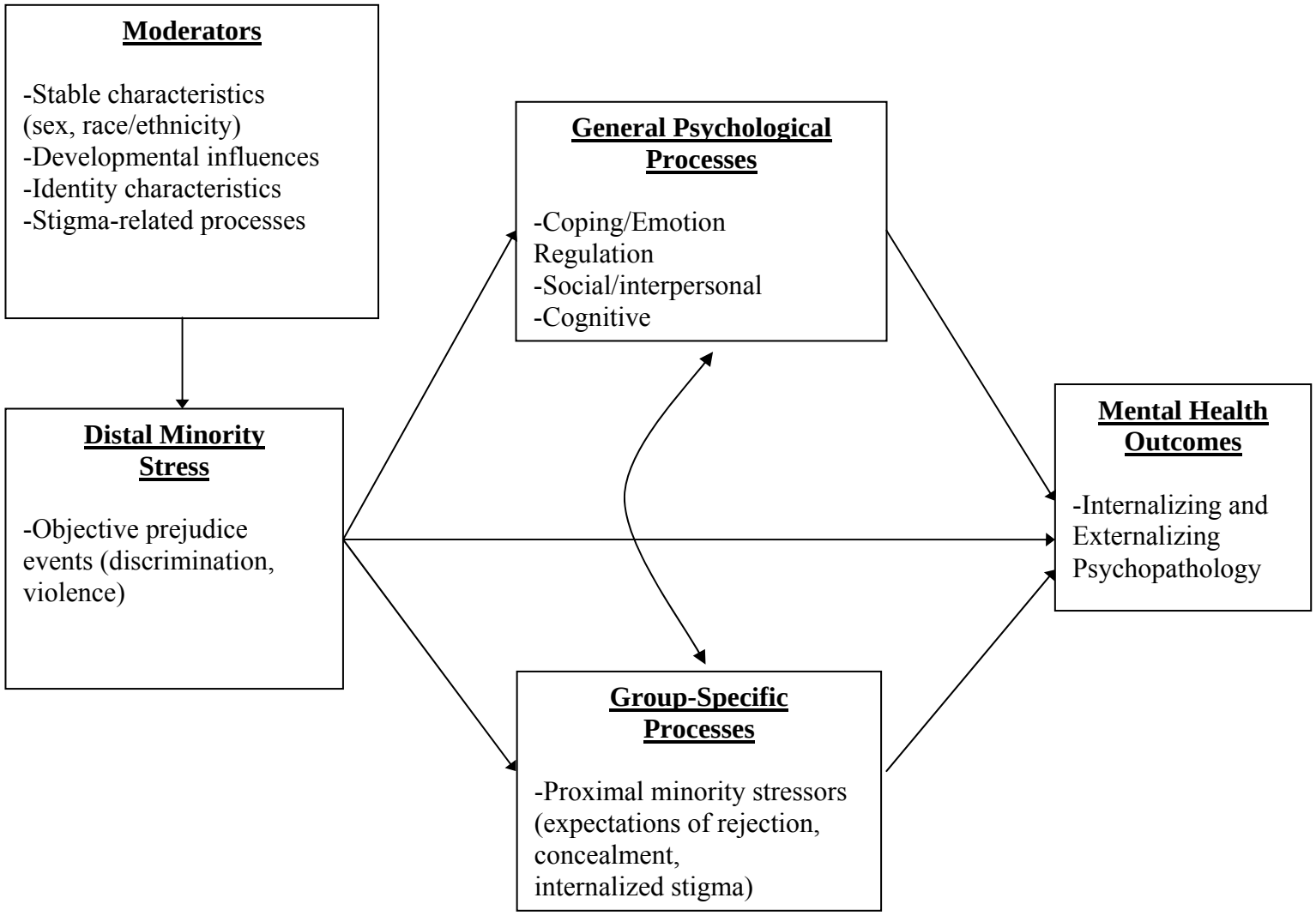

Figure 2. Integrative PMF proposed by Hatzenbuehler (2009). Distal minority stress leads to changes in both general psychological processes and group-specific processes, which interact and lead to poor mental health outcomes.

relative to men who reported less minority stress, men who reported more minority stress were two to three times more likely to experience greater psychological distress over the past year, including depression and anxiety (Meyer, 1995). These findings have been replicated in more recent studies demonstrating that, compared to heterosexual individuals, sexual minority individuals encounter more frequent discrimination and minority stress (Cochran, 2001; Corliss, Cochran, & Mays, 2002; Herek & Garnets, 2007; Mays & Cochran, 2001; Meyer, Schwartz, & Frost, 2008; Szymanski, 2009), which in turn is associated with negative mental health outcomes (Díaz, Ayala, Bein, Henne, & Marin, 2001; Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009a; Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008; Lehavot & Simoni, 2011; Lewis, Derlega, Griffin, & Krowinski, 2003; Mays & Cochran, 2001; Rosario, Rotheram-Borus, & Reid, 1996; Szymanski, 2006, 2009; Szymanski & Meyer, 2008; Szymanski & Sung, 2010).

Minority stress has also been found to play mediating roles in the relationship between adverse life events and poor mental health outcomes. For example, Feinstein, Goldfried, and Davila (2012) found that internalized homophobia and rejection sensitivity mediated the relationship between experiences of discrimination and symptoms of depression and social anxiety among lesbians and gay men. In another study, internalized homophobia accounted for the relationship between childhood emotional abuse and psychological distress in a sample of GBM (James et al., 2012).

A growing body of literature has also investigated the general psychological mechanisms proposed by the PMF. Research has shown that, relative to heterosexual individuals, sexual minority individuals experience increased risk for poor mental health in cognitive, affective, and social domains (see Hatzenbuehler, 2009 for a review). The mediating roles of these general psychological processes have been documented across a number of studies.

1.2.1 Cognitive Processes

Hopelessness and low self-esteem have been proposed as potential cognitive mediators in the relationship between minority stress and mental health outcomes. Individuals who have experienced chronic stressors report increased hopelessness (Gibb, Abramson, & Alloy, 2004; Hamilton et al., 2013) and, consistent with MST, sexual minority individuals experience greater hopelessness than do heterosexual individuals (Plöderl & Fartacek, 2005; Safren & Heimberg, 1999). Although no formal mediational analyses have been conducted, studies have found that hopelessness helps to explain the association between minority stress and mental health outcomes (Plöderl & Fartacek, 2005; Russell & Joyner, 2011; Safren & Heimberg, 1999).

Self-esteem may also be adversely impacted by minority stress experiences, as individuals may internalize negative societal views into their self-concepts (Szymanski & Carr, 2008). High self-esteem is associated with low emotional distress among gay and bisexual male adolescents (Rosario, Rotheram-Borus, & Reid, 1996), and low self-esteem is a mediator in the relationship between minority stress experiences and psychological distress (Herek, Gillis, & Cogan, 2009; Hershberger & D'Augelli, 1995). Szymanski and colleagues have extensively examined the role of self-esteem in the relationship between minority stress and mental health outcomes in multiple sexual minority samples (Szymanski, 2009; Szymanski & Carr, 2008; Szymanski & Kashubeck-West, 2008; Szymanski, Kashubeck-West, & Meyer, 2008; Szymanski & Owens, 2008; Szymanski & Sung, 2010). Among GBM, internalized homophobia is associated with lower self-esteem (Szymanski et al., 2008) and low self-esteem is directly and indirectly linked to increased psychological distress (Szymanski & Carr, 2008). Results from one study of GBM demonstrated that self-esteem moderated the relationship between minority stress and psychological distress, with GBM low in self-esteem demonstrating a greater risk for

poor mental health outcomes (Szymanski, 2009). These findings are supported by a study of lesbian and bisexual women, which found that self-esteem fully mediated the relationship between internalized homophobia and psychological distress (Szymanski & Kashubeck-West, 2008).

1.2.2 Affective Processes

Hatzenbuehler and colleagues have investigated emotional regulation as a mediator in the relationship between minority stress and psychological distress. In a longitudinal study of 1,071 ethnically diverse adolescents, sexual minority adolescents demonstrated more rumination and worse emotional awareness compared to heterosexual adolescents. Further, the relationship between sexual minority status and symptoms of depression and anxiety was mediated by these emotion regulation deficits (Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008). Similarly, in a sample of lesbian, gay, and bisexual undergraduates and community members, minority stress was associated with increased rumination, which mediated the relationship between minority stress and psychological distress. Minority stress was also linked to emotional suppression, which was associated with avoidant coping and ineffective regulation of negative moods (Hatzenbuehler et al., 2009a).

Other studies have found avoidant and emotion-oriented coping to be important factors in the relationship between minority stress and poor mental health outcomes. Avoidant coping involves activities and cognitive strategies aimed at avoiding stressful situations, and emotion-oriented coping involves efforts to alter one's emotional response to stressful situations in order to experience less emotional distress (Endler, 1997; Lazarus & Folkman, 1984). One study comparing gay and heterosexual men on mental and physical health outcomes demonstrated that GBM were more likely to use emotion-oriented and avoidant coping strategies, and that emotion-

oriented coping mediated the relationship between sexual minority status and adverse health outcomes (Sandfort, Bakker, Schellevis, & Vanweseneeck, 2007). Among GBM, avoidant coping was associated with increased internalized homophobia (Szymanski et al., 2008) and mediated the relationship between low self-esteem and psychological distress (Szymanski & Carr, 2008). Further, among lesbian and bisexual women, avoidant coping partially mediated the relationship between internalized homophobia and psychological distress (Szymanski & Owens, 2008).

1.2.3 Social Processes

Minority stress is associated with reduced social support, which in turn results in worse mental health outcomes (Hatzenbuehler, 2009; Hershberger & D'Augelli, 1995; Lehavot & Simoni, 2011; Szymanski et al., 2008). Hatzenbuehler et al. (2009) reported a significant indirect effect of minority stress on psychological distress through social isolation. Similarly, studies of lesbian and bisexual women have found that social support completely mediates the relationship between minority stress and poor mental health outcomes (Lehavot & Simoni, 2011; Szymanski & Kashubeck-West, 2008). In one study, experiences of discrimination, internalized homophobia, and concealment of sexual orientation were all associated with reduced perceptions of social support, which were then associated with depression and anxiety (Lehavot & Simoni, 2011). One explanation for these relationships is that individuals experiencing stigma may isolate themselves from others to avoid further rejection (Hatzenbuehler, 2009), which in turn worsens psychological distress.

In support of both MST and the PMF, these results highlight that, relative to heterosexuals, sexual minority individuals face increased chronic stress as a result of stigma. This minority stress leads to increases in a range of cognitive, affective, and social risk factors

for poor mental health outcomes. Further, there is increasing evidence that these general psychological processes mediate the relationship between minority stress and mental health outcomes.

1.3 Minority Stress and Sexual Health Outcomes Among GBM

Relative to the mental health literature, much less research has focused on applying these theoretical models towards the understanding of sexual health in GBM. According to the World Health Organization (WHO), sexual health is defined as "a state of physical, emotional, mental, and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction, or infirmity" (WHO, 2006). GBM are at an increased risk for a wide range of adverse sexual health outcomes, including sexually transmitted infections, HIV, and poor sexual functioning (e.g., Bancroft, Carnes, Janssen, Goodrich, & Long, 2005; Brennan et al., 2010; see Wolitski & Fenton, 2011 for a review). In addition, past studies of GBM have reported associations between mental health and sexual health, including risky sexual behaviours and sexual functioning problems (Bancroft, Janssen, Strong, Carnes, Vukadinovic, & Long, 2003; Hart & Heimberg, 2005; Hart, James, Purcell, & Farber, 2008; Hart, Mustanski, Ryan, Gorbach, Stall, Surkan, & Plankey, 2014; Hirshfield et al., 2010; Rosario, Schrimshaw, & Hunter, 2006). Thus, minority stress, as well the psychological mediators proposed by the PMF, may help to explain the increased risk of poor sexual health outcomes among sexual minority individuals.

Research examining the impact of minority stress on sexual health outcomes has highlighted the association between internalized homophobia and poor sexual functioning. Rosser, Metz, Bockting, and Burocker (1997) found that higher internalized homophobia was associated with reduced sexual satisfaction. Similarly, Kuyper and Vanwesenbeeck (2011) found that GBM with high levels of internalized homophobia reported a higher frequency of

sexual dysfunction. Meyer (1995) examined the associations between three types of minority stressors and sexual problems (i.e., inhibited sexual desire, excitement, or orgasm) and found that sexual problems were linked to internalized homophobia but not to discriminatory events or perceived stigma. Overall, the literature demonstrates that internalized homophobia is associated with reduced sexual satisfaction, sexual dysfunction, poor relationship quality, and intimacy problems (e.g., Kuyper & Vanwesenbeeck, 2011; Meyer, 1995; Meyer & Dean, 1998; Rosser et al., 1997).

There has also been some research to suggest that adverse sexual health outcomes in GBM may be explained by the general psychological processes proposed by the PMF. In a study of African-American GBM, low self-esteem was the strongest predictor of sexual problems (e.g., low frequency of sex, feeling adequate sexually, concerns about sexual desire and arousal, premature ejaculation), compared to gender role stress, HIV prevention self-efficacy, and lifetime racial discrimination (Zamboni & Crawford, 2007). Further, a study of Australian gay men found that interpersonal isolation was associated with multiple sexual problems among HIV-negative men, whereas avoidant coping was associated with multiple sexual problems among HIV-positive gay men (Mao, Newman, Saltman, Roggers, & Kippax, 2009).

These sexual health findings are consistent with the research on mental health in sexual minority individuals by highlighting a link between minority stress experiences and poor sexual health outcomes among GBM. Nevertheless, in spite of this growing literature, only a limited number of studies have examined the impact of minority stress on sexual functioning. Further, although there appear to be associations between general psychological processes and sexual health among GBM, these processes have not yet been examined within a theoretical framework as mediators in the relationship between minority stress and sexual health outcomes.

1.4 The Current Study

Overall, past research demonstrates that minority stress experiences are associated with adverse mental and sexual health outcomes, and general psychological processes help to explain these relationships. This study contributes to the literature in a number of ways. First, since the development of the PMF, no known studies have directly tested this mediational model. The present study addresses this gap in the literature by simultaneously examining cognitive, affective, and social psychological processes as mediators in the relationship between distal minority stress and poor mental health outcomes among GBM.

It is noteworthy that the PMF was specifically designed to examine mediators, not moderators, in the relationship between distal minority stress and poor mental health outcomes. Mediation seeks to explain *how* relationships occur, whereas moderation seeks to explain *under which conditions* relationships occur (Hayes, 2009; Hayes & Scharkow, 2013). In the context of the PMF, moderators would include variables that were present prior to the experience of minority stress, whereas mediators are variables that occur as a result of a minority stress (Hatzenbuehler, 2009). Although the proposed cognitive, affective, and social processes may also serve moderating roles as evidenced by past studies (e.g., Szymanski, 2009), the model hypothesizes that experiences of stigma *lead to* changes in these processes. Accordingly, they are examined as mediators.

Second, this study tests the integrative PMF, which extends the PMF by including both general psychological processes and group-specific processes as mediators in the relationship between distal minority stress and mental health outcomes. Consistent with this model, cognitive, social, and affective processes are grouped together as general psychological processes, and proximal minority stress, including internalized homophobia and concealment of

sexual orientation, are examined as group-specific processes. This allow for the simultaneous examination of these processes in order to determine their differential impacts on mental health outcomes.

Third, this study expands on the current literature by exploring these general psychological processes and group-specific processes as mediators in the relationship between minority stress and sexual health outcomes among GBM. Although there is evidence of a link between minority stress and adverse sexual health outcomes in this population, no known studies have examined these processes as mediators of this relationship. Accordingly, the aforementioned models (the PMF and integrative PMF) that focus on mental health outcomes are extended to sexual health outcomes. For the purpose of the present study, sexual functioning variables are used as measures of sexual health outcomes.

Finally, in an effort to test and refine the PMF, a qualitative study is included. Although models of both mental and sexual health outcomes are being examined in quantitative analyses, qualitative analyses focus specifically on mental health. A qualitative examination of the factors influencing GBM's sexual health is included in the larger Gay Strengths Study being tested by a team led by Dr. Trevor Hart at the Ryerson University HIV Prevention Lab. By conducting qualitative interviews, the goal is to gain an understanding of participants' perceptions of the factors influencing the mental health of GBM. Therefore, the qualitative study is used to determine how well the hypothesized models reflect the experiences of GBM.

Chapter 2: A Quantitative Study Of The PMF As A Model For Mental And Sexual Health Outcomes Among GBM

2.1 Objectives and Hypotheses

The quantitative component of this study used a structural equation modelling (SEM) framework to determine each model's fit to the data. Model 1 tested Hatzenbuehler's (2009) PMF model by examining the indirect effects of distal minority stress on mental health outcomes through cognitive, affective, and social processes (see Figure 3). Model 2 tested Hatzenbuehler's proposal that both general psychological processes (i.e., cognitive, affective, and social) and group-specific processes (i.e., proximal minority stress) mediate the relationship between distal minority stress and mental health outcomes (see Figure 4).

Models 3 and 4 are identical to Models 1 and 2, respectively; however, sexual health outcomes are examined instead of mental health outcomes. Specifically, Model 3 examines the indirect effects of distal minority stress on sexual health outcomes through cognitive, affective, and social processes (see Figure 5). Model 4 examines the indirect effects of distal minority stress on sexual health outcomes through general psychological processes (i.e., cognitive, affective, and social) and group-specific processes (i.e., proximal minority stress) (see Figure 6). It was hypothesized that all four models would be a good fit to the data.

2.2 Method

Participants

Participants were 261 self-identified GBM recruited from the community in Toronto, Canada. Participants were included in the study if they were: (a) HIV-negative GBM reporting any sexual activity with a man in the past three months; (b) At least 18 years of age; and (c) able

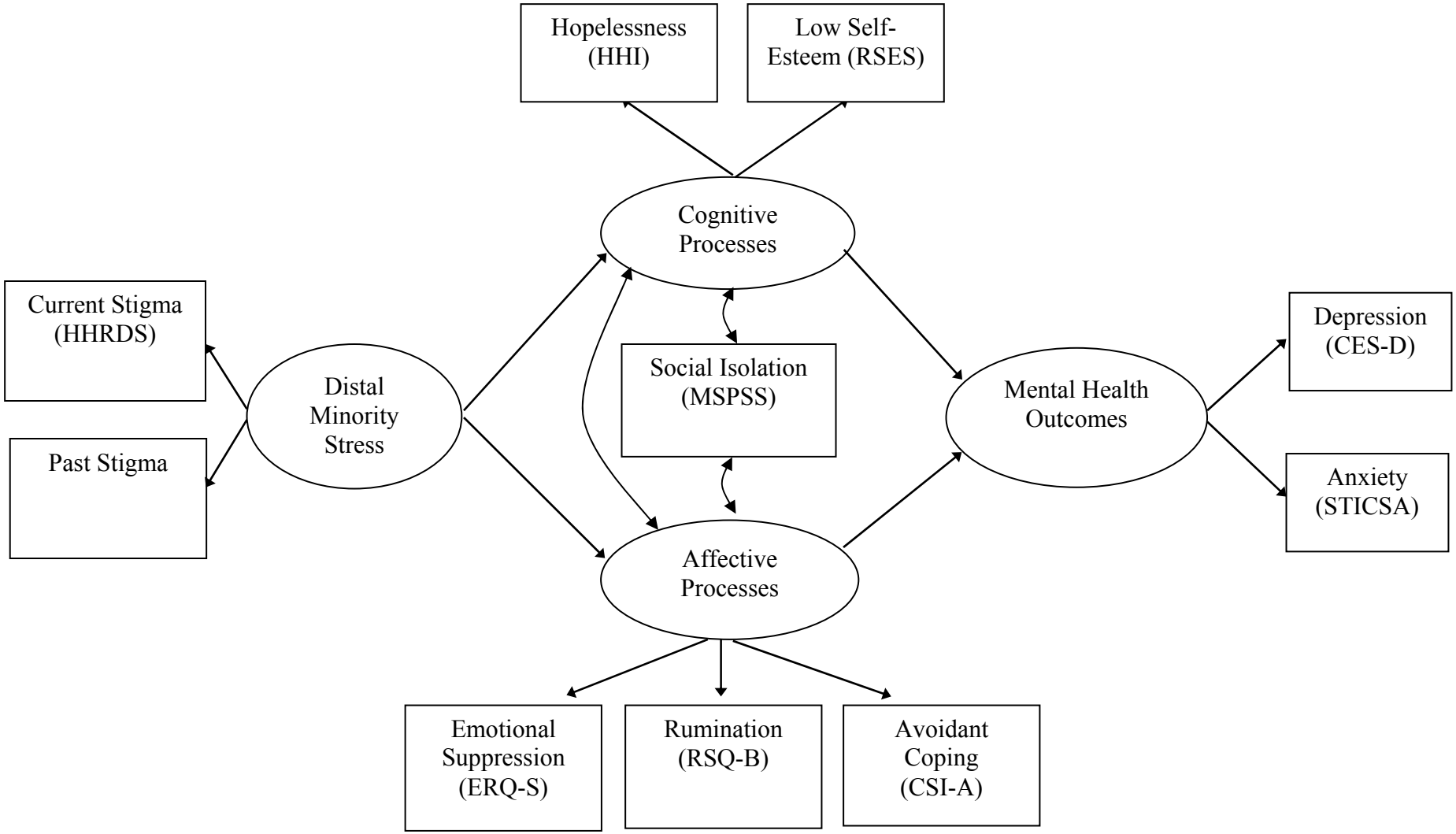

Figure 3. Model 1, demonstrating the indirect effect of distal minority stress on mental health outcomes through general psychological processes. Measure names are included in parentheses. Straight lines represent regression paths and curved lines represent covariance associations. CES-D = Center for Epidemiologic Studies - Depression Scale; CSI = Coping Strategies Inventory, avoidance subscale; ERQ = Emotion Regulation Questionnaire, suppression subscale; HHI = Herth Hope Index; HHRDS; Homophobic Harassment, Rejection, and Discrimination Scale; MSPSS = Multi-dimensional Scale of Perceived Social Support; RSES = Rosenberg Self-Esteem Scale; RSQ = Response Style Questionnaire, brooding subscale; STICSA = State Trait Inventory of Cognitive and Somatic Anxiety, trait subscale.

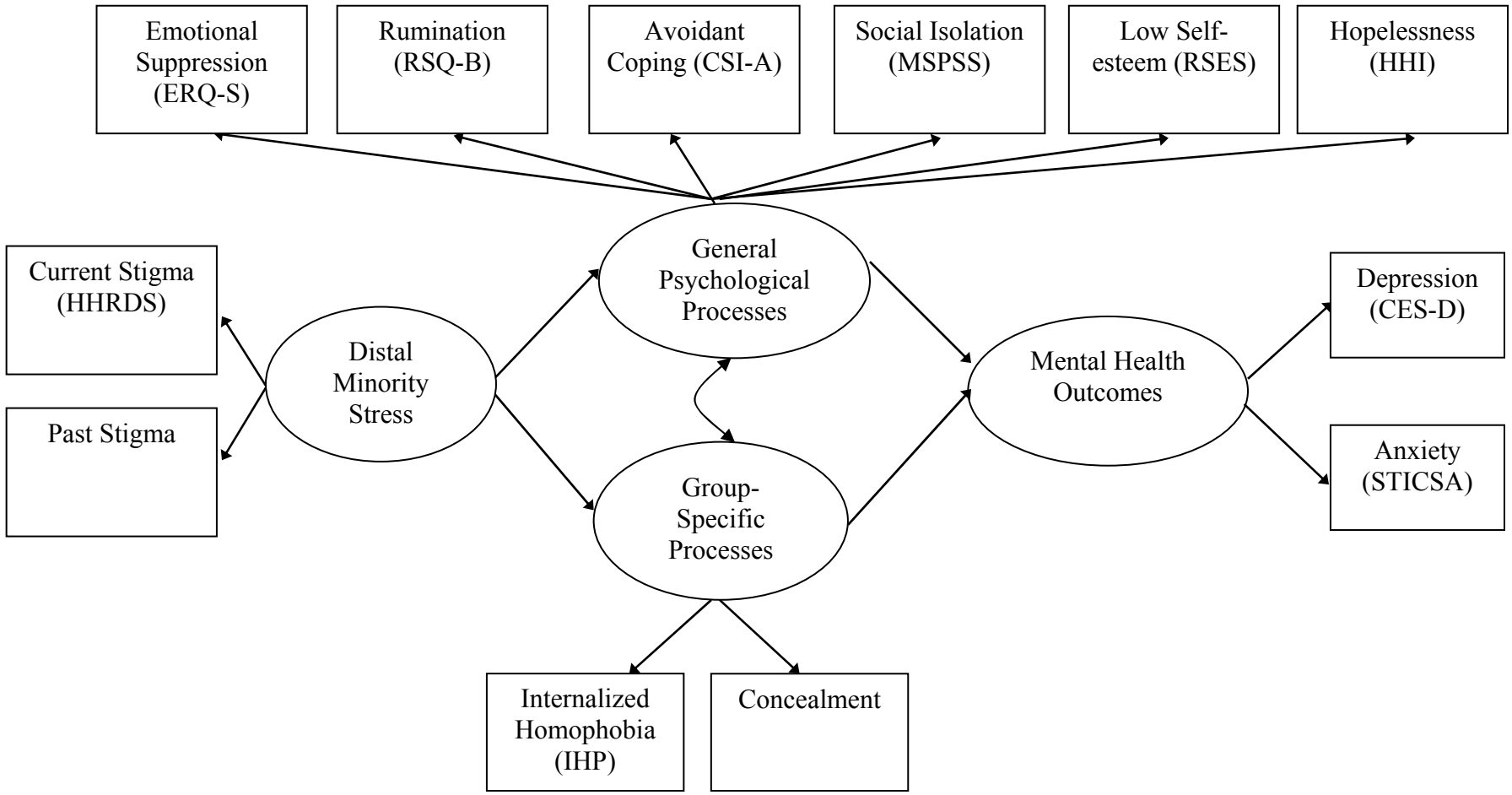

Figure 4. Model 2, demonstrating the indirect effect of distal minority stress on mental health outcomes through general and group-specific psychological processes. Straight lines represent regression paths and curved lines represent covariance associations. Measure names are included in parentheses. CES-D = Center for Epidemiologic Studies - Depression Scale; CSI = Coping Strategies Inventory, avoidance subscale; ERQ = Emotion Regulation Questionnaire, suppression subscale; HHI = Herth Hope Index; HHRDS; Homophobic Harassment, Rejection, and Discrimination Scale; IHP = Internalized Homophobia Scale; MSPSS = Multi-dimensional Scale of Perceived Social Support; RSES = Rosenberg Self-Esteem Scale; RSQ = Response Style Questionnaire, brooding subscale; STICSA = State Trait Inventory of Cognitive and Somatic Anxiety, trait subscale.

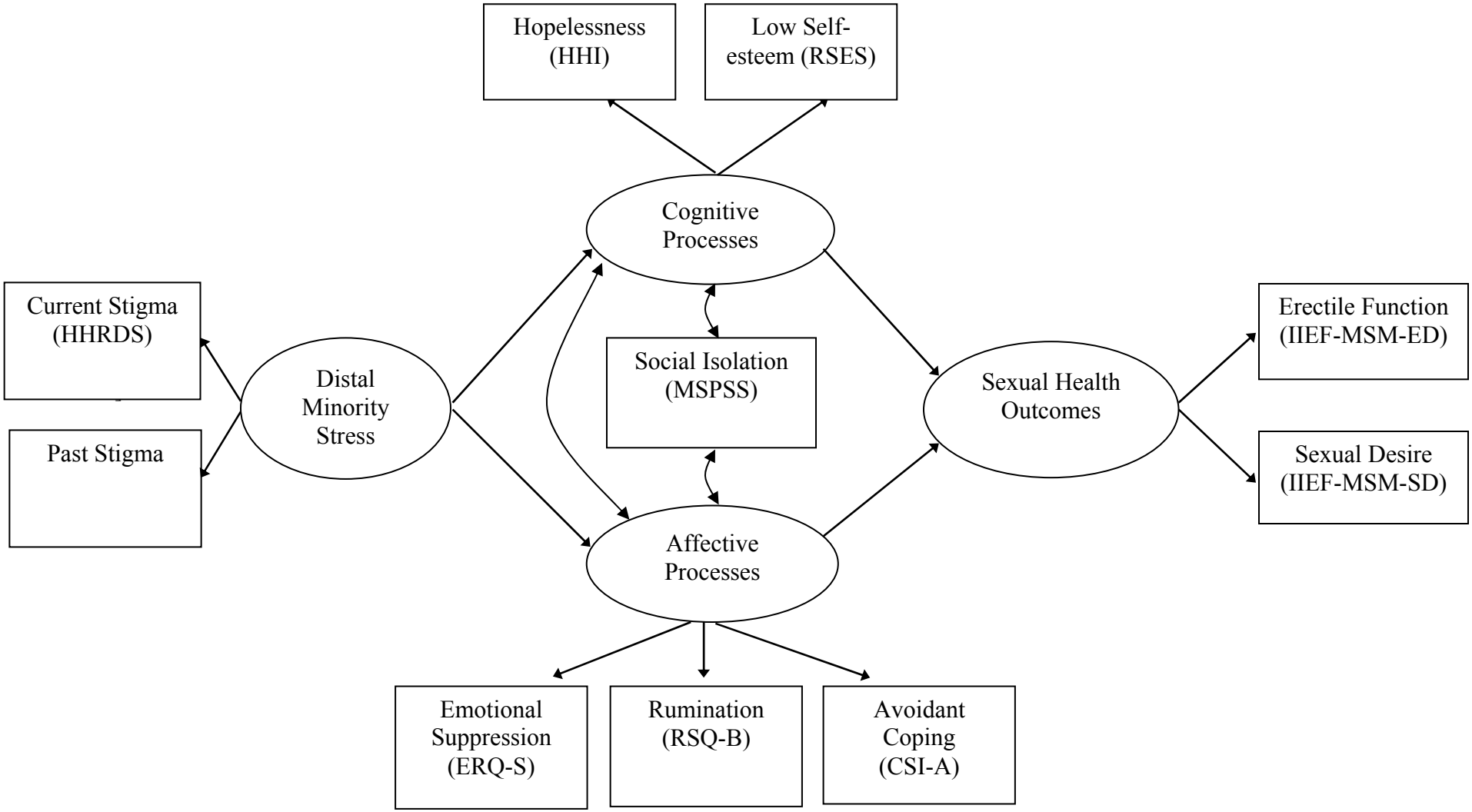

Figure 5. Model 3, demonstrating the indirect effect of distal minority stress on mental health outcomes through general psychological processes. Measure names are included in parentheses. Straight lines represent regression paths and curved lines represent covariance associations. CSI = Coping Strategies Inventory, avoidance subscale; ERQ = Emotion Regulation Questionnaire, suppression subscale; HHI = Herth Hope Index; HHRDS; Homophobic Harassment, Rejection, and Discrimination Scale; IIEF-MSM = International Index of Erectile Functioning for men who have sex with men, erectile function and sexual desire subscales; MSPSS = Multi-dimensional Scale of Perceived Social Support; RSES = Rosenberg Self-Esteem Scale; RSQ = Response Style Questionnaire, brooding subscale.

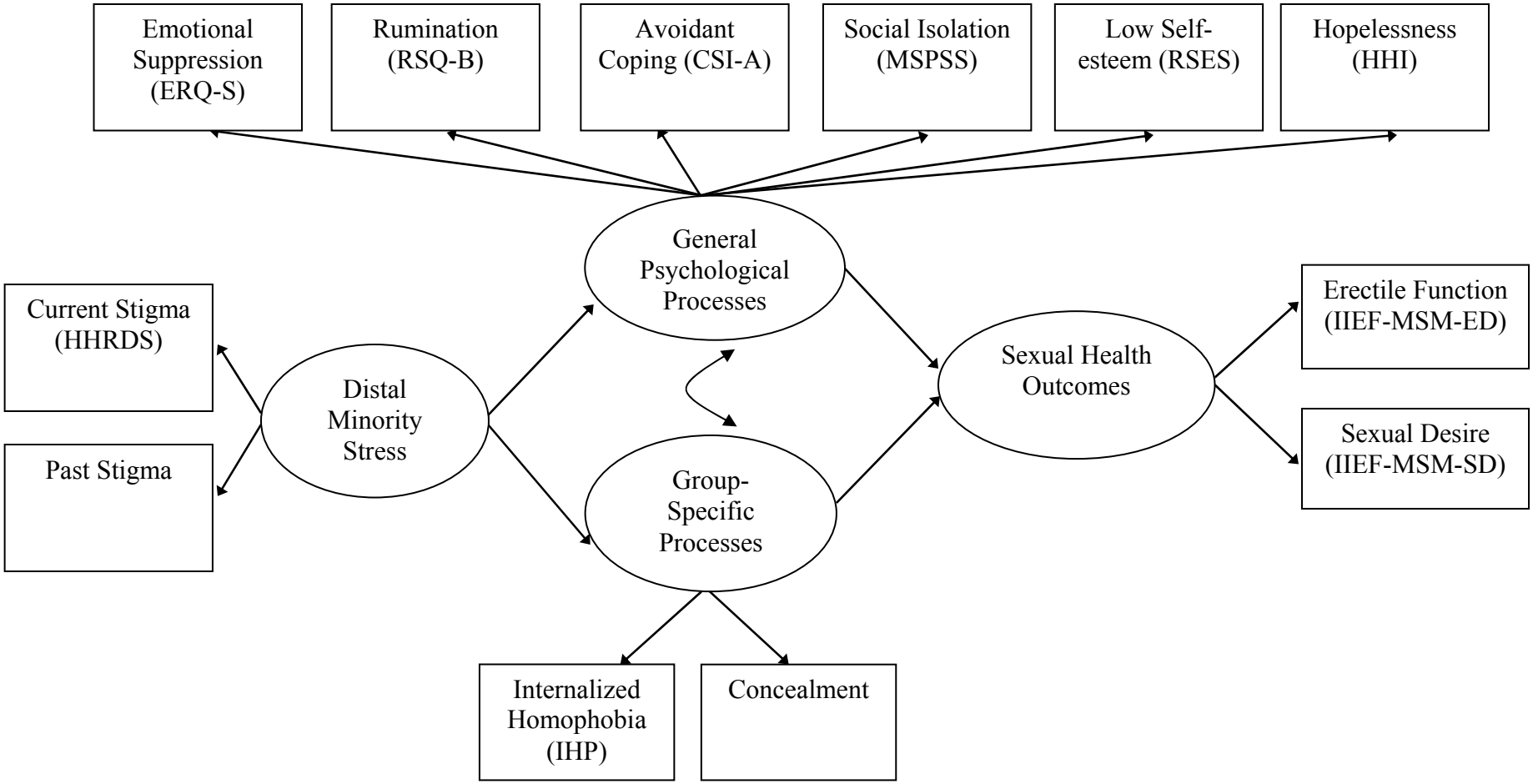

Figure 6. Model 4, demonstrating the indirect effect of distal minority stress on sexual health outcomes through general psychological processes. Measure names are included in parentheses. Straight lines represent regression paths and curved lines represent covariance associations. CSI = Coping Strategies Inventory, avoidance subscale; ERQ = Emotion Regulation Questionnaire, suppression subscale; HHI = Herth Hope Index; HHRDS; Homophobic Harassment, Rejection, and Discrimination Scale; IHP = Internalized Homophobia Scale; IIEF-MSM = International Index of Erectile Functioning for men who have sex with men, erectile function and sexual desire subscales; MSPSS = Multi-dimensional Scale of Perceived Social Support; RSES = Rosenberg Self-Esteem Scale; RSQ = Response Style Questionnaire, brooding subscale.

to speak and understand English. These inclusion criteria were developed based on a larger study funded by the Canadian Institutes of Health Research, the Gay Strengths Study, which sought to improve our scientific understanding of how to prevent HIV and promote sexual health among HIV-negative GBM by examining both risk and protective factors associated with subsequent sexual risk behaviour.

2.2.1 Procedure

Ethics approval for this study was obtained from the Ryerson University and Windsor University Research Ethics Boards, based on the affiliations of the two co-principal investigators of the larger Gay Strengths Study. Data collection occurred exclusively at the HIV Prevention Lab at Ryerson University in Toronto, Canada. Recruitment was done through advertisements at various venues (e.g., bars, bathhouses, community centres), on internet websites frequented by GBM, and via AIDS Service Organizations. Advertisements were also placed in newspapers and magazines serving the gay community (e.g., *Fab, Xtra*) and in the general press (e.g., *Now Magazine)*. Flyers about the study were distributed by the AIDS Committee of Toronto (ACT) and ethno-racial-specific AIDS Service Organizations (e.g., Black Coalition for AIDS Prevention, Centre for Spanish Speaking Peoples) in the Greater Toronto Area. Internet recruitment was done through postings on gay-specific websites (e.g., squirt.com, gayguidenetwork.com) and on social media sites (e.g., Facebook). Flyers about the study were also distributed at a street fair taking place during Pride Toronto in 2012. Study volunteers were present at the street fair and potential participants had the opportunity to provide contact information to sign up for the study. The study advertisements and websites described the nature of the study and provided the phone number and email of the study coordinator.

Individuals who contacted the study office were asked if they would be interested in participating in the study and were screened for eligibility. Participants were asked to provide a contact name and telephone or e-mail address so they could potentially be contacted for a qualitative interview in the future. They were informed that their contact information would be stored separately from all study materials and destroyed upon completion or withdrawal from the study. If participants were eligible and agreed to participate, an appointment was scheduled to conduct their assessments at the HIV Prevention Lab offices at Ryerson University.

When participants arrived for their appointments, a graduate student or research assistant greeted the participant and provided a full explanation of the study. At this time, participants were given an opportunity to ask questions and to receive additional information before signing a consent form. The consent form included an explanation of the study, risks and benefits of participation, the nature of participation, a description of the procedures, and contact persons for the research, including the chair of the Research Ethics Board at Ryerson University (see Appendix A). Participants were also informed of the voluntary nature of participation and the right to withdraw at any time without penalty. Finally, participants were informed that they might be contacted in the future and asked to participate in a qualitative interview.

Once informed consent was obtained, participants completed a computerized questionnaire that included a range of self-report measures assessing sociodemographic variables; minority stress experiences related to being gay or bisexual; cognitive, affective, and social processes; mental health outcomes; and sexual health outcomes. Participants were compensated $30 for their time.

2.2.2 Measures

Sociodemographics. Participants completed a demographics questionnaire assessing age, gender identity, sexual orientation, HIV status, marital status, religion, ethnicity, employment status, annual income, and educational background.

Distal minority stress. Experiences of objective discrimination were measured using the Heterosexist Harassment, Rejection, and Discrimination Scale (HHRDS; Szymanski, 2006). The HHRDS consists of 14 self-report items assessing the frequency of discriminatory events over the past year. Items are rated on a Likert-type scale ranging from 1 (*never happened to you*) to 6 (*almost all of the time*). Examples of items include "How many times have you been made fun of, picked on, pushed, shoved, hit, or threatened with harm because you are a gay/bisexual man?", "How many times have you been treated unfairly by your employer, boss, or supervisors because you are a gay/bisexual man?", and "How many times have you been treated unfairly by strangers because you are a gay/bisexual man?".

The HHRDS has demonstrated strong reliability and validity in a range of sexual minority samples. High internal consistencies were reported across studies, ranging from $\alpha = .90$ in samples of sexual minority women (Lehavot & Simoni, 2011; Szymanski, 2006) to $\alpha = .91$ in a sample of GBM (Szymanski, 2009). The HHRDS has also demonstrated good convergent and discriminant validity. It is associated with a range psychological distress measures and has been found to be conceptually distinct from internalized homophobia (Szymanski, 2006, 2009). In the current study, Cronbach's alpha was .94.

In addition to the HHRDS, a single item asked participants to rate the frequency of objective discrimination they encountered earlier in life. Participants were asked, "Before age 18, how many times were you made fun of, picked on, pushed, shoved, hit, or threatened with

harm because you were gay/bisexual?" Consistent with the HHRDS, ratings were made on a Likert-type scale ranging from 1 (*never happened to you*) to 6 (*almost all of the time*).

Proximal minority stress. Internalized homophobia was assessed using the Internalized Homophobia Scale (IHP; Martin & Dean, 1987). The IHP is a 9-item self-report scale, in which items are rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Examples of items include "I wish I weren't gay/bisexual" and "I have tried to become more sexually attracted to women." Items were summed for a total score, with higher scores indicating higher internalized homophobia. The IHP has demonstrated good reliability across a range of studies, with internal consistencies ranging from $\alpha = .79$ to .86 (Frost & Meyer, 2009; Kimmel & Mahalik, 2005; Lehavot & Simoni, 2011; Lewis et al, 2003; Meyer, 1995). Studies have also supported the convergent validity of the internalized homophobia by demonstrating an association between internalized homophobia and low collective self-esteem, lower community consciousness and involvement, and greater concealment of sexual orientation (e.g., Herek & Glunt, 1995; see Szymanski et al., 2008 for a review). In the present study, Cronbach's alpha was .89.

In addition to the IHP, one item was included to examine participants' concealment of fsexual orientation. The item, "How open ('out of the closet') are you with other people about your sexual orientation?", was scored on a scale from 1 (*not out to anyone*) to 5 (*out to almost everyone*), with lower scores indicating increased concealment of sexual orientation.

Affective processes. Emotion regulation was assessed using the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ERQ is a 9-item measure comprised of two subscales: reappraisal and suppression. For the present study, only the 3-item suppression subscale (e.g., "When I am feeling negative emotions, I make sure not to express them") was

used to measure maladaptive coping. Each item was rated on a scale from 1 (*strongly disagree)* to 7 (*strongly agree*) and items were summed for a total score. The suppression subscale has demonstrated acceptable reliability in a study of four undergraduate samples, with an internal consistency of α = .73 and 3-month test-reliability of *r* =.69 (Gross & John, 2003). The ERQ subscales have also demonstrated strong convergent and discriminatory validity. Findings have demonstrated that individuals high in emotional suppression cope with stress by concealing their emotions and are less effective at regulating their negative moods (Gross & John, 2003). In the current study, Cronbach's alpha was .87.

Rumination was measured using the 5-item brooding subscale of the original Response Styles Questionnaire (RSQ; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Using a 4-point Likert-type scale (1 = *almost never* to 4 = *almost always*), participants were asked to rate how often they have certain thoughts when feeling sad (e.g., "Why can't I handle things better?"). The brooding subscale of the RSQ demonstrated adequate internal consistency (α = .77) and test-retest reliability (*r* = .62) in a community sample of adults (Treynor et al., 2003). The brooding subscale of the RSQ is associated with a range of psychological distress variables including depression and anxiety (Armey et al., 2009), but has been found to be conceptually distinct from depression (Treynor et al., 2003). In the current study, Cronbach's alpha was .80.

Avoidant coping was examined using the avoidance subscale of the Coping Strategies Indicator (CSI; Amirkhan, 1990). This measure includes 11 self-report items assessing frequency of avoidance strategies. Items were rated on a 3-point Likert-type scale ranging from 1 (*a lot*) to 3 (*not at all*). Examples include: "Avoided being with people in general" and "Tried to distract myself from the problem". The CSI avoidance subscale has demonstrated good reliability, with internal consistencies of α = .84 (Amirkhan, 1990) and α = .79 (Desmond,

Shevlin, & MacLachlan, 2006), and high test-retest reliability in student and community samples (r = .80 and .86, respectively) (Amirkhan, 1990). In addition, this subscale appears to have good construct validity based on its associations with other measures of avoidant coping, depression, and poor social support satisfaction (Amirkhan, 1990). In the current study, Cronbach's alpha was .82.

Social processes. To assess social support, the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) was used. This measure contains 12 items and examines family support (e.g., "My family really tries to help me"), partner support (e.g., "I have a special person who is a real source of comfort to me"), and friend support (e.g., "I have friends with whom I can share my joys and sorrows"). Participants were asked to rate their level of agreement with each item on a Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A total social support score was calculated, with higher scores indicating more perceived social support. The MSPSS total score has demonstrated strong psychometric properties, with an internal consistency of α = .88 (Zimet et al., 1988) and strong overall test-retest reliability (r = .73; Stanley, Beck, & Zebb, 1998). The MSPSS also demonstrates good validity and is inversely correlated with both depression and anxiety (Zimet et al., 1988). Cronbach's alpha in the current study was .92.

Cognitive processes. Low hope was measured using the Herth Hope Index (HHI; Herth, 1992). The HHI is a 12-item measure developed to examine hope in clinical adult populations. Items were rated on a 4-point Likert-type scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Examples of items include, "I have a positive outlook towards life" and "I believe that each day has potential." Higher scores indicate stronger hope. The HHI demonstrated good reliability in a sample of physically ill adults, with an internal consistency of α = .97 and a 2-

week test-retest reliability of r = .91. It has also demonstrated strong convergent and discriminant validity, and is positively correlated with other measures of hope and strongly negatively correlated with measures of hopelessness (Benzein, 2005; Herth, 1992). In the present study, Cronbach's alpha was .86.

Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). The RSES is a 10-item self-report scale asking participants to rate their level of agreement with each statement (e.g., "I certainly feel useless at times"; "I wish I could have more respect for myself") on a 4-point Likert-type scale (1 = *strongly agree*; 4 = *strongly disagree*), with higher scores indicating higher self-esteem. The RSES has demonstrated strong psychometric properties across a range of populations (e.g., Bagley, Bolitho, & Bertrand, 1997; Schmitt & Allik, 2005; Sinclair, Blais, Gansler, Sandberg, Bistis, & LoCicero, 2010). Internal consistency (e.g., α = .91; Szymanski, 2009) and 2-week test-retest reliability (r = .88; Rosenberg, 1965) have been found to be high. The RSES has good validity and correlates positively with other measures of self-esteem and negatively with measures of depression and anxiety (Rosenberg, 1965). In the current study, Cronbach's alpha was .89.

Depression. Depression was measured using the Center for Epidemiologic Studies - Depression Scale (CES-D; Radloff, 1977). The CES-D is a 20-item self-report scale designed to measure depressive symptomatology in the general population. Participants were asked to indicate how frequently they have experienced certain symptoms (e.g., "I felt hopeful about the future", "My sleep was restless") within the last week. Items were rated on a 4-point Likert-type scale ranging from 0 (*rarely or none of the time*) to 3 (*Most or all of the time*). The CES-D has high internal consistency in normative samples, patient samples, and samples of GBM (αs > .90; Duggan & McCreary, 2004; Herek, Gillis, Cogan, & Glunt, 1997; Radloff, 1977) and adequate

4-week test-retest reliability (r = .67; Radloff, 1977). The CES-D also demonstrates good convergent and discriminant validity; it is highly correlated with other measures of depression and general psychopathology, and discriminates between psychiatric inpatient and general population samples (Radloff, 1977). In the current study, Cronbach's alpha was .92.

Anxiety. The State-Trait Inventory of Cognitive and Somatic Anxiety (STICSA; Ree, French, MacLeod, & Locke, 2008) was used to assess trait anxiety. This measure contains 21 items and two subscales: cognitive symptoms (e.g., "I picture some future misfortune"; "I keep busy to avoid uncomfortable thoughts") and somatic symptoms (e.g., "I feel dizzy"; "My muscles are tense"). Although the STICSA can be used to measure state and trait anxiety, only trait anxiety was assessed in this study. The trait anxiety scale has demonstrated strong reliability, with high internal consistencies for the full scale (α = .91), cognitive subscale (α = .87), and somatic subscale (α = .87) (Grös, Antony, Simms, & McCabe, 2007). The STICSA trait scale also has good convergent validity and has shown significant correlations with other measures of trait anxiety and depression (Grös et al., 2007). In the current study, Cronbach's alpha was .92.

Sexual health. Sexual health outcomes were assessed using the International Index of Erectile Functioning for men who have sex with men (IIEF-MSM; Coyne et al., 2010). The original IIEF (Rosen, Riley, Wagner, Osterloh, Kirkpatrick, & Mishra, 1997) demonstrated strong psychometric properties; however, it was primarily developed and validated for heterosexual men. The IIEF-MSM was adapted for use with gay men and contains 14 items and five subscales: 1) erectile function (e.g., "How often were you able to get an erection during sexual activity?"); 2) intercourse satisfaction (e.g., "How much have you enjoyed sexual intercourse or other sexual activity?"); 3) orgasmic function (e.g., "When you had sexual

stimulation or intercourse, how often did you ejaculate?"); 4) sexual desire (e.g., "How would you rate your level of sexual desire?"; and 5) overall satisfaction with sex (e.g., "How satisfied have you been with your overall sex life?"). Although cutoff scores have not yet been validated for the IIEF-MSM, past research has suggested that a score of 15 or lower on the erectile functioning subscale indicates erectile dysfunction (Shindel, Horberg, Smith, & Breyer, 2011).

Only one known study has examined the psychometric properties of the IIEF-MSM (Coyne et al., 2010). This study of HIV-positive MSM reported strong reliability for the erectile function ($\alpha = .82$), orgasmic function ($\alpha = .83$), and sexual desire ($\alpha = .89$) subscales, and poor reliability for the intercourse satisfaction ($\alpha = .55$) and overall satisfaction ($\alpha = .42$) subscales (Coyne et al., 2010). In the current study, Cronbach's alpha was .73 for erectile function, .83 for sexual desire, and .53 for orgasmic function. Given the poor reliability of the intercourse satisfaction and overall satisfaction subscales in the source article and the orgasmic function subscale's poor reliability in the present study, only the erectile function and sexual desire subscales were utilized. Although no known studies have reported on the validity of the IIEF-MSM among HIV-negative MSM, the original scale has consistently demonstrated good discriminant, convergent, and divergent validity (Rosen, Cappelleri, & Gendrano, 2002).

2.2.4 Data Analysis Plan

To determine the desired size of the sample, a power analysis was conducted. Given that four different models were tested, the model with the most parameters was used to calculate optimal sample size. This was Model 4, which included four latent variables, 12 observed variables, and 17 parameters. Conventionally, power is set at 0.80 with an alpha level of .05 (Cohen, 1992). Guidelines for determining the sample size required when conducting SEM suggest at least ten cases per estimated parameter, which would require a sample size of 170 (17

parameters x 10 cases) for the present study (Kline, 1998). However, a minimum sample size of 200 participants has been recommended for SEM (Weston & Gore, 2006). Accordingly, in an effort to achieve adequate power, this study aimed to include a minimum sample of 200 participants.

To make the findings more easily interpretable, the total scores of six positively valenced variables (hope, self-esteem, social support, concealment, erectile functioning, and sexual desire) were multiplied by -1. In this way, higher scores on all variables indicate increased risk, with all hypothesized relationships expected to be in the positive direction (e.g., low self-esteem positively associated with depression). To test the hypothesized associations between variables, SEM was conducted with Mplus statistical modeling software (Version 7; Muthen & Muthen, 2012). There are a number of advantages to using this approach. SEM allows for the simultaneous examination of relationships between all variables and their underlying constructs. SEM is also able to identify direct and indirect effects and their corresponding standard errors, investigate relationships among multiple independent, mediator, and dependent variables in the model, and provide indices of overall model fit (Kline, 2011).

The recommended two-step approach was used to examine model fit to the sample data (Kline, 2011). Measurement models were tested first. When specification errors were detected in the models, modification indices were reviewed to determine potential areas of model misfit. Models were only respecified if there was a theoretical rationale to do so, and if the respecification would not significantly alter the theoretical model. For example, if two factors demonstrated strong correlations in past research, the residual terms of these variables could be correlated in order to improve model fit. However, no changes were made in terms of the latent variables and their proposed indicators, as this would fundamentally alter the proposed model

(Kline, 2011). Once the measurement models were considered to be a strong fit, the full structural models were then tested. The Mplus "Model Indirect" command was used to measure the indirect effects of the proposed mediators in the relationships between distal minority stress and health outcomes.

Model fit was assessed by chi-square (χ^2), the normed chi-square (χ^2 / df) the comparative fit index (CFI), the Tucker-Lewis Index (TLI), the room-mean-square error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). Indicators of acceptable model fit are considered to be a *CFI* and *TLI* > .95, *SRMR* < .08 (Hu & Bentler, 1999), and *RMSEA* <.08 (MacCallum, Browne, & Sugawara, 1996). The chi-square value should be non-significant or the normed chi-square value should be > 2.0 (Tabachnick & Fidell, 2007). To measure effect size, the squared multiple correlation statistic (R^2) was used to determine the total amount of variance of the dependent variable accounted for by the model.

2.3 Results

2.3.1 Sample Description

Demographic variables are presented in Table 1. The minimum sample size needed of N = 200 was achieved, as the sample for the present study consisted of 261 GBM between the ages of 19 and 82 (M = 37.67, SD = 12.42). Ninety-eight percent identified as male and 2% identified as transgender or two-spirited. In terms of sexual orientation, 88.1% of the sample identified as gay, 11.5% identified as bisexual, and less than 1% identified as transgender or two-spirited. Sixty-four percent identified as White, 5.4% as Black, 6.1% as South Asian, 3.1% as East Asian, 4.6% as Southeast Asian, 3.1% as Middle Eastern, 7.7% as Latin American, 1.1% as Aboriginal, and 4.6% as other. With regard to education, 3.1% did not graduate high school, 5.7% had a

Table 1

Demographic variables for study sample

Demographic variable	*M* (*SD*)
Age	37.67 (12.42)
Gender identity	*n (%)*
Male	256 (98.1)
Transgender/Two-spirited	5 (1.9)
Sexual orientation	
Gay	230 (88.1)
Bisexual	30 (11.5)
Transgender/Two-spirited	1 (0.4)
Ethnicity	
White	168 (64.4)
Black	14 (5.4)
South Asian	16 (6.1)
East Asian	8 (3.1)
Southeast Asian	12 (4.6)
Middle Eastern	8 (3.1)
Latin American	20 (7.7)
Aboriginal	3 (1.1)
Other	12 (4.6)
Education	
Did not graduate high school	8 (3.1)
Graduated high school	15 (5.7)
Some university or college education	60 (23.0)
Bachelor's degree or higher	178 (68.2)

high school diploma, 23.0% had some university or college education, and 68.2% had a bachelor's degree or more advanced education.

Sixty-one percent of participants experienced early objective stigma never to some of the time and 39.0% experienced early objective stigma a lot to almost all of the time. Seventy-seven percent of the sample reported encountering stigma never to once in a while and 23% reported encountering stigma more than once in a while. Of the total sample, only 2.8% of the sample reported encountering stigma a lot to almost all of the time. This reflects an overall low frequency of objective stigma over the past 12 months, with scores closely resembling those reported in another study of GBM that used the same stigma measure (Szymanski, 2009).

On the basis of cutoff scores, 41.6% of participants were considered at risk for depression (i.e., score of 16 or higher on the CES-D; Radloff, 1996), 34.9% were at risk for an anxiety disorder (i.e., score of 40 or higher on the STICSA; Van Dam, Gros, Earleywine, & Antony, 2013), and 31.0% were at risk for erectile dysfunction (i.e., score of 15 or lower on the erectile functioning subscale of the IIEF; Shindel et al., 2011). Mean scores on the sexual desire items were not provided in the IIEF-MSM validation study (Coyne et al., 2010). Because the sexual desire items for the original IIEF and the IIEF-MSM are the same, comparisons were possible between the sexual desire scores of the present sample and that of the original IIEF. Sexual desire scores fell within one standard deviation of the mean scores reported by the control group in the validation study of the original IIEF (Rosen et al., 1997). Table 2 presents descriptive statistics of all measured study variables.

2.3.2 Preliminary Analyses

Bivariate correlations among all study variables are presented in Table 3. Latent variable indicators were all significantly intercorrelated in the expected directions. Indicators of the

Table 2

Descriptive Statistics for Study Variables

Measure	*M (SD)*	Range
Past stigma	2.99 (1.61)	1-6
Current stigma	23.28 (11.14)	14-84
Emotional suppression	11.89 (5.05)	0-15
Avoidant coping	22.53 (4.80)	11-33
Rumination	5.28 (3.47)	0-15
Hope	37.71 (5.90)	12-48
Self-esteem	20.87 (5.91)	0-30
Social support	44.52 (10.11)	12-60
Internalized homophobia	14.97 (6.79)	9-45
Concealment of sexual orientation	4.29 (1.02)	1-5
Depression	15.61 (11.23)	0-60
Anxiety	37.25 (10.50)	21-84
Erectile function	20.03 (6.97)	0-30
Sexual Desire	8.10 (1.85)	2-10

Note. Higher scores on the following measures indicate better functioning: hope, self-esteem, social support, concealment of sexual orientation, erectile function, and sexual desire. For higher scores to indicate greater risk, these measures were multiplied by -1 for all inferential analyses.

Table 3

Bivariate Correlations among Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Past stigma	1													
2. Current stigma	.44**	1												
3. Rumination	.21**	.33**	1											
4. Emotional suppression	-.04	.12	.12*	1										
5. Avoidant coping	.19**	.27**	.42**	.26**	1									
6. Low hope	.04	.21**	.29**	.19**	.39**	1								
7. Low self-esteem	.10	.32**	.48**	.21**	.41**	.75**	1							
8. Social isolation	.12*	.29**	.18**	.15*	.20**	.43**	.41**	1						
9. IH	.13*	.18**	.25**	.13*	.05**	.17**	.30**	.16*	1					
10. Concealment	-.13*	.02	-.01	.27**	.02	.04	.12	.11	.46**	1				
11. Depression	.25**	.43**	.59**	.17**	.47**	.55**	.65**	.37**	.27**	.02	1			
12. Anxiety	.28**	.42**	.64**	.18**	.55**	.54**	.61**	.29**	.23**	.05	.68**	1		
13. Erectile dysfunction	-.05	.04	.05	.10	.11	.22**	.23**	.18**	.12	.21**	.15*	.16*	1	
14. Lack of desire	-.02	.06	.09	.12	.04	.13*	.24**	.04	.13*	.04	.12*	.08	.24**	1

*$p < .05$, **$p < .01$

distal minority stress latent variable (past and current stigma) demonstrated a moderate relationship with each other; indicators of the affective latent variable (avoidant coping, emotional suppression, and rumination) demonstrated small to moderate relationships, and indicators of the cognitive latent variable (low self-esteem and low hope) demonstrated strong relationships. For the outcome variables, indicators of mental health (depression and anxiety) demonstrated strong relationships and indicators of sexual health (erectile function and desire) demonstrated small to moderate relationships.

With regard to the study's hypothesized relationships, past and current stigma and all cognitive, affective, and social general process variables were associated with mental health outcomes at the bivariate level. For group-specific processes, internalized homophobia was correlated with mental health indicators whereas concealment of orientation was not. Sexual health outcomes demonstrated significant, albeit small, relationships with cognitive variables and mental health outcomes but were not associated with stigma or affective variables. Social support and concealment of sexual orientation were associated with erectile functioning but not with sexual desire, whereas internalized homophobia was associated with sexual desire but not with erectile functioning.

2.3.3 Data Screening

Univariate normality was assessed using skewness and kurtosis indices. Consistent with previously established conventions, distributions were considered to be skewed or kurtotic if the absolute values were greater than 2.0 or 7.0, respectively (Tabachnick & Fiddell, 1996). Using these guidelines, only one variable (current stigma) was skewed and kurtotic; all other variables fell within the acceptable range. After being log-transformed, this variable no longer demonstrated problematic skewness or kurtosis. All models were tested using both the original

variable and the log-transformed variable. No differences in fit were detected; therefore, results for the measurement and structural models are reported based on the original variable. Data were also screened for multicollinearity. All bivariate correlations fell below 0.70, which is below the suggested cutoff of 0.85 (Kline, 2011) and all variance inflation factor values fell below 10, within the acceptable range (Myers, 1990).

With respect to missing data, the initial sample consisted of 261 participants. One participant score was missing for four variables (avoidant coping, social support, low self-esteem, and hope) and two participant scores were missing for one variable (concealment). The remaining variables were complete. Full-information maximum-likelihood estimation, which uses all available data to estimate the model, was used to retain data from all 261 participants for measurement and structural models (Muthen & Muthen, 2012).

2.3.4 Model 1: The Effects of Stigma on Mental Health Outcomes Via Cognitive, Affective, and Social Processes

Measurement model. Latent variables were formed for distal minority stress, comprising current stigma and past stigma; for cognitive processes, comprising low hope and low self-esteem; for affective processes, comprising emotional suppression, rumination, and avoidant coping; and for mental health, comprising depression and anxiety. The latent factors were allowed to freely correlate in the model.

The measurement model demonstrated strong fit to the data, $\chi^2(21) = 33.87$, $p = .04$, $(\chi^2/df) = 1.61$, CFI = .99, *TLI* = .98, *SRMR* = .04, *RMSEA* = .05 (90% CI [.01, .08]). However, upon inspection for potential areas of misfit, the estimated correlation between the affective and mental health latent variables was greater than 1. This suggests that these two latent variables were statistically indistinguishable from one another and could not be included simultaneously in

the model (Muthen & Muthen, 2012). To address this issue, the model was respecified by removing the mental health latent variable and examining depression and anxiety as separate outcome variables. Once this modification was implemented, no further estimation errors were detected. The measurement model demonstrated good fit to the data, $\chi^2(11) = 21.10$, $p = .03$, $(\chi^2/df) = 1.92$, CFI = .98, *TLI* = .96, *SRMR* = .04, *RMSEA* = .06 (90% CI [.02, .10]). Factor loadings for the indicators of each latent variable ranged from .28 to .94.

Structural model. The structural regression model shown in Figure 7 was a strong fit to the data, $\chi^2(25) = 37.08$, $p = .06$, $(\chi^2/df) = 1.48$, *CFI* = .99, *TLI* = .98, *SRMR* = .04, *RMSEA* = .04 (90% CI [.00, .07). The model demonstrated that distal minority stress was positively associated with cognitive, affective, and social processes. Of the three general psychological processes, only affective processes were significantly associated with depression and anxiety. This model accounted for 71.7% of the variance in depression and 82.3% of the variance in anxiety.

Indirect effects of distal minority stress on depression and anxiety via cognitive, affective, and social processes were also examined (see Table 4). The total indirect effects were significant. For depression, the indirect effect via affective processes was significant whereas indirect effects were non-significant for cognitive and social processes. Similarly, for anxiety, the indirect effect via affective processes was significant whereas indirect effects were non-significant for cognitive and social processes.

2.3.5 Model 2: The Effects of Stigma on Mental Health Outcomes Via General and Group-Specific Processes

Measurement model. Latent variables were formed for distal minority stress, comprising current stigma and past stigma; for general psychological processes, comprising low

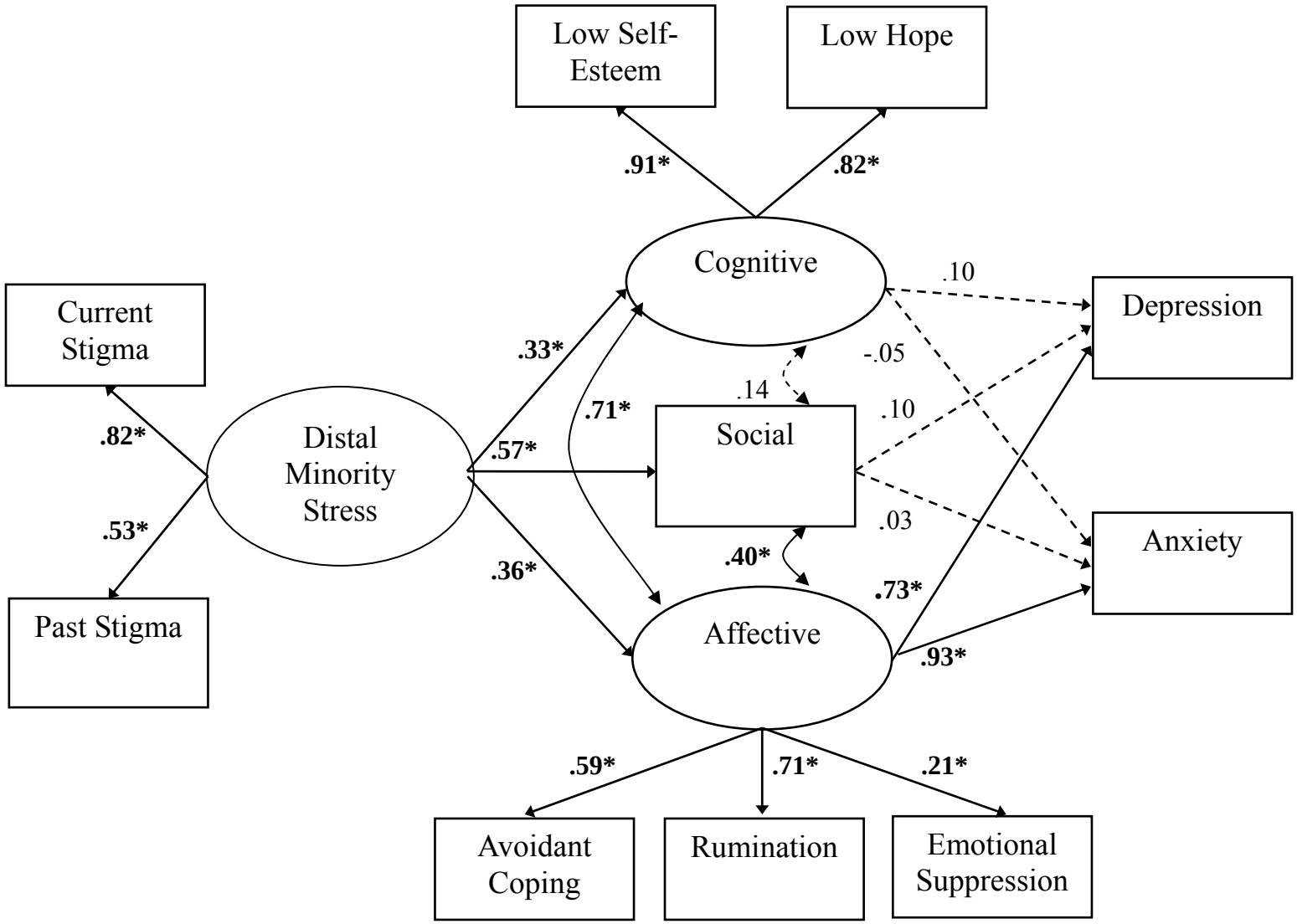

Figure 7. Cognitive, social, and affective processes as mediators in the relationship between distal minority stress and mental health outcomes. Note: Standardized path coefficients are presented. Curved lines represent covariance associations. Solid lines represent significant paths and dashed lines represent non-significant associations.
*$p < .01$

Table 4

Indirect Effects of Distal Minority Stress on Mental Health Outcomes (Model 1)

Indirect pathway	β	*SE*	*p*
Indirect Effect of Distal Minority Stress on Depression			
Total indirect effect	**.49**	**.06**	**<.001**
Indirect effect via cognitive processes	.04	.05	.41
Indirect effect via affective processes	**.42**	**.07**	**<.001**
Indirect effect via social processes	.04	.02	.09
Indirect Effect of Distal Minority Stress on Anxiety			
Total indirect effect	**.53**	**.06**	**<.001**
Indirect effect via cognitive processes	-.02	.05	.73
Indirect effect via affective processes	**.54**	**.08**	**<.001**
Indirect effect via social processes	.01	.02	.64

Note: Significant indirect paths are bolded.

hope, low self- esteem, emotional suppression, rumination, avoidant coping, and poor social support;for group-specific psychological processes, comprising internalized homophobia and concealment of sexual orientation; and for mental health outcomes, comprising depression and anxiety. The latent factors were allowed to freely correlate in the model.

The model demonstrated poor fit to the data, $\chi^2(49) = 186.89$, $p < .001$, $(\chi^2/df) = 3.81$, *CFI* = .88, *TLI* = .83, *SRMR* = .06, *RMSEA* = .10 (90% CI [.09, .12]). Consistent with Model 1, there was considerable overlap between the general psychological processes and affective latent variables ($r = .94$). Accordingly, the model was respecified by removing the mental health latent variable and examining depression and anxiety as separate outcome variables. In addition, modification indices suggested the addition of correlated residuals for the low self-esteem and hopelessness. These modifications were deemed theoretically acceptable, as the association between poor self-esteem and hopelessness has been previously documented (e.g., Corrigan, Rafacz, & Rusch, 2011). Further, the relationship between these variables may not be fully explained by the effects of distal minority stress. Once respecified, the model continued to demonstrate poor fit to the data, $\chi^2(24) = 73.50$, $p < .001$, $(\chi^2/df) = 3.06$, *CFI* = .92, *TLI* = .88, *SRMR* = .06, *RMSEA* = .09 (90% CI [.07, .11]). Given that the measurement model demonstrated a poor fit to the data, the structural model for Model 2 was not tested. Model 2 was not supported by the data.

2.3.6 Model 3: The Effects of Stigma on Sexual Health Outcomes Via Cognitive, Affective, and Social Processes

Measurement model. Latent variables were formed for distal minority stress, comprising current stigma and past stigma; for cognitive processes, comprising low hope and low self-esteem; for affective processes, comprising emotional suppression, rumination, and

avoidant coping; and for sexual health, comprising erectile dysfunction and low desire. The latent factors were allowed to freely correlate in the model. The model demonstrated good fit to the data, $\chi^2(21) = 30.57$, $p = .08$, $(\chi^2/df) = 1.46$, $CFI = .98$, $TLI = .96$, $SRMR = .04$, $RMSEA = .05$ (90% CI [.00, .07]). Factor loadings for the indicators of each latent variable ranged from .28 to .95.

Structural model. The structural regression model shown in Figure 8 was a strong fit to the data, $\chi^2(27) = 41.24$, $p = .04$, $(\chi^2/df) = 1.59$, $CFI = .97$, $TLI = .95$, $SRMR = .04$, $RMSEA = .05$ (90% CI [.02, .07). The model demonstrated that distal minority stress was positively associated with cognitive, affective, and social processes. Of the three general psychological processes, only cognitive processes were significantly associated with sexual health. This model accounted for 28.8% of the variance in sexual health.

Indirect effects of distal minority stress on sexual health outcomes via cognitive, affective, and social processes were also examined (see Table 5). The total indirect effect was non-significant. When mediators were examined separately, cognitive processes did appear to have a significant indirect effect whereas affective and social processes were non-significant. This suggests that cognitive processes do mediate the relationship between distal minority stress and sexual health outcomes; however, their influence is dampened by the inclusion of other non-significant mediators in the model, leading to an overall non-significant indirect path.

2.3.7 Model 4: The Effects of Stigma on Sexual Health Outcomes Via General and Group-Specific Processes

Measurement model. Latent variables were formed for distal minority stress, comprising current stigma and past stigma; for general psychological processes, comprising low hope, low self-esteem, emotional suppression, rumination, avoidant coping, and poor social

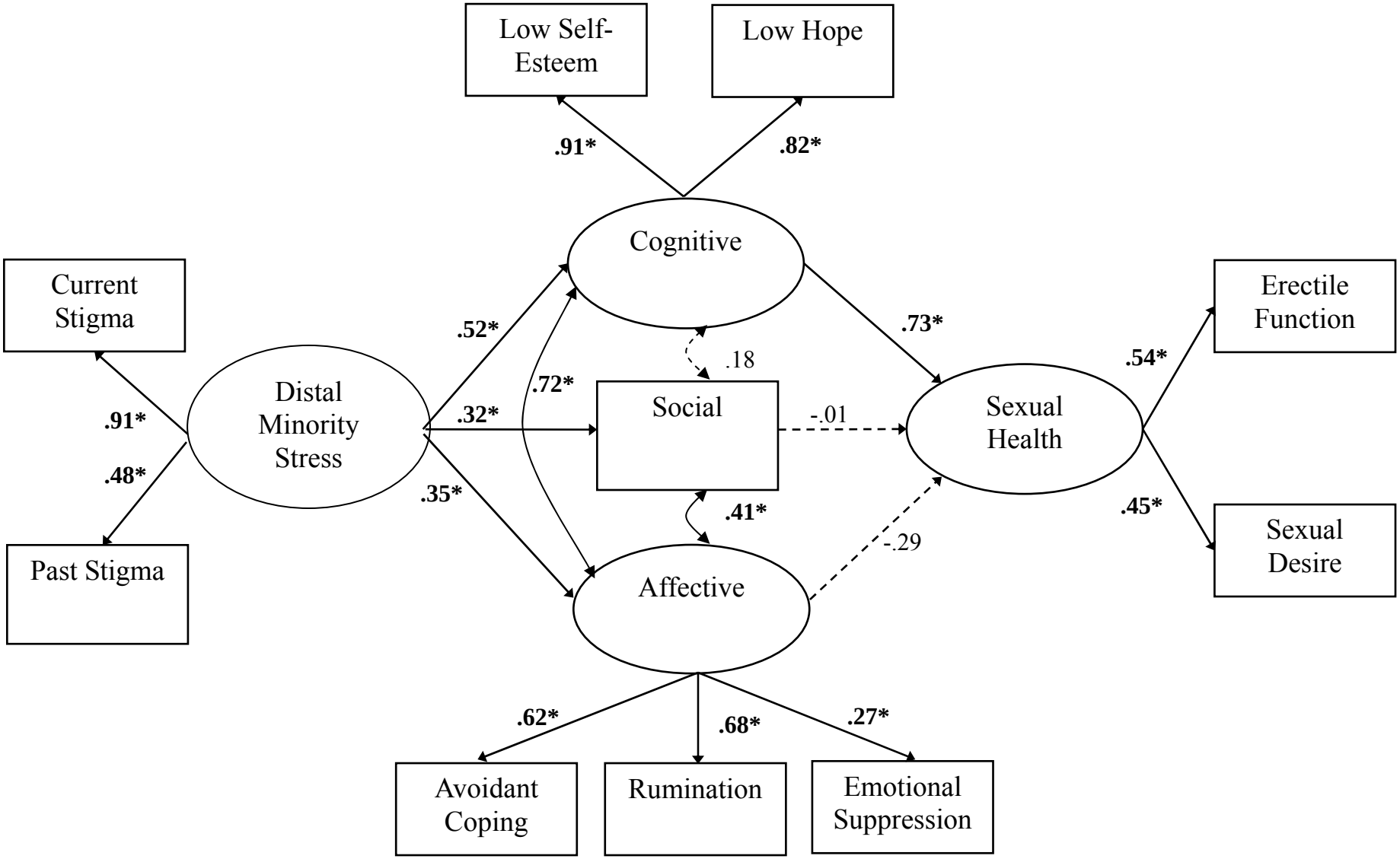

Figure 8. Cognitive, social, and affective processes as mediators in the relationship between distal minority stress and sexual health outcomes. Note: Standardized path coefficients are presented. Curved lines represent covariance associations. Solid lines represent significant paths and dashed lines represent non-significant associations.
*$p < .01$

Table 5

Indirect Effects of Distal Minority Stress on Sexual Health Outcomes (Model 3)

Indirect pathway	β	*SE*	*p*
Total indirect effect	.10	.08	.20
Indirect effect via cognitive processes	**.25**	**.10**	**.01**
Indirect effect via affective processes	-.15	.12	.22
Indirect effect via social processes	-.003	.04	.94

Note: Significant indirect paths are bolded.

support; for group-specific psychological processes, comprising internalized homophobia and concealment of sexual orientation; and for sexual health outcomes, comprising erectile dysfunction and low desire. The latent factors were allowed to freely correlate in the model.

The model demonstrated poor fit to the data, $\chi^2(48) = 135.47$, $p < .001$, $(\chi^2/df) = 2.82$, *CFI* = .87, *TLI* = .83, *SRMR* = .06, *RMSEA* = .08 (90% CI [.07, .10]). Modification indices suggested the addition of correlated residuals between rumination and avoidant coping and between emotional suppression and concealment. Consistent with findings from Model 2, the model continued to demonstrate inadequate fit to the data following these modifications, $\chi^2(47) = 105.08$, $p < .001$, $(\chi^2/df) = 2.24$, *CFI* = .92, *TLI* = .88, *SRMR* = .05, *RMSEA* = .07 (90% CI [.05, .09]). Given the poor fit between the proposed measurement model and the data, the structural model for Model 4 was not tested. There was therefore no evidence to support Model 4.

2.4 Discussion

The present study quantitatively explored the relationship between distal minority stress and adverse health outcomes in a sample of GBM. This was the first known study to: (1) empirically test the PMF by simultaneously examining cognitive, affective, and social psychological processes as mediators in the relationship between distal minority stress and mental health outcomes; (2) explore both general psychological processes and group-specific processes as mediators in the relationship between distal minority stress and mental health outcomes; and (3) extend the PMF to explain sexual functioning difficulties among GBM. Findings of this study provide partial evidence for the PMF, with hypotheses supported for two of the four proposed models.

2.4.1 Overview of Findings

Mental health. Model 1, examining cognitive, affective, and social processes as mediators in the relationship between distal minority stress and mental health, was a strong fit to the data. Distal minority stress was associated with all of the mediators, and the total indirect effect of these mediators was significant. These findings provide direct support for the PMF by demonstrating that experiences of distal minority stress are associated with elevations in psychological risk factors, which are in turn associated with more adverse mental health outcomes (Hatzenbuehler, 2009).

In addition to an overall test of the mediational model, this study was unique in its statistical comparison of cognitive, affective, and social processes. When each indirect path was examined separately, controlling for the effects all other mediators, affective processes had a significant effect on both depression and anxiety, whereas cognitive and social processes were non-significant. These findings are particularly interesting given the moderate to strong associations between cognitive and social processes and both depression and anxiety at the bivariate level. Given the strength of these relationships, it is quite possible that cognitive and social processes would mediate the relationship between distal minority stress and mental health outcomes if they were examined as independent mediators. However, taken together, these findings suggest that it is *how* individuals cope with negative emotions arising from stigma that are most important in explaining their mental health outcomes. These data are consistent with the extensive research in general populations highlighting the association between mental health problems and a range of maladaptive emotion regulation processes, including emotional suppression (Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Liverant, Brown,

Barlow, & Roemer, 2008), rumination (Nolen-Hoeksema, 2000; Papageorgiou & Wells, 2003; Roelofs, Huibers, Peeters, Arntz, & van Os, 2008) and avoidant coping (Blalock & Joiner, 2000).

Sexual health. Model 3, examining cognitive, affective, and social processes as mediators in the relationship between distal minority stress and sexual health, was also a strong fit to the data. Distal minority stress was associated with each of the mediators; however, unlike the previous model, the total indirect effect of these mediators was non-significant. When mediators were examined separately, cognitive processes did appear to have a significant indirect effect in this relationship, whereas affective and social processes were non-significant. Despite the discrepancy between total and specific indirect effects, this specific indirect effect was still interpretable (Muthen & Muthen, 2012) and indicates that, controlling for affective and social processes, cognitive processes mediated the relationship between distal minority stress and poor sexual health outcomes. The findings are consistent with the growing literature highlighting the critical role of maladaptive cognitions in male sexual dysfunction. Specifically, this research demonstrates that negative automatic thoughts and negative beliefs about the self interfere with healthy sexual arousal and erectile function and predispose individuals to experience sexual dysfunction (Barlow, 1986; Nobre, 2010; Nobre & Pinto-Gouveia, 2003, 2006a, 2006b, 2008, 2009a, 2009b; Nobre, Pinto-Gouveia, & Gomes, 2003).

It is noteworthy this mediational model was still supported despite the non-significant relationship between distal minority stress and sexual health outcomes. In the past, it was believed that mediation could only occur if the independent and dependent variables were significantly correlated (Baron & Kenny, 1986). However, more recent

literature on statistical mediation analysis has indicated that indirect effects can still be detected in the absence of this relationship (Hayes, 2009; MacKinnon, Krull, & Lockwood, 2000). The present study found a significant indirect effect of cognitive processes in the relationship between distal minority stress and sexual health outcomes in the absence an independent association between distal minority stress and sexual health outcomes. Consistent with the PMF, which was specifically proposed to explain how sexual minority stigma "gets under the skin", these results suggest that it is not the objective stigma experience itself that influences individuals' sexual health. Rather, it is the influence of this stigma on individuals' internal psychological processes, such as self-esteem and hope, which are in turn associated with sexual health outcomes.

Differences between mental health and sexual health models. Although both models demonstrated strong fit to the data, the proportion of variance explained in the outcome variables was quite different between models. Within the mental health model, 71.7% and 82.3% of the variance was explained in depression and anxiety, respectively, whereas only 28.8% of the variance was explained in the sexual health model. These models could not be compared statistically, as they are non-nested models that include different observed variables (Muthen & Muthen, 2012). However, the results do suggest that the PMF better accounts for mental versus sexual health. This is not surprising in light of the fact that the PMF was developed as a theory to better understand mental health outcomes among sexual minority populations. The data suggest that other variables not captured by this model may need to be included to better explain sexual health outcomes within this population. For example, in a recent study of GBM, age, ethnicity, and cigarette smoking were associated with an increased prevalence of erectile

dysfunction among HIV- men and use of antihypertensives and antidepressants were associated with an increased prevalence of erectile dysfunction among HIV+ men (Hart et al., 2012).

Existing theoretical models explaining male sexual dysfunction in the general population may further guide research in this area. Barlow's (1986) model of sexual dysfunction highlights the impact of cognitive interference and anxiety on male sexual functioning. Building upon this seminal work, Nobre (2010) proposed a more comprehensive cognitive-emotional model to explain sexual dysfunction. According to this model, men experiencing sexual dysfunction are more likely to have negative core beliefs (e.g., "I'm a failure"; "I am weak") and conditional rules (e.g., "If I cannot satisfy my partner sexually, then I am not a real man") that are activated during unsuccessful sexual interactions. These beliefs are associated with negative automatic thoughts and emotions, which take individuals' focus off of erotic stimuli and onto sexual failure and its consequences. Accordingly, it is the interaction between negative cognitive schemas, sexual beliefs, automatic thoughts, and emotions that result in sexual dysfunction (Nobre, 2010). Although no known studies have tested this integrative model of sexual dysfunction among GBM, inclusion of these sex-specific cognitive and emotional variables, not accounted for by the PMF, are likely to provide even further clarification regarding the elevated risk of sexual health problems in this population.

It is also notable that the present study examined mental health variables and sexual health variables as outcomes in separate models. Given that emotional and cognitive processes interact to produce sexual dysfunction (e.g., Barlow, 1986; Nobre, 2010; Nobre & Pinto-Gouveia, 2003, 2006a, 2006b, 2008), future studies may wish to

examine these processes within the same model, perhaps by examining mental health variables, such as performance anxiety, as predictors of sexual health outcomes. Future research may also benefit from integrating the minority stress literature with the sexual dysfunction literature, for example, by examining the effects of minority stress on sexual health outcomes among GBM via sex-specific cognitive and emotional mediators. As per Nobre's (2010) model, it is possible that minority stress experiences may adversely impact sexual health by disrupting the development of healthy sexual self-schemas and resulting in the activation of negative cognitions and emotions during sexual encounters.

Despite the strong fit of the original PMF models (Models 1 and 3), the integrative PMF fit poorly with the data for both mental health outcomes (Model 2) and sexual health outcomes (Model 4). These models are therefore not supported by the data and suggest that the addition of group-specific processes does not improve the model. There are a number of possible explanations for this. First, given that only two indicators were examined for group-specific processes compared to six for general processes, it may be that this construct was not adequately operationalized. It is possible that the inclusion of other group-specific variables such as discomfort with sexual orientation and expectations of rejection, which have been previously examined as measures of perceived stigma (Hatzenbuehler et al., 2008), might improve model fit.

Another consideration is that, by including group-specific mediators and thereby making the model more complex, the number of parameters in the model increased. In SEM, more parameters require a greater number of estimates, thus requiring larger samples to increase the reliability of the findings (Kline, 2011). Although this study met the minimum recommended sample size of 200 participants (Weston & Gore, 2006) and

included at least ten cases per estimated parameter (Kline, 1998), other guidelines have suggested including at least 20 cases per estimated parameter (Tanaka, 1987). It is therefore plausible that there was enough power to estimate the original models but insufficient power to estimate the integrative models. Accordingly, group-specific processes might indeed be mediators in the relationship between distal minority stress and health outcomes; however, this would need to be tested in a larger sample.

2.4.2 Limitations and Future Directions

Methodological limitations. Despite the strengths of the present study, there are a number of limitations that warrant mention. First, as with all cross-sectional research, directionality and causality could not be established. Within mediation, it is presumed that the independent variable leads to changes in the mediating variables and that these changes influence the dependent variables (Hayes, 2009). However, without a longitudinal or experimental design, these conclusions cannot be made. Future research would benefit from collecting these data over multiple time points to better establish the temporal nature of these relationships.

In addition, the quantitative component of this study relied exclusively on self-report data, which is subject to response bias and measurement error. In particular, there was inherent subjectivity in participants' self-reporting of objective stigma as it relied on individuals' perceptions of their stigma experiences. Therefore, although distal minority stress and proximal minority stress are considered distinct constructs, there may have been overlap between these variables in the present study due to the use of self-report measurement tools. Future studies could adopt alternate methods of measuring objective stigma, such as structural-level discrimination. For example, one U.S. study examined

the prevalence of psychological disorders before and after institutional bans on same-sex marriage. Results demonstrated that sexual minority individuals living in states that implemented these bans experienced dramatic increases in mood disorders, generalized anxiety disorder, alcohol use disorders, and psychiatric comorbidity based on diagnostic interviews and self-report measures (Hatzenbuehler, McLaughlin, Keyes, & Hasin, 2010).

The issue of sampling bias is also noteworthy. Given that the broader study focused on sexual risk behaviours among GBM, participants were only eligible for the study if they engaged in sexual activity with a man in the past three months. This would exclude GBM who were not recently sexually active and possibly bisexual men in opposite-sex relationships. The exclusion of these individuals may have biased the results, given that bisexual men have been found to experience heightened symptoms of depression and anxiety compared to gay men (Jorm et al,. 2002) and that individuals' sexual behaviours may be influenced by their mental health status (e.g., Hart & Heimberg, 2005; Hart et al., 2008; Reisner et al., 2009; Rosario et al., 2006; Safren, Blashill, & O'Cleirigh, 2011; Safren, Reisner, Herrick, Mimiaga, & Stall, 2011).

In addition, participants in the present study consisted of individuals who self-identified as gay or bisexual based on a brief screening interview and a self-report questionnaire. It is therefore plausible that individuals concealing their sexual orientation would be less likely to participate. This may be particularly true given that the study name ("Gay Strengths Study") and advertisements were designed to highlight the strengths and resilience of this population. The adverse cognitive, affective, and behavioural consequences of concealment of sexual orientation have been well-

documented, with studies demonstrating that increased concealment is associated with heightened depression and anxiety (Lehavot & Simoni, 2011; Pachankis, 2007; Pachankis & Goldfried, 2006, 2010). Accordingly, different findings might have emerged if the model was tested in a sample of individuals who are less open about their sexual orientation.

There are also a number of issues regarding the measurement of sexual health outcomes in the current study. First, it is problematic that three of the subscales of the IIEF-MSM demonstrated poor reliability. Although the original IIEF has demonstrated strong psychometric properties and is considered a 'gold standard' measure of male sexual function (Rosen et al., 2002), the poor reliability of the adapted IIEF raises questions about the use of this measure among GBM. For example, the IIEF-MSM includes modified questions about insertive and receptive anal intercourse as well as other forms of sexual activity besides intercourse (Coyne et al., 2010). However, this measure does not account for whether individuals identify as a top (i.e., prefer the insertive role), bottom (i.e., prefer the receptive role), or versatile (i.e., no strong preference) (e.g., Hart, Wolitski, Purcell, Gomez & Halkitis, 2003). This information may be particularly relevant when exploring sexual functioning among GBM, as individuals might experience different types of sexual problems, and may place more value on erectile functioning and penile pleasure versus anal comfort and pleasure depending on their preferred anal sex roles. The IIEF-MSM also does not examine sexual problems that may be more prevalent among GBM who engage in receptive anal intercourse, such as anodyspareunia (Vansintejan, Janssen, De Vijver, Vandevoorde, Devroey, 2013).

Beyond these measurement issues, it is notable that this study only examined erectile function and sexual desire as indicators of sexual health outcomes. Given that sexual health encompasses a range of emotional, physical, psychological, and social experiences (WHO, 2006), future research would benefit from extending this model to explain other sexual health variables. For example, studies could examine additional sexual functioning variables (e.g., orgasm satisfaction, sexual arousal, sexual satisfaction, premature ejaculation), sexual behaviours that put individuals at an increased risk for sexually transmitted infections and HIV (e.g., unprotected intercourse, multiple sexual partners, sex trading), relationship variables (e.g., relationship quality, intimacy), and other sexual health variables (e.g., confidence in sexual situations, sexual communication).

Theoretical limitations. The present study sought to directly test the models proposed in Hatzenbuehler's (2009) theoretical paper. Accordingly, the models were specified as closely as possible to match Hatzenbuehler's conceptualization of each construct. Nevertheless, given the overlapping nature of the psychological processes included in this model, there are many different ways that the model could be specified depending on the theoretical orientation of a researcher. For example, rumination was proposed as an emotion regulation/coping process by the PMF. However, rumination could also be reasonably conceptualized as a cognitive process and has indeed been described as such throughout the literature (Fresco, Frankel, Mennin, Turk, & Heimberg, 2002). It is therefore possible that respecification of this model in future studies (e.g., including rumination as an indicator of the cognitive latent variable) could improve model fit.

In spite of the similarities between this study and the PMF, the present models deviated from the original theoretical model in several ways. First, the current study focused on internalizing disorders as measures of mental health outcomes and did not examine substance use as an outcome variable despite its inclusion in the original PMF. Hatzenbuehler (2009) proposed separate cognitive, affective, and social mediators in the relationship between distal minority stress and substance use disorders, including alcohol expectancies (i.e., perception of positive outcomes related to alcohol use), coping motives (i.e., using alcohol to alleviate negative emotions), and social norms (i.e., environmental influences on alcohol consumption). These processes have been previously explored in a diverse sample of undergraduate students, which found that the association between discrimination and alcohol-related problems was mediated by affective processes (Hatzenbuehler, Corbin, & Fromme, 2011).

Second, this study did not explore moderators of the PMF, such as those proposed by Hatzenbuehler (2009) in the integrative PMF. A number of theories highlight the heightened negative effects of belonging to multiple minority groups or experiencing multiple illnesses, including intersectionality (i.e., intersections of multiple systems of discrimination) (Crenshaw, 1991); syndemics, (i.e., co-occurring diseases or psychosocial health problems such as multiple substance use or depression) (Singer, 2009; Singer & Clair, 2003; Singer et al., 2006; Stall et al., 2003; Stall, Friedman, & Catania, 2008); and multiple minority stress (i.e., belonging to multiple minority groups) (Balsam, Molina, Beadnell, Simoni, & Walters, 2011; Bowleg, Huang, Brooks, Black, & Burkholder, 2003). These theories argue that the interaction of multiple adverse experiences is even greater than the cumulative effects of each individual experience; in other words, that the

whole is greater than the sum of its parts. There is growing empirical evidence for these theories. For example, compared to White sexual minority individuals, individuals who are members of ethnic or racial minorities in addition to being sexual minority individuals are even more vulnerable to negative health outcomes (e.g., Cochran, Mays, Alegria, Ortega, & Takeuchi, 2007; Meyer, Dietrich, & Schwartz, 2008; Nettles & Balter, 2012; Stirratt, Meyer, Ouellette, & Gara, 2008). In addition, certain sociodemographic variables have been linked to higher stress levels and worse health outcomes among GBM, including geographical location (Preston & D'Augelli, 2013; Swank, Frost, & Fahs, 2012), socioeconomic status (Gamarel, Reisner, Parsons, & Golub, 2012), and age (Leletiu-Weinberger, Pachankis, Golub, Walker, Bamonte, & Parsons, 2013). An examination of these moderating effects was beyond the scope of this study. However, to extend these growing theoretical and empirical literatures, more studies are needed to examine how these sociodemographic variables intersect with stigma and psychological processes to influence mental and sexual health outcomes within this population.

2.4.3 Clinical Implications

It is well known that minority stress is associated with a broad range of negative health consequences among sexual minority individuals. Although considerably more prospective work can be done to reform discriminatory policies toward sexual minority individuals on a structural level (Hatzenbuehler, Keyes, & Hasin, 2009b), individuals' past experiences of distal minority stress are more difficult to target. In order to improve health outcomes, it is first necessary to understand the psychological impact of stigma experiences. By underscoring the specific processes that link stigma to poor health outcomes, this study has important implications for future psychological interventions.

Mental health. Results indicate that the ways in which individuals manage their negative emotions are critical in explaining their mental health. Avoidant coping, rumination, and emotional suppression are all strategies, albeit maladaptive, that are likely to help individuals manage their distress in the short-term, but may lead to greater psychological distress in the long-term. Findings from this study suggest that targeting these unhelpful coping and emotion regulation strategies may be particularly helpful in alleviating symptoms of depression and anxiety.

Existing psychological interventions, including cognitive-behavioural therapy (CBT; Beck, Rush, Shaw, & Emery, 1979), dialectical-behaviour therapy (DBT; Linehan, 1993), and emotion-focused therapy (Greenberg, 2011) may be specifically useful in modifying these processes. CBT, which targets emotions through the modification of maladaptive thoughts and behaviours, has been found to reduce rumination (Watkins, 2009; Watkins et al., 2007, Watkins et al., 2011) and facilitate emotional processing (Baker et al., 2012); DBT directly targets emotion dysregulation processes (Gratz, 2007; Linehan, Bohus, & Lynch, 2007; Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006; McMain, Korman, & Dimeff, 2001); and EFT targets emotional change through increased emotional awareness, expression, and regulation (Greenberg, 2008; Greenberg & Pascual-Leone, 2006; Pascual-Leone & Greenberg, 2007). Although each of these interventions relies on different therapeutic techniques, these treatments are all similar in their focus on reducing emotional avoidance and replacing maladaptive cognitive, behavioural, and emotional patterns with more adaptive strategies to cope with psychological distress. A number of clinical case studies have documented the use of CBT for GBM in treating of a range of psychological problems, including depression and

anxiety (Ross, Doctor, Dimito, Kuehl, & Armstrong, 2008; Safren & Rogers, 2001; Satterfield & Crabb, 2010), with no known empirical studies examining the use of DBT or EFT in sexual minority populations.

Sexual health. This study demonstrates the important role of cognitive processes in the relationship between distal minority stress and sexual health outcomes. These findings suggest that treatments focusing on individuals' maladaptive thought processes and beliefs might be particularly efficacious in reducing sexual difficulties. Indeed, CBT, which uses cognitive restructuring to help individuals modify irrational beliefs and develop more adaptive thought patterns, has been used for the treatment of sexual dysfunction in both men and women (e.g., Andersson et al., 2011; Price, 2012; ter Kuile, Both, & van Lankveld, 2010; see Fruhauf, Gerger, Schmidt, Munder, & Barth, 2013 for a review). CBT has also been used to treat sexual dysfunction among gay men. Hart and Schwartz (2010) described a treatment protocol for erectile dysfunction among gay men that integrates cognitive restructuring and behavioural strategies to help individuals develop more positive and adaptive attitudes towards themselves and their sexuality. Although more empirical studies are needed to examine the efficacy of CBT for sexual dysfunction among GBM, this research suggests that sexual health interventions targeting negative cognitions arising from stigma are quite promising.

Group-specific processes. The integrative PMF could not be tested in the present study due to poor model fit. Accordingly, the role of group-specific processes in the relationship between distal minority stress and health outcomes was not established. Nevertheless, there is ample evidence to suggest that therapeutically targeting group-specific processes may be beneficial in improving the health of GBM. First, extensive

research has documented the significant impact of internalized homophobia and concealment of sexual orientation on adverse mental and sexual health outcomes among sexual minority individuals (e.g., Kuyper & Vanwesenbeeck, 2011; Lehavot & Simoni, 2011; Meyer & Dean, 1998; Szymanski & Kashubeck-West, 2008; Szymanski et al., 2008). Second, research examining the use of tailored interventions for sexual minority individuals has consistently highlighted the importance of addressing these group-specific processes (e.g., Balsam, Martell, & Safren, 2006; Coffman & Green 2000; Hart & Schwartz, 2010; Pachankis & Goldfried, 2004; Ross et al., 2008; Safren & Rogers, 2001; Satterfield & Crabb, 2010). For example, one study adapted a CBT group depression intervention for sexual minority individuals by including additional sessions to address issues such as stigma, the coming out process, and internalized homophobia. Following this intervention, participants demonstrated significant improvements in self-esteem and reductions in depressive symptoms (Ross et al., 2008).

Evidently, despite this study's null findings regarding group-specific processes, group-specific processes are still important variables to include in future research and clinical studies. Clinicians working with GBM may benefit from considering these group-specific processes in their case conceptualizations and treatment planning. Furthermore, it is important that clinicians adopt a culturally sensitive approach towards assessment and treatment by carefully evaluating the relevance of stigma and group-specific processes on individuals' health and well-being, without making assumptions about individuals' subjective experiences (Balsam et al., 2006; Martell, Safren, & Prince, 2004).

Chapter 3: A Qualitative Study of the PMF as a Model for Mental Health Outcomes Among GBM

3.1 Objectives and Hypotheses

The purpose of this qualitative study was to test and refine the PMF. One-on-one interviews were used to determine whether the factors proposed by the PMF accurately reflected the experiences of GBM. It was hypothesized that, consistent with the proposed models, participants would report themes of distal and proximal minority stress, including experiences of discrimination, concealment of sexual orientation, and internalized homophobia, as well as themes relating to cognitive (low self-esteem/hopelessness), affective (emotional dysregulation/rumination/avoidant coping), and social (low social support) processes. It was also hypothesized that novel themes would emerge. In addition, qualitative analyses examined differences in reporting among participants with relatively good mental health and participants with relatively poor mental health. The analyses comparing participants with good versus poor mental health were considered exploratory in nature; therefore, no specific hypotheses were proposed.

3.2 Method

3.2.1 Research Paradigm

Within qualitative research, a paradigm is a conceptual framework that guides the research process. A paradigm is comprised of ontology (i.e., assumptions about the nature of reality), epistemology, (i.e., knowledge of reality), and methodology (i.e., methods used to investigate reality) (Flick, 2009; Sobh & Perry, 2006). Selecting an appropriate paradigm is critical when conducting qualitative research (Creswell, 2014). Of the many existing paradigms in the qualitative literature, four paradigms – positivism,

realism, constructivism, and critical theory – are commonly discussed. Positivism and realism assert that an objective reality exists; positivism argues that reality can be fully apprehended, whereas realism argues that reality can only be apprehended imperfectly. On the other hand, constructivism and critical theory assert that reality is based on perception; constructivism argues that there are multiple realities that are socially constructed, whereas critical theory argues that reality is continuously shaped by social, economic, ethnic, political, cultural, and gender values over time (Guba & Lincoln, 1994; Sobh & Perry, 2006).

The realist paradigm was selected for the present study given this researcher's belief that the models being tested reflect reality, but are "a window on to that blurry, external reality" (Sobh & Perry, 2006). Accordingly, although this study was designed with specific expectations and hypotheses regarding what constitutes reality, it was also acknowledged that these preconceptions are limited in some ways. Positivism was not selected, as it would assert too strongly that our knowledge of these theories accurately reflects reality, without adequately acknowledging the limitations of these theories. Conversely, constructivism and critical theory were not selected as this study builds directly upon pre-existing theoretical and empirical assumptions highlighting the role of individual psychological processes. A realist lens was therefore used to guide all aspects of the qualitative study, including data collection, interview development, coding, and data analysis.

3.2.2 Participants

Based on the results from the quantitative component of this study, a subset of participants was included in the qualitative component of this study. These participants

were men experiencing relatively "poor mental health" and men experiencing relatively "good mental health". Participants were included in the poor mental health group based on meeting all of the following criteria: (a) meeting a cut-off score of 16 or higher on the CES-D, suggesting significant depressive symptomatology (Radloff, 1977; Zich, Attkisson, & Freenfield, 1990), (b) meeting a cut-off score of 40 or higher on the STICSA, suggesting the possible presence of an anxiety disorder (Van Dam et al., 2013), and (c) falling within the highest quartiles of the sample on both the CES-D and STICSA. Participants were included in the good mental health group based on meeting all of the following criteria: (a) reporting a score of less than 16 on the CES-D, (b) reporting a score of less than 40 on the STICSA, and (c) falling within the lowest quartiles of the sample on both the CES-D and STICSA. The purpose of recruiting participants from these two extreme groups was to examine differences in participants' experiences based on their mental health status and to capture a full spectrum of responses. Interviews were conducted until saturation was achieved, with the final sample consisting of 22 men – 11 in the good mental health group and 11 in the poor mental health group. This sample size is considered normative within qualitative research (Mason, 2010).

3.2.3 Procedure

Participants who qualified for the qualitative study based on these criteria were contacted by e-mail and asked if they would be interested in participating in an interview. Men who agreed to participate were invited to visit the research office for in-person interviews, lasting approximately one hour. Of the 32 individuals that were contacted, 24 agreed to participate (i.e., response rate of 75%). Twenty-two of the 24 eligible participants were interviewed, as two responded to the e-mails after the interviews were

already complete. Prior to beginning the interview, the informed consent form was reviewed (see Appendix B) and participants were given an opportunity to ask questions. All interviews were audio recorded for future transcription. Following the interview, participants were compensated with $30 for their time.

Once all interviews were complete, research assistants transcribed the audio recordings of the interviews. In order to increase accuracy, all transcripts were verified following transcription. Specifically, a research assistant who had not participated in a given interview's transcription listened to the audio recording of that interview and ensured that the content of the recording had been accurately transcribed. In situations involving disagreement or uncertainty, the interviewer listened to the recording and decided on the correct interpretation.

3.2.4 Interview Questions

A semi-structured approach was used for the qualitative interviews (DiCicco-Bloom & Crabtree, 2006). Interviews began with broad, open-ended questions and evolved based on the dialogue between the interviewer and participant. This approach was taken to allow for a broad range of responses from participants and to reduce the possibility of biasing participants through specific or close-ended questions. The template questions for the interview are included in Appendix C.

At the beginning of the interview, participants were informed that past research has found that GBM demonstrate higher rates of depression and anxiety than heterosexual men. They were then asked about factors that might explain this set of findings among GBM in general ("If you had to take a guess, what do you think could explain this?"). Follow-up questions were subsequently asked to obtain more detailed

information about these factors (e.g., "You mentioned that X negatively impacts the mental health of GBM. Tell me more about X") and to obtain information regarding individuals' personal experiences (e.g., "Can you think of a time in your life when X had a negative impact on your own mental health and well-being?").

Next, the integrative PMF was presented to participants. Participants were informed that past research has proposed certain general psychological processes (i.e., cognitive, affective, and social) and group-specific processes (i.e., internalized homophobia, concealment of sexual orientation) as predictors of poor mental health among GBM. Each process was explained to the participant in simple language. To assess the relevance of the model to participants' experiences, participants were then asked to rate the extent to which they believe each factor plays a role in the mental health of GBM, both generally (i.e., to all gay men) and personally (i.e., to themselves). These ratings were provided on a Likert-type scale, ranging from 0 (*not at all relevant*) to 10 (*extremely relevant*) (see Appendix D).

3.2.5 Data Analysis Plan

Qualitative analysis. For the current study, a codebook was developed *a priori* based on past research to guide the coding process (see Appendix E). As per previously established codebook development guidelines, the codebook included five components – the code name, a definition of the code, instructions for when to use the code, instructions for when not to use the code, and examples of the code (MacQueen, McLellan, Kay, & Milstein,1998; Weston et al., 2001). The original codebook included all the variables that were examined in the quantitative portion of this study and was used as a starting point in analyzing the data and identifying codes. Once all the interviews were complete,

the author of this dissertation study reviewed all transcripts. Themes that were brought up in the interviews but had not been included in the codebook were added. Interviews were then coded based on the themes outlined in the original codebook as well as the themes that were added subsequent to the interviews.

Original codes that were spontaneously reported by more than 25% of participants were considered in support of the model, whereas original codes that were spontaneously reported by less than 25% of participants were not considered in support of the model. In addition, new codes that were spontaneously reported by more than 25% of participants were considered relevant to the model, whereas new codes that were spontaneously reported by less than 25% of participants were not considered relevant to the model. These guidelines were adopted based on a recent paper that utilized a 25% threshold (Davey, McShane, Pulver, McPherson, & Firestone, 2014).

A quantitative approach was used to compare frequency data between the two groups. First, when examining responses from the initial, open-ended questions, a frequency count was conducted to examine the proportion of participants within each group that described each theme. A χ^2 test was then conducted to determine whether the poor mental health group and good mental health group differed in their spontaneous reporting of these experiences and processes, prior to being introduced to the model. The approach of using quantitative methods to supplement the interpretation of a qualitative interview has been recommended by a number of qualitative researchers, who argue that a mixed methods approach allows researchers to discover new patterns of findings while simultaneously testing theories and hypotheses (Creswell, 2014; Onwuegbuzie & Leech, 2005; see Johnson & Onwuegbuzie, 2004 for a review). This approach has been used in

previous studies that compared responses from two or more different groups of participants who responded to qualitative interviews (e.g., Balboni et al., 2010; Guerra, Williams, & Sadek, 2011).

Reliability analysis. To establish the reliability of each theme, the coding comparison feature of NVivo 10 was used. Two members of the research team completed the reliability analyses. Coder 1, the first-author of this paper, was a doctoral clinical psychology student and Coder 2, a volunteer research assistant, had recently obtained her Bachelor's degree in Psychology and Sociology. In order to train both coders, three test interviews were coded together to ensure that all the codes were clear and well defined. The codebook was revised during this process to improve clarity and to establish specific coding guidelines. Next, three more interviews were coded separately by each coder. Reliability statistics were generated and the two coders reviewed the reliability statistics together. Any areas of disagreement were discussed, and final codes were reached by consensus between the two coders. Based on this discussion, a final codebook was produced. Coder 1 coded the remaining 16 interviews and Coder 2 coded 11 additional interviews.

Reliability was calculated via percent agreement (Streiner & Norman, 2008) and Cohen's kappa coefficient (Cohen, 1960), which provide statistical measures of inter-rater reliability. A minimum of 75% overlap (Streiner & Norman, 2008) and a kappa coefficient of $> .70$ (Fleiss, 1981; Landis & Koch, 1977) were considered strong agreement. Percent agreement was calculated by adding the number of characters that were coded as the same theme by both coders plus the number of characters that were not

coded as the same theme by both coders divided by the total number of characters (NVivo 10; Richards, 2005).

Table 6 presents the kappa coefficients and percent agreement for all study variables, including original codes and new codes. For the original codes, the average kappa coefficient was .86, ranging from $\kappa = .69$ to 1.00, and the average percent agreement was 98.94, ranging from 96.67% to 100%. For the new codes, the average kappa coefficient was .82, ranging from .72 to .92, and the average percent agreement was 97.71%, ranging from 95.57 to 99.45. This indicates excellent reliability across codes.

Relevance ratings analysis. Relevance ratings provided by participants after being introduced to the model were analyzed. Between-group differences on general and personal relevance ratings were examined using independent samples *t*-tests and within-group differences on general and personal relevance ratings were examined using paired samples *t*-tests.

3.3 Results

In total, 22 interviews were transcribed and coded, with 11 participants from the good mental health group and 11 participants from the poor mental health group. Demographic information for the qualitative study sample is included in Table 7. No significant differences were detected between groups on any of the demographic variables. As per the study design, significant differences were found between groups on measures of depression, $t(20) = 11.96$, $p < .001$) and anxiety, $t(20) = 11.76$, $p < .001$), with the poor mental health group scoring higher on the CES-D ($M = 32.09$, $SD = 7.58$)

Table 6

Reliability ratings for original and new themes

Code	Kappa	% Agreement
Original Codes		
Objective stigma	.77	97.98
Internalized homophobia	.86	99.26
Concealment of sexual orientation	.80	95.99
Lack of social support	.84	97.20
Emotional suppression	.69	99.66
Rumination	1	100
Avoidant coping	1	100
Low self-esteem	.82	99.73
Low hope	1	100
New Codes		
Coming out process	.73	96.46
Disconnectedness from gay community	.77	97.94
Not fitting into stereotypes of gay men	.80	97.98
Risk behaviours	.95	99.45
Masculine ideals	.92	99.22
Sociodemographic moderators	.85	97.36

Table 7

Summary of demographic variables

Variables	Total (N = 22)	Poor mental health (n = 11)	Good mental health (n = 11)
		M (*SD*)	
Age	37.55 (9.93)	35.45 (10.88)	39.64 (8.89)
Gender identity		*n* (%)	
Male	20 (90.90)	9 (81.82)	11 (100.00)
Transgender	2 (9.09)	2 (18.18)	0 (0.00)
Sexual orientation			
Gay	18 (81.81)	8 (72.73)	10 (90.90)
Bisexual	2 (9.09)	1 (9.09)	1 (9.09)
Transgender	2 (9.09)	2 (18.18)	0 (0.00)
Ethnicity			
White	12 (54.55)	8 (72.73)	4 (36.36)
Black	1 (4.55)	1 (9.09)	0 (0.00)
South Asian	1 (4.55)	0 (0.00)	1 (9.09)
East Asian	2 (9.09)	1 (9.09)	1 (9.09)
Southeast Asian	2 (9.09)	0 (0.00)	2 (18.18)
Middle Eastern	1 (4.55)	0 (0.00)	1 (9.09)
Latin American	2 (9.09)	0 (0.00)	2 (18.18)
Aboriginal	0 (0.00)	0 (0.00)	0 (0.00)
Other	1 (4.55)	1 (9.09)	0 (0.00)
Education			
Did not graduate high school	0 (0.00)	0 (0.00)	0 (0.00)
Graduated high school	2 (9.09)	2 (18.18)	0 (0.00)
Some university or college education	3 (13.64)	2 (18.18)	1 (9.09)
Bachelor's degree or higher	17 (77.27)	7 (63.64)	10 (90.91)

and STICSA (M = 53.09, SD = 7.48) than the good mental health group (M = 4.18, SD = 1.54 and M = 25.09, SD = 2.55, respectively).

3.3.1 Qualitative analysis

Table 8 presents frequency information for all study codes, including (1) the total proportion of participants spontaneously reporting each theme; (2) the proportion of participants in the poor mental health group and good mental health group spontaneously reporting each theme; and (3) results of the χ^2 test, comparing frequency data between the two groups. With respect to the qualitative study hypotheses, mixed findings emerged. Consistent with the study hypotheses, minority stress experiences, including distal minority stress and group-specific processes (i.e., concealment of sexual orientation and internalized homophobia) were spontaneously reported by a large number of participants. However, for general psychological processes, participants described only social processes; cognitive and affective psychological processes were reported infrequently.

No significant group differences emerged in the spontaneous reporting of the original codes. In addition, a number of important themes emerged from the interviews that had not been included in the original model. These themes included the coming out process, feelings of disconnectedness from the gay community, risk behaviours, masculine ideals, not fitting into stereotypes of gay men, and sociodemographic moderators, including religious and cultural background, geographic location, and generational factors. No significant differences were found between groups in the reporting of these new themes.

Table 8

Frequency of codes and group comparisons

Code	Total (N = 22)	Poor mental health (n = 11)	Good mental health (n = 11)	χ^2	*p value*
		n (%)			
Original Codes					
Objective stigma	18 (81.8)	9 (81.8)	9 (81.8)	0.00	.99
Internalized homophobia	17 (77.3)	8 (72.7)	9 (81.8)	0.26	.61
Concealment of sexual orientation	19 (86.3)	9 (81.8)	10 (90.9)	0.39	.53
Lack of social support	17 (77.3)	9 (81.8)	8 (72.7)	0.26	.61
Emotional suppression	2 (9.1)	1 (9.1)	1 (9.1)	0.00	.99
Rumination	0 (0.0)	0 (0.0)	0 (0.0)	-	-
Avoidant coping	0 (0.0)	0 (0.0)	0 (0.0)	-	-
Low self-esteem	5 (23.8)	4 (36.4)	1 (9.1)	2.33	.13
Low hope	0 (0.0)	0 (0.0)	0 (0.0)	-	-
New Codes					
Coming out process	17 (77.3)	8 (72.7)	9 (81.8)	0.26	.61
Disconnectedness from gay community	16 (72.7)	9 (81.8)	7 (63.6)	0.92	.34
Not fitting into stereotypes of gay men	11 (50.0)	7 (63.6)	4 (36.4)	1.64	.20
Risk behaviours	6 (27.3)	1 (9.1)	5 (45.5)	3.67	.06
Masculine ideals	8 (36.4)	6 (54.6)	2 (18.2)	3.14	.08
Sociodemographic moderators	6 (27.3)	3 (27.3)	3 (27.3)	0.00	.99

A description of the original themes and new themes that emerged from the qualitative interviews is presented below. Results are separated into three sections: (1) themes from the original codebook that were supported by the qualitative interviews (i.e., spontaneously reported by more than 25% of participants); (2) themes from the original codebook that were not supported by the qualitative interviews (i.e., spontaneously reported by less than 25% of participants); and (3) novel themes that were not directly included in the original codebook but were considered relevant to the model (i.e., spontaneously reported by more than 25% of participants).

Original themes supported by interviews.

Objective stigma. The majority of participants (81.82%) described objective stigma. These discriminatory experiences occurred at different developmental stages throughout participants' lives. During childhood and adolescence, participants described experiences of bullying, verbal harassment, and social isolation ("kids make fun of each other, and they use it [gay] as a bad word"; "other kids taunting you, and, you know, calling you names"; "being teased on the playground, you get treated as like an odd person out"). In adulthood, participants reported physical assault ("he was beat up by a team of guys in an elevator"; "they would set out to beat up a gay person"), workplace discrimination ("The manager will actually say, I fear for your safety if you come and work for me"; "me being openly gay and my mannerisms, it also limits the work I can do"), and discrimination by strangers ("I've worked frontline customer service jobs and there have been incidents where I have actually been told 'please don't serve me, I don't want you serving me'"). Structural discrimination was also mentioned by a number of participants. For example, when discussing international same-sex marriage laws, one

participant explained, "I think as a community it's probably important to have the same rights as other people. And I think that's one we lack."

Concealment of sexual orientation. A large proportion of participants (86.36%) discussed concealment of sexual orientation due to perceptions of stigma as a contributing factor to poor mental health outcomes. This concealment was described in a number of contexts, including within family relationships ("none of my family knows I'm gay"; "I never officially came out to my family"), friendships ("I never had friends that knew I was gay"; "I had two groups of friends"), and at work ("who I am at work and who I am outside of work are two different people"; "I'm still not out at work"). In many instances, participants reported fearing the negative consequences associated with disclosure of their sexual orientation. For example, one participant who worked in the military described concerns that disclosure of his sexual orientation would compromise his relationships and career progression. He stated, "In the military we have intimate environments… we take showers together, we work together, we train together. So I was concerned that being who I really am would have an impact on that." In terms of his career development, he noted, "I would have either felt that I need to leave the military or those who are in charge or responsible for my career progression would have hindered or delayed the process."

Overall, many participants described a general perception of stigma such that, even in the absence of objective discrimination, they were concerned that disclosure of their sexual orientation would lead to negative consequences. As one participant eloquently stated, "If there was no stigma, then a lot more guys would be out. There would be no such thing as a closet."

Internalized homophobia. Seventy-seven percent of participants reported internalization of societal homophobic and heterosexist attitudes. Many participants noted that they grew up with the expectation, both intrinsic and extrinsic, of being heterosexual. One participant described, "You grow up expecting to be like your parents… you assume because your dad married a woman then that's what you're going to do." A number of participants attributed this internalization to a lack of exposure to gay role models ("I really feel that if I had a role model… you know, somebody who's gay or lesbian… I feel that would have helped") and to a general lack of representation of gay men in the media ("You don't really see a lot of advertisements, a lot of papers, a lot of articles surrounding homosexual relationships").

In some cases, participants reported efforts to deny being gay. For example, one participant stated, "It took me to the point of becoming engaged to a girl even though I knew I was gay. But I wanted to satisfy my mother and I wanted to try to beat the gay out of me." In another example, a participant described coming from a religious background and attending a program to alter his sexual orientation. He stated, "I didn't think it was acceptable from a religious standpoint and it was something that I kind of frowned on in myself… I went through a program to try and de-gay myself." In general, participants reported that growing up in a society where heterosexuality was the norm often left them feeling lost and isolated. As one individual noted, "There's no, you know, guidebook… nothing to refer you to, 'these are the first six things you should do when you think you're a gay kid. This is where you should go or who you should talk to.'"

Lack of social support. Although many participants described strong social support networks, a large number of participants (77.27%) reported experiencing

rejection and disapproval by family members, friends, and the general community. Some participants described a lack of social support that was unrelated to their sexual orientation ("I didn't feel that support as a person so I'm not seeking support from them [family] as a gay person"; "I didn't really have a lot of friends growing up"). In other examples, participants described outward disapproval by others after coming out ("My family wasn't for it at all… I didn't have anybody in my family I could turn to"; "When I came out to my parents, my dad cried for like 4 days straight"). Many participants also described a general feeling of isolation from society as a result of being gay or bisexual ("not feeling that connection to society"; "not really having a place that you really feel comfortable").

Original themes not supported by interviews. Rumination, avoidant coping, and low hope were not discussed by any of the participants. For low self-esteem, a number of participants used terms such as "self-esteem", "self-worth", "self-deprecation", and "self-loathing"; however, these concepts were rarely expanded on. In one example, a participant alluded to the adverse effects of stigma on individuals' self-esteem, noting "If you've been told you're bad your whole life for being gay, that will affect you." Emotional suppression was also described by two participants, who mentioned difficulties expressing their emotions ("you have to keep many things inside your mind and look for another strategy to put away your feelings, your intentions").

Novel themes relevant to model.

Coming out process. The majority of participants (77.27%) described the coming out process as a stressful developmental period that contributes to psychological distress. This stress arose as a result of difficulties accepting their own sexuality ("I wasn't

confident and I didn't know who I was"; "as a I came out, I also put myself in therapy, worked on myself"), fears about not being accepted by others ("How are they gonna react? What are they gonna say?"), and challenges developing new social networks ("If you don't necessarily see yourself as part of one of these groups, or you don't get accepted into one of these groups, then you don't make that circle of friends"). Participants also highlighted the coming out process as inherently stressful. For example, one participant reported, "When you're straight you don't have to do that. It's like an extra step when you're gay, it's like you have to do this and it's hard". Another participant reported, "Having a big production to have to tell your parents who you are. You're the same person that you always were." A number of participants also described waiting many years to come out to their families and friends and, in some cases, continued to conceal their sexual orientation from others. For example, one participant reported that he had been living with his partner for five years and still had not told his parents that he is gay. He stated, "My parents, they don't know about me, the gay life. They are still thinking I'm just straight and looking for a girlfriend."

Disconnectedness from gay community. In addition to a lack of support from the general community, a large proportion of participants (72.72%) discussed a sense of disconnectedness from the gay community. Many individuals highlighted unrealistic norms and ideals perpetuated by the gay community and described feeling significant pressure to possess certain physical characteristics in order to be accepted. Examples of participants' accounts include, "There's a sense of being perfect in gay culture… everybody has to dress well, everybody goes to the gym, everybody has to look great" and "Open up Fab magazine [a now-defunct Toronto gay magazine], for example, look at

the pictures. It's just all these chiseled, beautiful-looking men". Participants also reported subgroups within the gay community and identified specific physical attributes (e.g., "hairy or smooth") that an individual must have to fit into a group. For example, one participant stated, "I don't fit the stereotypes. I'm not bear enough to be a bear; I'm not twink enough to be a twink. I don't even fit the gay stereotypes, bear in mind the allegedly straight stereotypes I'm supposed to fit into". In another example, a participant described, "The community is very segregated in terms of like different looks and different attitudes towards people… even within the community there's a lot of putting each other down". Participants also described a general sense of loneliness as a result of this segregation. One participant noted, "If you don't feel like you fit in to one of these groups, I think there is a feeling of isolation".

Risk behaviours. Twenty-seven percent of participants described increased alcohol/substance use and sexual behaviours in the gay community as contributors to worse mental health outcomes among GBM. A number of participants provided explanations for these risk behaviours, describing them as methods of coping with psychological distress ("People end up using coping mechanisms, right? So alcohol abuse, drug abuse… promiscuity is also a coping mechanism for people"; "People deal with stress differently. Some people smoke, some people drinks, some people do drugs") and also as ways of fitting into the gay community. One participant reported, "To get into that gay culture and get into groups and friends like that, I would party every single weekend and it would be like, you know, I'd go out Friday night, we'd drop pills, Saturday night, we'd drop pills." Another participant described, "So how do I make those

connections? Let me go to the bar or let me go to the bathhouse and let me get high or let me get drunk, and then maybe I can go to the backroom of the Eagle and get a blowjob."

Masculine ideals. Thirty-six percent of participants reported ideals of masculinity within the general community as well as the gay community. These participants described heightened societal discrimination towards effeminate men and personal efforts to suppress "feminine" mannerisms or behaviours in order to avoid being stigmatized. One participant reported, "I would say gay men who are feminine in nature have to bear the brunt of prejudice because it's obvious… Whoever exhibits feminine-like characteristics is more likely to encounter homophobia, so that's why I haven't really encountered any. Because I don't really exhibit any feminine features." Another participant attributed this heightened discrimination to sexism in society, stating, "If you see an effeminate male, you associate that to a woman and I think, ultimately, there's a huge separation between the way women are treated and men are treated." Similar pressures were reported from within the gay community. According to one participant, "It happens in the gay community… if you go online it's so prevalent, it's like masculine, masculine, masculine. It seems like, you know, that seems to be what's very, very important… I think it has an impact on my socialization as a gay male, like really wanting to remain masculine."

Not fitting into stereotypes of gay men. Many participants (50%) reported concerns about not fitting into societal stereotypes of gay men. They described a range of stereotypes including beliefs that gay men are promiscuous ("they just paint me with the same brush that I'm promiscuous, just like everybody else"), flamboyant ("very flamboyant, like what you see on TV"), and weak ("you're weaker or you're wimpy or

emotional"). Participants also described stereotypes about gay men's careers. One participant who worked as an interior designer indicated, "They refer to my career choice as sort of a gay career choice, which I find offensive". Participants highlighted the negative consequences associated with these stereotypes and explained that the belief that "everyone fits into that one box" diminishes their individuality. For example, one participant noted, "We are all different as well…you want, as an individual, to be recognized as an individual."

Sociodemographic moderators. A number of participants (27.27%) described sociodemographic variables contributing to the increased prevalence of mental health problems among GBM. These included religious/cultural background, geographical location, and generational factors. With respect to religious/cultural background, many individuals described coming from backgrounds that promoted heterosexual norms and did not accept homosexuality ("I grew up in a Catholic home so… it wasn't accepted by a lot of the family"; "for Indian culture it's, you know, you get married, you have kids"; "both my parents are Lebanese and my socialization included being taught that I needed to get married and have children"). Geography was also identified as an important factor impacting individuals' experiences, with many participants highlighting the differences in stigma and acceptance between urban versus rural communities. For example, one participant stated, "I only found that [closed-mindedness] within smaller communities and in suburbia. But actually, talking to my friends who grew up in the city, I find that they didn't experience that at all." Participants also described the generational changes that have influenced societal stigma. In particular, a large number of participants highlighted the improvements that have occurred over the past few decades. One

participant reported, "I think now if I was growing up, I probably would come out earlier. Society has changed. Being gay is more accepted".

3.3.2 Group Comparisons

Table 9 presents relevance ratings for all codes, in both the poor mental health group and the good mental health group. Figure 9 presents the total general and personal relevance scores for both the poor mental health group and the good mental health group.

Between-group comparisons. For general relevance ratings, no significant differences emerged between groups on any of the codes. This suggests that individuals in both groups had similar perspectives about the model's relevance to gay men in general. For personal relevance ratings, however, significant group differences were detected for a number of variables. Compared to the good mental health group, participants in the poor mental health group reported significantly higher relevance scores on objective stigma, low self-esteem, isolation from the general community, isolation from the gay community, and rumination. Significant differences were also found for the total relevance score. These findings suggest that the overall model and a large number of its factors were considered more personally relevant to individuals experiencing worse mental health compared to individuals experiencing relatively good mental health.

Within-group comparisons. For the poor mental health group, participants reported that rumination and isolation from the gay community were significantly more relevant to them personally than to gay men in general. No other significant differences emerged. For the good mental health group, significant differences between general and personal relevance emerged for the majority of codes, including objective stigma, concealment of sexual orientation, internalized homophobia, low self-esteem, low hope,

Table 9

Between group and within-group relevance rating comparison

Factor		Group (N = 21)		
		Poor (n = 10)	Good (n = 11)	
		M(SD)		*t*-value
Objective stigma	General	7.90 (1.45)	7.55 (1.92)	.47
	Personal	7.30 (3.27)	3.50 (2.80)	**2.87****
	t-value	.65	**4.30****	
Concealment of sexual orientation	General	6.10 (2.13)	5.55 (2.77)	.51
	Personal	5.70 (3.27)	3.82 (2.99)	1.38
	t-value	.41	**2.23***	
Internalized homophobia	General	6.50 (1.96)	6.18 (2.75)	.30
	Personal	5.30 (3.37)	4.18 (3.31)	.77
	t-value	1.53	**2.80***	
Low self-esteem	General	6.80 (1.69)	6.55 (1.92)	.32
	Personal	8.00 (2.00)	3.73 (3.17)	**3.65****
	t-value	-1.86	**4.38****	
Low hope	General	4.70 (1.89)	6.55 (2.42)	1.93
	Personal	6.00 (2.83)	3.82 (3.16)	1.66
	t-value	-2.18	**3.32****	
Isolation from general community	General	7.00 (1.70)	6.64 (1.69)	.49
	Personal	7.00 (1.94)	3.09 (2.88)	**3.61****
	t-value	.00	**5.22****	
Isolation from gay community	General	5.60 (1.90)	5.27 (3.44)	.27
	Personal	7.60 (2.01)	3.18 (3.12)	**3.81****
	t-value	**-2.68***	**3.43****	
Avoidant coping	General	7.00 (2.36)	6.45 (1.63)	.62
	Personal	5.80 (3.33)	4.55 (3.05)	.90
	t-value	1.33	2.10	
Emotional suppression	General	7.50 (2.42)	5.64 (1.63)	2.09
	Personal	7.20 (3.39)	4.27 (3.35)	1.99
	t-value	.44	1.70	
Rumination	General	7.10 (2.69)	5.00 (2.05)	2.03
	Personal	8.40 (3.37)	4.18 (3.54)	**3.21****
	t-value	**-2.62***	.99	
Total	General	84.40 (16.42)	80.55 (19.21)	.49
	Personal	85.80 (21.74)	50.50 (31.38)	**2.97****
	t-value	-.50	**5.55****	

Note: General relevance refers to a factor's relevance to mental health among GBM in general. Personal relevance refers to a factor's relevance to one's personal mental health.
**p < .05, **p < .01

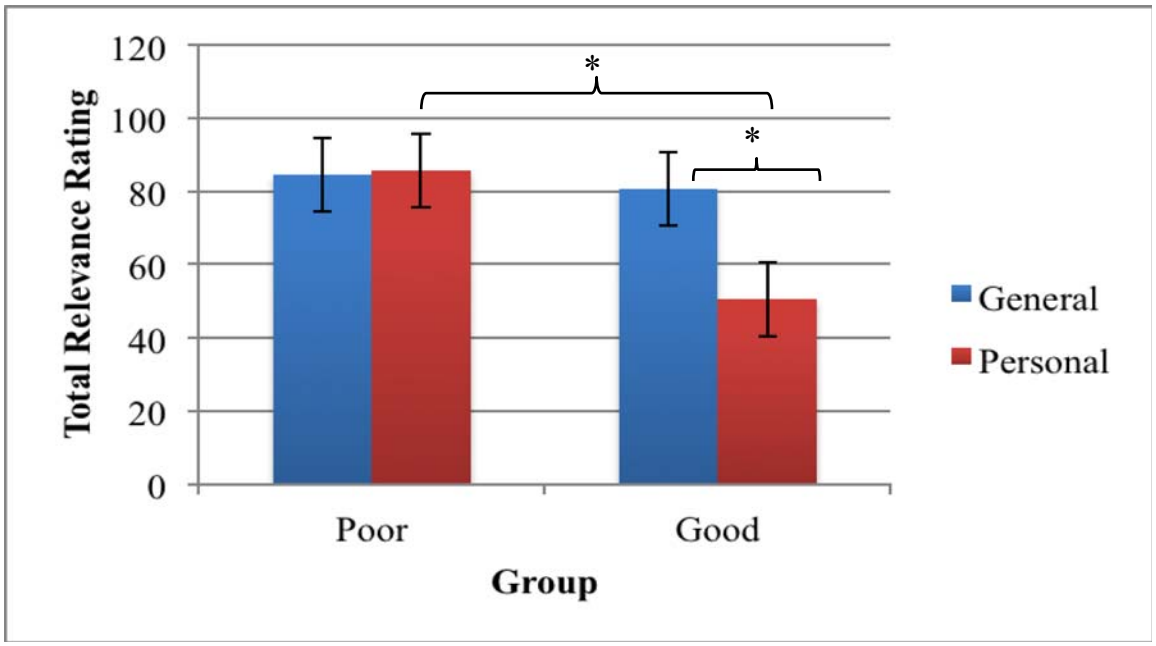

Figure 9. Total General and Personal Relevance Ratings Among Participants in Poor Mental Health Group and Good Mental Health Group
*****$p < .01$

isolation from the general community, isolation from the gay community, and total score. Participants with relatively good mental health believed that the overall model, as well as the majority of its factors, was less relevant to them personally than to gay men in general. No significant differences were found on the avoidant coping, emotional suppression, and rumination factors.

3.4 Discussion

This qualitative study further tested and refined Hatzenbuehler's (2009) PMF by allowing participants to openly discuss the factors that they considered to be most relevant to the mental health of GBM. This study adopted a realist paradigm, which assumes that theoretical models are imperfect reflections of reality. Results provided partial support for the PMF by demonstrating that: (1) participants identified many but not all of the key components of the model and (2) participants identified novel themes that were not specifically proposed by the model. These findings support the realist paradigm by demonstrating that scientific models are important but limited methods of investigating reality, and that multiple methods ought to be used to increase the validity of a study's results (Sobh & Perry, 2006).

As hypothesized, when asked about factors that contribute to adverse mental health outcomes among GBM, participants described a range of distal and proximal minority stressors. Accounts of objective stigma included bullying, verbal harassment, physical assault, workplace discrimination, discrimination by strangers, and structural discrimination. Indeed, the themes of objective stigma reported by participants closely resemble those that have been linked to poor mental health outcomes in the literature (e.g., Herek & Garnets, 2007; Hershberger & D'Augelli, 1995; Szymanski, 2009;

Szymanski & Meyer, 2008; Szymanski & Sung, 2010) and support the vast literature highlighting the associations between stigma experiences and poor mental health outcomes among sexual minority individuals (e.g., Díaz et al., 2001; Hatzenbuehler et al., 2008, 2009; Lehavot & Simoni, 2011; Rosario et al., 1996; Szymanski, 2006, 2009; Szymanski & Sung, 2010). In addition to distal minority stress, participants also described the ways in which minority stress "gets under the skin" via group-specific, proximal processes. Specifically, many participants reported internalizing negative societal attitudes towards homosexuality and concealing their sexual orientation from others due to perceptions of stigma. These themes directly support the PMF by demonstrating that individuals' internalization and interpretation of stigma experiences are critical in understanding negative health outcomes.

Partial support was provided for general psychological processes as mediators in the relationship between stigma and mental health outcomes. Of the three general psychological processes proposed by the PMF, only social support was reported by participants, with minimal discussion of the cognitive (i.e., low self-esteem and low hope) and affective processes (i.e., avoidant coping, emotional suppression, and rumination) proposed by the PMF. The finding that social processes were described by a large number of participants is consistent with the extensive literature linking social support to mental health outcomes among GBM (Hatzenbuehler, 2009; Hershberger & D'Augelli, 1995; Lehavot & Simoni, 2011; Szymanski et al., 2008; Szymanski & Kashubeck-West, 2008). However, it is surprising that the cognitive and affective themes did not emerge, given the large number of studies documenting the relationships between these psychological processes and mental health outcomes (e.g., Hatzenbuehler,

2009; Herek et al., 2009; Safren & Heimberg, 1999; Szymanski, 2009; Szymanski & Carr, 2008), in addition to results of the quantitative study.

One possibility is that these themes were not adequately operationalized by the researcher and were therefore difficult to detect. However, it should be noted that the definitions used in the codebook closely reflected the definitions provided in the literature and that both coders agreed that they were clear and identifiable prior to coding. This suggests that both researchers reliably agreed on the absence of these themes in the interviews. Another, perhaps more parsimonious explanation, is that participants did not spontaneously discuss these processes because these are psychological "mechanisms" that might not be apparent to participants from the community who are not trained in psychology or mental health. Thus, as opposed to being overt and objective, these mechanisms are internal and underlying processes and may therefore be more difficult to articulate or explain for a layperson. This is particularly plausible given the open-ended nature of the interview, which simply asked participants to think of factors that contribute to poor mental health outcomes. It is possible that participants would have discussed these themes if they had been asked more specific questions relating to these internal processes, such as "How do you think gay men cope with the effects of stigma?" or "When gay men are faced with stigmatizing experiences, what might be some of their thought processes?"

As anticipated, participants also described themes that are not directly captured by the PMF. These novel themes included factors that are specific to GBM (i.e., coming out process, disconnectedness from gay community, not fitting into stereotypes of gay men, masculine ideals), general psychological factors (i.e., risk behaviours), and moderator

variables (i.e., sociodemographics). The novel group-specific factors that were discussed in the present study reflect existing literature on minority stress and gay men's health. For example, a growing body of research has highlighted masculine ideals as a negative predictor of poor mental health outcomes among GBM. Sánchez and colleagues reported that a large proportion of gay men feel pressure to appear masculine in order to be accepted by society and desirable to other gay men (Sánchez, Greenberg, Liu, & Vilain, 2009) and that many gay men wish their behaviour was more masculine and less feminine than how it is perceived (Sánchez & Vilain, 2012). These researchers also found that greater value placed on masculinity and more concerns about violating masculine ideals are associated with more negative feelings about being gay (Sánchez, Westefeld, Liu, & Vilain, 2010).

The other group-specific themes, including the coming out process and stereotypes of gay men, have also been extensively explored throughout the minority stress literature. Consistent with this study's results, past research in these areas has described the coming out process as a particularly stressful developmental period in GBM's lives (Grov, Bimbi, Nanin, & Parsons, 2006; Rosario, Hunter, Maguen, Gwadz, & Smith, 2001; Rosario, Schrimshaw, & Hunter, 2011) and has highlighted the adverse psychological effects of gay stereotypes (Blashill & Powlishta, 2009, Lewis et al., 2003).

To date, minimal research has examined disconnectedness from the gay community *per se* as a risk factor for poor mental health outcomes; however, there have been a number of studies examining connectedness to the gay community as a protective factor that may buffer individuals against the adverse psychological effects of stigma. Indeed, studies have found that increased connectedness to the gay community is

associated with more positive mental health outcomes, such as overall psychological well-being and social well-being (Cox, Van den Berghe, Dewaele, & Vincke, 2010; Frost & Meyer, 2012; Kertzner, Meyer, Frost, & Stirratt, 2009). This research posits that increased community connectedness serves a protective role among sexual minority individuals by helping them challenge heterosexist norms, experience reduced internalized homophobia, make positive social comparisons to similar others, and develop an adaptive social identity based on sexual orientation (Cox et al., 2010; Frost & Meyer, 2012). Although no known studies have examined this empirically, it is plausible that the effects of feeling isolated from the gay community would be particularly devastating; an individual who feels isolated from the general community as a result of his sexual orientation might be particularly devastated by further isolation from within the gay community.

In examining these questions, it is also important to explore individuals' perceptions of what defines "the gay community", as certain subcultures may be perceived as more or less accepting. Frost and Meyer (2012) examined differences in levels of perceived connectedness to the gay community based on individuals' race and ethnicity. Although no significant differences were reported, the authors noted that sexual minority individuals of colour have been found to have strong racial and sexual identities, and may therefore demonstrate increased resilience and feelings of connectedness as a result of belonging to multiple minority groups (Meyer, 2010; Stirratt et al., 2008). Other subgroups within the gay community have also been studied; for example, the Bear community is a subculture within the gay community that rejects mainstream ideals of male beauty (e.g., thin, young, hairless) and praises "authentic"

masculinity (e.g., hairy, heavy, older) (Hennen, 2005). One recent study of 469 gay men identifying as Bears found that Bears preferred hairier and heavier sexual partners and were more likely to reject sexual partners who did not exhibit these physical traits. Accordingly, it is likely that GBM's sense of connectedness to or disconnectedness from the gay community would depend on their definitions of the gay community, as well as their affiliations with gay subcultures (Moskowitz, Turrubiates, Lozano, & Hajek, 2013).

Evidently, there is a need for more research examining the potential deleterious health effects of perceived disconnectedness from the gay community. Although there is ample evidence highlighting the gay community as a source of strength and resilience among many GBM, it is disheartening that some individuals may not derive those benefits as a result of perceived rejection from within the community. Increased awareness of these concerns may help to prevent the minority stressors that exist in the general community from being further perpetuated within the gay community.

In addition to the novel themes that are specific to GBM's experiences, participants also described general psychological factors that are relevant to the general population. Specifically, participants in this study identified associations between risk behaviours (i.e., drug/alcohol use, sexual behaviours) and psychological distress, highlighting that individuals may engage in risky behaviours as a way of coping with psychological distress. Associations between substance use, sexual behaviours, and mental health variables have been well documented in past research (e.g., Hart, Tulloch, & O'Cleirigh, 2013; Kalichman, Tannenbaum, & Nachimson, 1998; Kelly, LeClair, & Parsons, 2013; Rosario et al., 2006; Strathdee et al., 1998). For example, one study examining predictors of sexual risk behaviours among GBM reported that higher

substance abuse symptoms were directly associated with a greater risk of unprotected anal intercourse, and increased symptoms of anxiety were indirectly linked to a greater risk of unprotected anal intercourse via more sexual partners, sexual encounters, and substance abuse symptoms (Rosario et al., 2006). Of note, although the current study defined mental health outcomes as symptoms of depression and anxiety, risk behaviours, including sexual behaviours and alcohol/substance use, are other important outcomes variables that warrant future exploration. Indeed, past studies examining the PMF have included these variables as psychological outcomes (Hatzenbuehler, 2009; Lehavot & Simoni, 2011).

Participants also proposed several sociodemographic moderators, including religious background, geography, and generational factors, which were not included in the PMF. The moderating role of these variables is critical to consider given their previously documented associations with minority stress experiences. For example, research has found that individuals reporting a religious affiliation experience heightened internalized homophobia (Rowen & Malcolm, 2002) and that decreased moral and religious acceptability of being gay is linked to increased concealment of sexual orientation and decreased belongingness to the gay community (Ross & Rosser, 1996). In addition, results from a study of 31,852 high school students, including 1,413 lesbian, gay, and bisexual students, found that sexual minority adolescents living in communities with religious climates that were accepting of homosexuality were less likely to experience alcohol abuse symptoms and reported fewer sexual partners (Hatzenbuehler, Pachankis, & Wolff, 2012). Geography may also be a key moderator to consider; past research has found that, compared to individuals living in urban centres, sexual minority

individuals living in rural areas encountered more homophobic statements, property damage, and employment discrimination (Swank et al., 2012). Finally, participants highlighted the increased acceptance and reduced stigma over the past few decades, stating that being gay or bisexual in the present day is much more accepted than it has been in the past. These improvements are clearly evidenced by policy-level changes, such as amendments to same-sex marriage laws in countries across the world (Hatzenbuehler et al., 2010).

3.4.1 Does mental health status influence individuals' evaluations of the PMF?

In addition to a qualitative analysis of the study interviews, quantitative analyses were used to examine the frequency of themes being reported by participants as well as participants' perceived relevance of the model components. With respect to frequency, group comparisons revealed no significant differences in reporting of themes between individuals experiencing relatively poor mental health and relatively good mental health. In other words, participants with poor mental health reported these themes at the same frequency as participants with good mental health. Although these group comparisons were based on a very small sample size and were exploratory in nature, these findings are somewhat surprising. It would perhaps be expected that a higher proportion of participants in the poor mental health group would describe these themes, given that they are experiencing more symptoms of depression and anxiety and may therefore be more likely to access and identify these themes. The finding that no group differences emerged suggests that, regardless of an individual's current mental health status, there is agreement regarding the factors that influence poor mental health outcomes in the gay community.

In explaining the similar frequencies across groups, it is noteworthy that participants' interviews were coded based on whether they described a given theme at all, not based on whether they described the theme based on personal experience or in general. Therefore, if a participant identified a theme when discussing the experiences of GBM in general, this theme was still coded. Coding was done in this way for two primary reasons: (1) the purpose of calculating frequencies was to explore whether participants' responses would map onto the themes proposed by the PMF; not to determine whether these experiences necessarily applied personally; and (2) despite the phrasing of the questions by the interviewer (i.e., "in general" or "based on your own experiences"), it was occasionally difficult to distinguish whether participants were describing their own personal experiences or whether they were speaking more generally. For example, participants often used the word "you", which made it difficult to discern whether they were referring to themselves or to others (e.g., "You're not confident in yourself… you're not what everyone says you should be"). Thus, although similar frequency patterns emerged in both groups, it is possible that these patterns would differ if themes were coded based on general versus personal experiences. Indeed, results from the relevance ratings support the notion, as described below.

In support of the PMF, participants in both the good mental health group and poor mental health group found the overall model to be highly relevant to gay men in general, with no significant differences found between the two groups. In other words, all participants agreed that the model was highly relevant to gay men in general, regardless of their personal mental health status. Conversely, when the model's overall personal relevance was examined, participants with worse mental health rated the model as being

significantly more relevant than participants with better mental health. When examining the factors individually, it is interesting that no significant group differences emerged for concealment of sexual orientation or internalized homophobia. This is in contrast to the minority stress literature, which clearly highlights associations between these factors and poor mental health outcomes. It would therefore be expected that individuals experiencing relatively poor mental health would find these factors more personally relevant than individuals experiencing relatively good mental health. It is possible that there was insufficient power to detect group differences given that these analyses were based on a very small sample size. However, it is also possible that GBM with good mental health are being strongly impacted by minority stress, but are protected from the adverse health effects of stigma as a result of their better cognitive, affective, and social functioning. This is supported by the finding that GBM in the good mental health group rated low self-esteem, isolation from the general community, isolation from the gay community, and rumination, as significantly less personally relevant than GBM in the poor mental health group.

Moreover, whereas participants in the poor mental health group found the model to be similarly relevant to themselves and to gay men in general, participants in the good mental health group found the model significantly more relevant to gay men in general. These results imply that individuals experiencing good mental health perceive the general gay community as having relatively worse mental health and thus do not identify as closely with the model. Social comparison theory (Festinger, 1954; Wood, 1989, 1996), which posits that individuals compare themselves to others in order to evaluate aspects of themselves, may help to explain these findings. According to this theory, when

individuals engage in social comparisons, they may assimilate (i.e., identify with) or contrast (i.e., compare against) themselves to inferior others (i.e., downward comparison) or superior others (i.e., upwards comparison) depending on the degree of similarity shared with the comparison group (Suls, Martin, & Wheeler, 2002). The effects of these types of comparisons on health outcomes have been extensively examined (e.g., Buunk, Gibbons, & Buunk, 2013; Suls, 2011), with studies demonstrating that downward comparisons may have a protective effect on individuals' perceived well-being (Wood, Taylor, & Lichtman, 1985; Wills, 1991).

In the present study, all participants provided their relevance ratings with the knowledge that GBM experience worse mental health outcomes than heterosexual men. Although this information was not provided to elicit a downward comparison, it may have had this effect among individuals experiencing good mental health. This reflects the social comparison literature, which highlights that individuals experiencing positive mood are more likely to engage in downward comparisons (Wood, Michela, & Giordano, 2000). Accordingly, it is possible that participants with good mental health contrasted themselves to gay men in general whereas participants with poor mental health assimilated themselves to gay men in general. Future research might wish to explore this finding further by statistically comparing the model's fit among individuals with poor versus good mental health or, alternatively, by exploring this model while controlling for current mental health status.

3.4.2 Limitations

A number of limitations of this qualitative study are noteworthy. First, social desirability bias may have been an issue in participants' responding, particularly given

the sensitive nature of the interview questions which focused on mental health issues. However, this concern was identified at the outset of the study and the interview was designed to reduce this bias by first asking participants to discuss factors related to gay men in general, with follow-up questions relating to their personal experiences. By structuring the interview in this way, the goal was to make participants feel more comfortable with the interviewer and with the discussion topics before asking them to disclose information about their own experiences. Nevertheless, it is still plausible that social desirability bias may have impacted their responding in terms of content, frequency, and relevance ratings.

Although participants discussed a large number of the hypothesized themes, several relevant themes were not discussed and warrant mention. Given the growing literature on multiple minority stress, intersectionality, and syndemics theory (Balsam et al., 2011; Meyer, 2010; Singer, 2009; Singer & Clair, 2003; Singer et al., 2006; Stall et al., 2008), it is surprising that variables such as ethnicity and socioeconomic status were not frequently reported, despite the emergence of a sociodemographics category. This might be explained by the fact that participants were recruited exclusively based on their depression and anxiety scores whereas demographic characteristics were not taken into consideration. Thus, given that the majority of the sample was white and highly educated, it is possible that these themes did not emerge because the participants were not being affected to a large extent by these additional minority stressors. If the study had been designed to include a more representative sample in terms of ethnicity and socioeconomic status, it is possible that themes would have been more pronounced.

Finally, it is important to highlight this researcher's personal biases in conducting this study. Although there are many existing qualitative paradigms, a realist paradigm was used to guide the study design and analysis. This approach was taken as it most closely matched the researcher's ontological and epistemological views. Consistent with realism, this study was designed with the belief that scientific models are useful but fallible methods of investigating reality. Accordingly, this study was approached with specific hypotheses and expectations regarding the themes that would emerge. It is possible that a different pattern of findings would have emerged if the researcher had approached the study using a different paradigm.

For example, there is a large body of literature highlighting the significant adverse health consequences of gender noncomformity (e.g., Baams, Beek, Hille, Zevenbergen, & Bos, 2013; Cook, Sandfort, Nel, & Rich, 2013; Pachankis & Bernstein, 2011; Rieger & Savin-Willams, 2012; Roberts, Rosario, Slopen, Calzo, & Austin, 2013; Toomey, Ryan, Diaz, Card, & Russell, 2010). It is likely that a researcher approaching the data from a critical theory paradigm would have investigated the ways in which gender, as well social, political, and economic structures, influence our understanding of stigma and health (Sobh & Perry, 2006). Although some of these themes emerged in the present study, the study was not designed through this particular lens and therefore did not seek to answer such questions. In order to gain a comprehensive understanding of the factors that influence the health of GBM, future research would benefit from applying a range of paradigms to replicate, critique, and extend these findings.

3.4.3 The Importance of Resilience Among GBM

Another important limitation of the present study is its focus on risk factors for poor mental health outcomes, without taking into account the role of strength and resilience GBM exhibit in the face of chronic stigma. Past research has highlighted the importance of emphasizing resilience when promoting health among GBM (Herrick, Stall, Goldhammer, Egan, & Mayer, 2014). It has been suggested that members of stigmatized groups develop coping strategies that buffer them from the negative effects of societal stigma and lead to positive outcomes. In their seminal work on the self-protective properties of stigma, Crocker and Major (1989) proposed three methods by which stigmatized individuals protect their self-identities: (1) attributing stigmatizing experiences to prejudice or discrimination, as opposed to a reflection of themselves; (2) comparing their attributes with other members of the stigmatized group, as opposed to relatively advantaged individuals outside of the group (i.e., ingroup versus outgroup comparisons); and (3) placing more emphasis on the positive qualities demonstrated by their group and less emphasis on the negative qualities demonstrated by their group. Indeed, there is empirical evidence demonstrating that individuals from minority groups do utilize these strategies as a means of self-protection (Crocker & Major, 1989; Zagefka & Brown, 2005).

Although this study did not specifically examine participants' coping strategies in the face of minority stress, the qualitative results appear to support the adaptive function of these coping strategies. With respect to the first strategy (i.e., attributing stigmatizing experiences to prejudice or discrimination), over 80% of participants reported objective stigma as being a key predictor of poor mental health outcomes. This suggests that

participants recognized that the high prevalence of psychopathology among GBM is largely attributable to societal stigma, as opposed to being attributed to an inherent problem within the population. Although this is perhaps unsurprising, it is important to highlight that homosexuality was included as a mental disorder in the first two versions of the Diagnostic and Statistical Manual (American Psychiatric Association, 1952, 1968) and was only removed in 1973 (Spitzer, 1981). Further, the categorization of homosexuality as a mental disorder was previously held as the primary explanation for the differential health outcomes between heterosexual and sexual minority individuals (Meyer, 2003).

The second self-protective strategy (i.e., engaging in ingroup comparisons as opposed to outgroup comparisons) was also apparent in the present study, particularly through results of the relevance rating analyses. Participants experiencing relatively good and relatively poor mental health were asked to rate their perceived relevance of the model factors both personally and in general, with no knowledge of their categorization in a group based on mental health status. Interestingly, participants in the good mental health group appeared to be engaging in a downward comparison to GBM in general (Wills, 1981); they provided significantly higher scores on general relevance than personal relevance. Specifically, participants' relevance scores for objective stigma, concealment of sexual orientation, internalized homophobia, low self-esteem, low hope, isolation from the general community, isolation from the gay community, and total relevance, were all significantly lower than their relevance scores for GBM in general. Thus, it is possible that, by comparing themselves to other GBM, these participants believed that they were doing relatively well with respect to their mental health.

Findings from the poor mental health group may also reflect the protective function of within-group comparisons. No significant differences were found between general and personal relevance on any of the factors, with the exception of two factors (isolation from the gay community and rumination), whereby participants rated personal relevance as significantly higher than general relevance. This indicates that, despite experiencing relatively poor mental health based on validated measures of depression and anxiety, participants in this group appeared to regard themselves similarly as GBM in general. This may be interpreted in two ways. On one hand, it is possible that participants are assuming that the gay community in general is exhibiting poor mental health and that their mental health is similarly poor. Alternatively, it is possible that they are not regarding their mental health as particularly poor relative to their comparison group.

The final strategy (i.e., overemphasizing positive qualities and underemphasizing negative qualities) is difficult to apply to the present study given that participants were specifically asked to discuss the factors that they believe contribute to poor mental health outcomes among GBM. Nevertheless, participants did highlight the ways in which they coped with minority stress adaptively. For example, one participant reported strong efforts to develop his career and to become financially autonomous due to concerns about the effects of stigma. He explained, "I had a big goal of becoming financially independent, 'cause I knew that was a way to have ultimate freedom. So, for me, I did very well in school to cope". This quote reflects the "Best Little Boy in the World" hypothesis, which posits that early experiences of stigma and concealment of one's sexual orientation can result in overcompensation in achievement-related domains

(Tobias, 1976). Pachankis and Hatzenbuehler (2013) found empirical support for this hypothesis by demonstrating that sexual minority men reported a greater investment in achievement-related domains, including academic competence, appearance, and competition, than heterosexual men. Although this overemphasis on achievement was associated with a number of adverse outcomes, including social isolation and emotional distress, the authors pointed out that sexual minority individuals might use this as a self-protective strategy to ensure self-worth and validation without relying on more precarious domains, such as support and acceptance from others.

The adaptive function of this approach is exemplified by the aforementioned participant, who noted that his early concerns about stigma motivated him to seek out new opportunities and challenges and, in so doing, discover his resilience. He described, "I've lived with this secret [being gay] for so many years. That was a challenge. I got over that. You know, I decided to go to [country in Europe] and live there for four months and do school. That was a challenge. I got over it. Then I went to [country in Asia]. Just changing my environment and challenging my way in different ways for me, and finding out that, you know what, I survived and it wasn't a big deal." With respect to his accomplishments, he stated, "I finished school. I did my [degree]. Certain accomplishments that I had in my life really made me realize that, you know, being gay is just a part of me. It's not like the be-all-end-all of me, right. These are my accomplishments. These are the things that I've worked hard for. If I was gay or not, I would have still worked hard for these things. So I think that confidence was built that way."

Overall, despite the adverse consequences of minority stress, it is clear that stigmatized individuals develop unique strengths and coping abilities as a result of their stigmatized societal status. A growing body of literature examining the mental and sexual health of GBM is highlighting the need to recognize and build upon these resilience factors in the development of future research and clinical interventions with GBM (e.g., Herrick et al., 2014; Meyer, 2010; Russell & Richards, 2003; Safren & Pantalone, 2006; Sanders & Kroll, 2000). This type of research is critical in further advancing the minority stress literature, reducing the adverse mental health effects of minority stress, and empowering GBM.

Chapter 4: Overall Discussion

The current study investigated the elevated risk of poor health outcomes among GBM using a mixed methods design. There is considerable value in using this approach, given the distinct strengths of both quantitative and qualitative methodologies (Johnson & Onwuegbuzie, 2004; Johnson & Turner, 2003; Onwuegbuzie & Leech, 2005). For example, whereas quantitative research allows for the testing and validation of pre-existing theoretical models, qualitative research allows for a greater depth of knowledge by taking into account individuals' understanding of complex factors. Results from both the quantitative and qualitative components of the present study offer unique contributions to the existing literature.

The quantitative study examined general psychological processes and group-specific processes as mediators in the relationship between distal minority stress and mental health outcomes. The original PMF, examining only general psychological processes as mediators, was a good fit to the data and demonstrated that distal minority stress was associated with the proposed general psychological processes, as well as mental health outcomes. Mediational analyses demonstrated that, controlling for all mediators, affective processes emerged as the only significant mediator, whereas cognitive and social processes were non-significant. The integrative PMF, which included both general psychological processes and group-specific processes, was not a good fit to the data. Therefore, this model was not supported in the present study.

The qualitative component of this study provided a greater depth of understanding by testing and further refining the PMF. As per the original model, results of the qualitative analyses demonstrated that the vast majority of participants identified distal

and proximal minority stress as relevant factors to mental health outcomes among GBM. However, in contrast to the proposed model, participants focused less on general psychological processes, with only social processes (not cognitive or affective) emerging as commonly reported themes. Participants also described a number of novel themes that were not directly captured by the PMF. These themes included factors that are specific to GBM, including the coming out process (Grov et al., 2006; Rosario et al., 2001; Rosario et al., 2011), disconnectedness from the gay community (Cox et al., 2010; Frost & Meyer, 2012; Kertzner et al., 2009), not fitting into stereotypes of gay men (Blashill & Powlishta, 2009, Lewis et al., 2003), and masculine ideals in the gay community (Sánchez et al., 2009; Sánchez & Vilain, 2012; Westefeld et al., 2010), and factors that are not specific to GBM, including risk behaviours (Kalichman et al., 1998; Rosario et al., 2006; Strathdee et al., 1998) and sociodemographic factors (Hatzenbuehler et al., 2010, 2012; Swank et al., 2012).

When integrating quantitative and qualitative methods within a single study, the goal is to enhance the strengths and minimize the weaknesses of each approach (Johnson & Turner, 2003). A unique strength of the quantitative study was its statistical analysis of the data using SEM. This allowed for a direct examination of the PMF, which is a complex model involving a large number of latent variables and indicators. Further, this approach allowed for a statistical estimation of the total indirect effect (i.e., total effect of all mediators) and specific indirect effects (i.e., specific effect of each mediator, controlling for the other mediators). These results extend past research by: (1) comprehensively testing the PMF, which has received minimal empirical support; (2) replicating previous empirical findings, highlighting significant associations between

minority stress, general psychological processes, and mental health outcomes; and (3) guiding the development of future psychological interventions through the elucidation of distinct psychological processes that underlie the relationship between minority stress and negative health outcomes.

A unique strength of the qualitative study was its ability to provide a detailed understanding of the factors that contribute to poor mental health outcomes among GBM. This study was carefully designed to ensure that participants were asked to discuss the factors that contribute to poor mental health outcomes among GBM without having any prior exposure to the model. This allowed participants to spontaneously provide their thoughts and opinions, while minimizing the effects of research bias. Participants' responses were then used to determine to what extent these themes mapped onto the original model, and to identify themes that were commonly reported by participants that were not included in the model. Once introduced to the model, participants then had the opportunity to provide feedback on the validity of the model and to identify its personal relevance and relevance to GBM in general. In this way, results allowed for a critical examination of the model based on the opinions and experiences of individuals from the population being studied. In addition, these findings highlight ways in which the model can be improved and, moreover, variables that may warrant future research and possible inclusion in the model.

The limitations of each study are evidenced through the differential patterns of findings that emerged. Findings from the quantitative analyses did not support the integrative PMF because it was not a good fit to the data. As previously mentioned in the quantitative discussion, there are a number of possible explanations for these findings,

including inadequate operationalization of the group-specific latent variable and insufficient power. Nevertheless, the presentation of the quantitative data alone may lead to the conclusion that group-specific processes do not play an important role in the relationship between minority stress and poor mental health outcomes.

These results are in contrast to the findings of the qualitative study, which clearly support the role of group-specific factors and provide less support for the role of general psychological factors. As previously mentioned in the qualitative discussion, this may be due to inadequate operationalization of the general psychological processes, challenges in describing psychological mechanisms, and inappropriate interview questions. Nevertheless, reliance on only the qualitative data may lead to the conclusion that cognitive and affective psychological processes are not important predictors of poor mental health outcomes.

The findings that the integrative PMF was not supported by the quantitative data and that novel group-specific themes emerged through the qualitative data suggest that the PMF may warrant further refinement. In particular, these results indicate that there may be more relevant group-specific processes above and beyond concealment of sexual orientation and internalized homophobia that ought to be considered when the examining the impact of stigma on health outcomes among GBM. These factors include perceptions of disconnectedness from the gay community, internalization of masculine ideals, and the use of maladaptive coping strategies such as sexual behaviours, substance use, and alcohol use. Further, it is critical that a developmental perspective be taken when examining this model. The coming out process was highlighted as a particularly stressful period, whereby many individuals experienced increased psychological distress. It is

foreseeable that individuals in the process of coming out might experience heightened fears of rejection, increased internalization of homophobic attitudes, and greater social isolation as a result of these concerns. Further, they may not have support and acceptance from other members of the gay community, which can serve a buffering role against the adverse effects of stigma. An examination of contextual variables such as the coming out process, in addition to other relevant sociodemographic moderators that may impact individuals' experiences of minority stress (e.g., generational factors, geographical factors, and religious or cultural background), would likely strengthen the PMF and help to better explain the elevated health risks within the population.

Taken together, it is clear that relying exclusively on a single method when testing complex psychological phenomena may limit our knowledge and lead us to overlook key factors. The use of both methods allows for a greater depth of understanding and encourages a critical evaluation of the respective strengths and weaknesses of quantitative and qualitative methods. Results of the present study provide empirical support for the PMF by: (1) highlighting general psychological mediators in the relationship between minority stress and poor mental health outcomes; (2) extending the PMF to explain adverse sexual health outcomes in this population; and (3) demonstrating that the experiences and understandings of GBM reflect the factors and relationships proposed by the PMF. These findings have important theoretical and clinical implications. By identifying relevant variables that are not currently examined in the PMF, these findings may help to refine the PMF and future studies of minority stress. Further, by offering a better understanding of the mechanisms linking minority stress and

poor health outcomes, this study may help guide future psychological interventions aimed at improving the health of GBM.

Appendix A

Consent Form For Quantitative Study

Protective Factors Against HIV Risk Behaviour Among Gay and Bisexual Men

You are being asked to participate in a research study. Before you give your consent to be a volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

Principal Investigators:
Trevor A. Hart, Ph.D., C. Psych & Barry D. Adam, Ph.D.

Purpose of the Study:
The purpose of this study is to identify the traits and strategies used during sexual activity by men who have sex with men.

Description of the Study:
If you agree to participate in this study, you will be asked to sign this consent form. You will be eligible to participate in the study if you:

- Are an HIV-negative male who has had any sexual activity with another man in the past 3 months.
- Speak and understand English
- Anticipate that you will be able to attend all assessments

If you meet inclusion criteria and choose to enroll, you will be asked to fill out questionnaires upon enrolling in the study, and again following a three month and a six month time period. A smaller group of participants will be selected to attend follow-up in-person interviews.

Questionnaire and interview questions will focus on experiences you may have had throughout childhood, adolescence, and adulthood. Some questions will ask you about your sexual history and sexual behaviours, as well as your experience particularly as a man who has sex with men.

You may decline to answer any question. You may withdraw from the session at any time, by indicating to the assessor that you do not wish to continue. Should you choose to withdraw from the study, you may decide if you would like us to keep the data collected from you, or if you would like us to destroy it.

Your participation or non-participation will not have an effect upon already-standing relationships at Ryerson or with any supporting agencies.

Risks and Discomforts: There are no physical risks involved in participating in this study. It is possible that some of the questions asked in this study might make you feel uncomfortable. If you are uncomfortable with any portions of the study, please notify the research assistant. Also, please be advised that you can withdraw from the study at any time if you wish to do so, without any consequences.

Benefits of the Research and Benefits to You: Your participation in this study will help us to understand the health risk behaviours of men who have sex with men, and will help us to develop effective interventions to lower these risks in the gay and bisexual men's community.

Participation: Your participation in the study is completely voluntary. You may choose to end it at any time. Your decision not to participate will not influence your relationship with the researchers involved in the study, now or in the future.

Withdrawal from the Study: You can stop participating in the study at any time. If you don't complete all portions of the study, you will still be reimbursed for the portions you have completed. If you decide to withdraw from the study, you will have the choice as to whether you would like us to keep your data or destroy it.

Confidentiality: All information you provide during the research will be kept private. Your name will not appear in any report or publication of the research. The questionnaires and interview notes will be kept in a locked filing cabinet in a locked office. We will keep this consent form and the participation list separate from the questionnaires and interview notes. All questionnaires and interview notes will be destroyed 10 years after the study is over. We will keep your records as private as the law allows.

We will keep all the facts about you private. We would have to breach your confidentiality only:

a) If you intend to harm yourself,
b) If you intend on harming someone else,
c) If you inform us that a child is currently at risk for abuse or neglect,
d) If you report sexual abuse by a health care practitioner, or
e) If the records are subject to a subpoena by the courts (records can be opened by a specific court order but it is highly unlikely that this would ever happen).

We will use a study number rather than your name on study records. No one will see your name and other facts that might point to you when we present this study or publish its results.

Compensation/Cost:
You will be compensated $30.00 in exchange for your participation.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact:

Dr. Trevor Hart
Principal Investigator/Director
HIV Prevention Lab, Ryerson University
416-979-5000 extension 619
E-mail: trevor.hart@ryerson.ca

Dr. Barry Adam
University Professor, Windsor U
Senior Scientist, OHTN
416-642-6486 extension 2242
E-mail: adam@uwindsor.ca

This research has been reviewed by the Ryerson University's Research Ethics Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study please contact:

Toni Fletcher
Research Ethics Board
Ryerson University
416-979-5000 extension 7112
E-mail: toni.fletecher@ryerson.ca

Agreement:

Your signature below means that you have read the information in this agreement and have had a chance to ask any questions you have about the study. Your signature also means that you agree to participate in the study and have been told that you can change your mind at any time. You have been given a copy of this agreement.

You have been told that by signing this consent agreement you are not giving up any of your legal rights.

_____
Name of Participant (please print)

_____ _____
Signature of Participant Date

_____ _____
Signature of Investigator Date

Please indicate if you would like to receive an electronic version of the results/findings at the end of the study:

☐ Yes, I would like to receive an electronic copy of the results/findings.

☐ No, I would not like to receive an electronic copy of the results/findings.

Appendix B

Consent Form for Qualitative Interview

Protective Factors Against HIV Risk Behaviour Among Gay and Bisexual Men: A Longitudinal Study (In-Person Interview)

You are being asked to participate in an audio-recorded in-person interview. Quotes from these transcripts may be used in future reports. However, all identifying information related to you (e.g. name, age, occupation) will be altered or removed to protect your confidentiality.

Principal Investigators: Trevor A. Hart, Ph.D., C. Psych & Barry D. Adam, Ph.D.

Purpose of the Study: The purpose of this study is to explore the traits, experiences, and strategies that influence the sexual and mental health of men who have sex with men.

Description of the Study: If you agree to participate in this study, you will be asked to sign this consent form. You have been selected to attend a follow-up in-person interview based on your responses to questions about sexual behaviours and mental well-being (collected at baseline). Interview questions will further explore the sexual behaviours and mental well-being of men who have sex with men.

Note: You may decline to answer any question. You may withdraw from the session at any time, by indicating to the interviewer that you do not wish to continue. Should you choose to withdraw from the study, you may decide if you would like us to keep the data collected from you, or if you would like us to destroy it. Your participation or non-participation will not have an effect upon already-standing relationships at Ryerson or with any supporting agencies.

Risks and Discomforts: There are no physical risks involved in participating in this study. It is possible that some of the questions asked in this study might make you feel uncomfortable. If you are uncomfortable with any portions of the study, please notify the interviewer. Also, please be advised that you can withdraw from the study at any time if you wish to do so, without any consequences.

Benefits of the Research and Benefits to You: Your participation in this study will help us to better understand the sexual and mental health risks of men who have sex with men, and will help us to develop effective interventions to lower these risks in the gay and bisexual men's community.

Participation: Your participation in the study is completely voluntary. You may choose to end it at any time. Your decision not to participate will not influence your relationship with the researchers involved in the study, now or in the future.

Withdrawal from the Study: You can stop participating in the study at any time. If you don't complete all portions of the study, you will still be reimbursed for the portions you have

completed. If you decide to withdraw from the study, you will have the choice as to whether you would like us to keep your data or destroy it.

Confidentiality: All information you provide during the research will be kept private. Your name will not appear in any report or publication of the research. The questionnaires and interview notes will be kept in a locked filing cabinet in a locked office. We will keep this consent form and the participation list separate from the questionnaires and interview notes. All questionnaires and interview notes will be destroyed 10 years after the study is over. We will keep your records as private as the law allows.

We will keep all the facts about you private. We would have to breach your confidentiality only:

a) If you intend to harm yourself or someone else,
b) If you inform us that a child is currently at risk for abuse or neglect,
c) If you report sexual abuse by a health care practitioner, or
d) If the records are subject to a subpoena by the courts (records can be opened by a specific court order but it is highly unlikely that this would ever happen).

We will use a study number rather than your name on study records. No one will see your name and other facts that might point to you when we present this study or publish its results.

Compensation/Cost: You will be compensated $30.00 in exchange for your participation.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact:

Dr. Trevor Hart
Principal Investigator/Director
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University of Windsor
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E-mail: adam@uwindsor.ca

This research has been reviewed by the Ryerson University's Research Ethics Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study please contact:

Toni Fletcher
Research Ethics Board
Ryerson University
416-979-5000 extension 7112
E-mail: toni.fletecher@ryerson.ca

Agreement:

I consent to the audio-recording of interviews for the study "Protective Factors Against HIV Risk Behaviour Among Gay and Bisexual Men: A Longitudinal Study." I understand these are voluntary procedures and that I am free to withdraw at any time by requesting that the recording be stopped. I also understand that my name will not be revealed to anyone and that recording will be kept confidential. Recordings are filed by number only and are password protected.

I understand that confidentiality will be respected and that the audio recording will be for professional use only.

Your signature below means that you have read the information in this agreement and have had a chance to ask any questions you have about the study.

_____
Name of Participant (please print)

_____ _____
Signature of Participant Date

_____ _____
Signature of Investigator Date

Appendix C

Qualitative Interview Template

To start off with some background, in this research group, we believe that there isn't enough information about gay men's health from the perspectives of gay men. So, for this study, we are interested in hearing about your experiences and point of view in order to promote gay men's health and eventually develop better programs and services for gay men.

In the first part of the interview, I will be asking you some general questions to get a sense of your experiences and perspectives as a gay man. In the second part of the interview, I will show you a diagram that we are examining and ask you some questions about how well it reflects your experiences. I will also be asking you to fill out a brief questionnaire near the end.

The interview will take approximately one hour and you will be reimbursed with $30 for your time. I will be audio recording the interview so we can review it later; however, the information you provide will be kept completely anonymous. (Discuss limits of confidentiality).

1a) Past research has frequently found that, in general, gay men experience worse mental health outcomes (particularly depression and anxiety) than heterosexual men. If you had to take a guess, what do you think could explain this?

_____

_____

_____

_____

_____

_____

_____

1b) Follow-up questions:

- Can you think of any specific examples of X?
- Can you think of a time in your life when X had a negative impact on your well-being?
- Tell me more about X based on your own experiences.

_____

_____

_____

_____

_____

Now I want to show you a figure and ask you some questions about it. I will walk through it step by step. Please let me know if you have any questions. A recent model was proposed to try and explain the worse mental health outcomes among gay men.

This model suggests that gay men experience more stigmatizing experiences (discrimination, harassment, victimization) which lead to worse general and gay-specific factors. General factors refer to things that affect all individuals, including people who are not gay, and gay-specific factors refer to factors that affect gay men specifically. According to this model, it's a combination of these factors that lead to worse mental health and well-being in gay men.

When we talk about general factors, we are referring to things like low self-esteem, low hope, social isolation, poor coping, suppressing your emotions, and going over things in your head again and again, called rumination. When we talk about gay-specific factors, we are referring to things like internalizing homophobic attitudes in society, hiding your sexual orientation from others, and expecting that other people will reject you because you are gay.

1. How well do you believe this model reflects the actual experiences of gay men?

_____

_____

_____

_____

_____

_____

2. Now I am going to give you a paper that lists all of these factors and includes definitions. I will ask you to rate the relevance of each factor to the mental health and well-being of gay men in general and the relevance of each factor to your own mental health and well-being.

Appendix D

Relevance Ratings Questionnaire

How relevant do you think each of the following is to the worse mental health that has been found among gay and bisexual men?

0----------5----------10 **Not at all relevant** **Moderately relevant** **Extremely relevant**	**Relevance to all gay and bisexual men**	**Relevance to me**
Experiences of stigma • Experiencing discrimination, harassment, or victimization		
Low self-esteem • Negative view of yourself		
Low hope • Lack of positive expectations about future and goals		
Social isolation from gay community • Feeling excluded from the gay community		
Social isolation from general community • Feeling excluded from the general community		
Avoidant coping • Coping with negative emotions by trying not to think of them		
Emotional suppression		

• Pushing away your emotions rather than expressing them		
Rumination • Going over negative events that happened to you again and again in your head		
Internalized homophobia • Having homophobic attitudes about yourself or other gay men		
Concealment of sexual orientation • Hiding your sexual orientation from other people		
Expectations of rejection • Expecting that others will dislike you or reject you because you're gay		
Other		

Appendix E

Final Codebook

Code/Category	Definition	Coding rules	Examples/quotes
Objective stigma	Experiencing discrimination, harassment, or victimization (verbal, physical, or emotional) related to sexual orientation or gender	Use when: 1) objective experiences of stigma/discrimination related to sexual orientation or gender Do not use when: 1) perceived discrimination; 2) objective discrimination unrelated to sexual orientation or gender	"I was bullied for acting feminine" "I was beat up for being gay" "I have friends who have been called discriminatory names"
Internalized homophobia	Experiencing homophobic attitudes about yourself or others	Use when: 1) *personal* negative attitudes about being gay or bisexual; 2) *personal* belief that there is something inherently wrong with self for being gay or bisexual; homophobic attitudes from within gay community Do not use when: 1) referring to transphobia	"I wanted to change my sexual orientation" "I don't want to be gay" "I thought something was wrong with me"
Concealment of sexual orientation	Hiding your sexual orientation from other people	Use when: 1) hiding sexual orientation from others by behaving differently; 2) not coming out; 3) consciously allowing others to believe you're straight	"I try not to act gay" "I didn't tell my family I was gay" "I waited a long time to come out" "When my family asked me about a girlfriend, I didn't correct them"
Lack of social support	Lack of support from community/peers/friends/family	Use when: 1) not feeling accepted or supported by peers/ friends/family	"I always felt like I didn't fit in with my peers" "I had no one to go to"

Emotional suppression	Pushing away/suppressing your emotions rather than expressing them	Use when: 1) not expressing feelings to others	"I try not to talk about my feelings"
Rumination	Going over negative events or experiences again and again in your head	Use when: 1) going over thoughts/negative situations again and again	"I kept wondering what I could have done differently"
Avoidant coping	Coping with negative emotions by avoiding them or distracting yourself	Use when: 1) distracting self to avoid dealing with situations Do not use when: 1) referring to alcohol or drug use	"I stopped socializing when I was feeling down"
Low self-esteem	Negative view of yourself	Use when: 1) feeling low about self Do not use when: 1) negative views of self are directly related to being gay or bisexual	"I'm a loser" "I thought I was no good"
Low hope	Pessimistic outlook about the future	Use when: 1) poor expectations about the future	"I don't have much to look forward to"
Coming out process	Encountering emotional challenges during the coming out process	Use when: 1) difficulties faced specifically related to coming out process; 2) refer specifically to "coming out"	"Coming out was a difficult and very confusing time for me"
Disconnectedness from gay community	Feeling excluded from gay community or not relating to norms and expectations within gay community	Use when: 1) feeling disconnected or excluded from gay community; 2) expectations within gay community that do not fit with self	"If you're not muscular and attractive, you don't fit the mold" "I find other gay men pretty judgmental" "Many gay men are promiscuous and I am not"
Stereotypes of gay men	Categorizations and stereotypes of gay and bisexual men made by individuals outside the gay community	Use when: 1) categorizations of gay men made by others (outside gay community); 2) comparison of self to these categorizations of gay	"People expect me to talk a certain way and act a certain way"

		men; 3) not relating to others' perceptions or beliefs about gay men Do not use when: 1) stereotypes from within gay community	
Risk behaviours	Excessive use of alcohol or drugs or engaging in risky sexual behaviours	Use when: 1) excessive or problematic alcohol/drug use; 2) any discussion of sexual activities in relation to mental health Do not use when: 1) alcohol or drug use used occasionally or infrequently; 2) sexual behaviour not linked to mental health	"I partied and drank a lot" "There is a lot of risky sex that goes on in the community" "I slept with tons of guys during that time"
Sociodemographic moderators	Differential experiences or treatment as a gay or bisexual man based on cultural or religious background, geography, or generation/age	Use when: differences in attitudes towards homosexuality based on: 1) cultural/ religious background; 2) cities/small-towns/countries; 3) generation or age	"My parents are very religious and do not approve of me being gay" "My experience was better than my friends growing up in the suburbs" "I think people have become much more accepting over time"

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