Striving for status by sacrificing health:

Masculinity's role in gay and bisexual men's sexual risk-taking

Tyler Brown

Department of Educational and Counselling Psychology

McGill University, Montreal

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Abstract

Objective: Gay and bisexual men continue to be one of the populations most at risk for contracting human immunodeficiency virus (HIV). Research in the new psychology of men using the gender role strain paradigm as a framework offers the prospect for a new masculine norm adherence model of HIV vulnerability among gay and bisexual men. Although there is limited research addressing the impact of masculine norm adherence on gay and bisexual men's sexual risk-taking, several studies have reported a statistically significant relationship between masculine norm adherence and heterosexual men's sexual risk-taking. Moreover, theory and research suggest that masculine norm adherence may increase emotional suppression, decrease social support seeking, and increase avoidant coping, which may be related to subsequent increases in sexual risk-taking. Accordingly, this study aims to extend the scientific knowledge base on masculine norm adherence and sexual risk-taking in the context of gay and bisexual men as a key HIV-affected population. ***Method:*** In total, a sample of 482 gay and bisexual men was recruited from across Canada between February and June 2018. Participants were recruited using an online advertisement made available through four community agencies dedicated to enhancing gay and bisexual men's health, located in Montreal, Ottawa, Toronto, and Vancouver. The online advertisement was also made available in various Canadian cities through the dating application Scruff and the online bulletin board Craigslist.com. Participants completed an online questionnaire to evaluate masculine norm adherence, emotional suppression, social support seeking, avoidant coping, and sexual risk-taking. Using structural equation modelling, the current study tested a mediation model that examines the direct effect of masculine norm adherence on sexual risk-taking (i.e., *hypothesis 1*) and the indirect effect of masculine norm adherence on sexual risk-taking mediated through emotional suppression (i.e., *hypothesis 2*),

social support seeking (i.e., *hypothesis 3*), and avoidant coping (i.e., *hypothesis 4*). ***Results:*** The best-fitting model demonstrated that gender role conflict and conformity to masculine norms (i.e., the two masculine norm adherence predictor variables) did not have a *direct* effect on sexual risk-taking. However, both predictors were shown to have a significant *total* effect on sexual risk-taking. A total effect in the association between gender role conflict and sexual risk-taking occurred, in part, because avoidant coping was shown to mediate the relationship between these two variables. Namely, gender role conflict was positively associated with avoidant coping and avoidant coping was positively associated with sexual risk-taking. Similarly, a total effect occurred in the association between conformity to masculine norms and sexual risk-taking. The indirect effect of conformity to masculine norms on sexual risk-taking through avoidant coping approached significance, with conformity to masculine norms being positively associated with avoidant coping and avoidant coping being positively associated with sexual risk-taking. ***Conclusion:*** Gender role conflict and avoidant coping may create a unique effect on sexual risk-taking whereby the effect of gender role conflict on sexual risk-taking is not transmitted directly but only indirectly through the mediating role of avoidant coping. Future research should focus on evaluating supplementary models that emphasize the direct and indirect effects of specific masculine norms on sexual risk-taking via additional contextual processes. Future research should also investigate the *differential* influence of masculinity norms on men's health behaviour and outcomes to develop both deficit and positive-healthy masculinity-informed models of sexual risk-taking. Additionally, future research should test the proposed model on different demographic populations, and test individual or group-based clinical interventions aimed at modifying specific attitudes toward masculinity that may reinforce avoidant coping and aimed at reducing avoidant coping in general. HIV prevention interventions and psychologists working

with gay and bisexual men should assist gay and bisexual men in exploring the personal meaning of their masculinity and its potential implications for coping with stress. They should also assist gay and bisexual men to learn better affect regulation skills with an emphasis on actively confronting their unpleasant emotional reactions in distressing situations as a psychological strategy to reduce avoidant coping and, consequently, the risk of contracting HIV via sexual risk-taking.

Résumé

Objectif: Les hommes gais et bisexuels demeurent l'une des populations les plus à risque de contracter le virus de l'immunodéficience humaine (VIH). Les recherches sur la nouvelle psychologie des hommes utilisant le paradigme de la contrainte du rôle sexuel offrent la perspective d'un nouveau modèle d'adhésion aux normes masculines de la vulnérabilité au VIH chez les hommes homosexuels et bisexuels. Bien que peu de recherches aient analysé l'impact de l'adhésion aux normes masculines sur la prise de risques sexuels par les hommes gais et bisexuels, plusieurs études ont fait état d'une relation statistiquement significative entre l'adhésion aux normes masculines et la prise de risques sexuels par les hommes hétérosexuels. En outre, la théorie et la recherche suggèrent que le respect des normes masculines peut augmenter la suppression émotionnelle, diminuer le soutien social et renforcer la capacité d'adaptation, ce qui peut être lié à une augmentation ultérieure de la prise de risque sexuel. En conséquence, cette étude vise à élargir la base de connaissances scientifiques sur le respect des normes masculines et la prise de risques sexuels dans le contexte des hommes gais et bisexuels en tant que population clé affectée par le VIH. ***Méthode:*** Au total, un échantillon de 482 hommes gais et bisexuels a été recruté partout au Canada entre février et juin 2018. Les participants ont été recrutés à l'aide d'une publicité en ligne mise à disposition par quatre organismes communautaires voués à l'amélioration de la santé des hommes gais et bisexuels, située à Montréal, Ottawa, Toronto et Vancouver. La publicité en ligne a également été mise à disposition dans diverses villes canadiennes grâce à l'application de rencontre Scruff et au babillard en ligne Craigslist.com. Les participants ont rempli un questionnaire en ligne pour évaluer l'adhésion aux normes masculines, la suppression des émotions, la recherche de soutien social, l'adaptation à l'évitement et la prise de risques sexuels. En utilisant la modélisation par

équation structurelle, l'étude actuelle a testé un modèle de médiation qui examine l'effet direct de l'observance des normes masculines sur la prise de risque sexuel (hypothèse 1) et l'effet indirect de l'observance des normes masculines sur la prise de risques sexuels induite par la suppression émotionnelle (c'est-à-dire l'hypothèse 2), la recherche de soutien social (c'est-à-dire l'hypothèse 3) et l'adaptation à l'évitement (c'est-à-dire l'hypothèse 4). ***Résultats:*** Le modèle le mieux adapté a démontré que les conflits de rôles liés au genre et la conformité aux normes masculines (c'est-à-dire les deux variables prédictives d'adhérence à la norme masculine) n'avaient pas d'effet direct sur la prise de risque sexuel. Cependant, les deux prédicteurs ont eu un effet total significatif sur la prise de risque sexuel. Un effet total sur l'association entre conflit de rôles entre les sexes et prise de risque sexuel s'est produit, en partie, parce qu'il a été démontré que l'adaptation à la prévention évite la relation entre ces deux variables. À savoir, les conflits de rôles liés au genre étaient positivement associés à la gestion d'évitement et la gestion d'évitement était associée positivement à la prise de risque sexuel. De même, un effet total s'est produit sur l'association entre conformité aux normes masculines et prise de risque sexuel. L'effet indirect de la conformité aux normes masculines sur la prise de risque sexuel par le biais de la gestion des évitants s'apparente à une signification, la conformité aux normes masculines étant positivement associée à la gestion des évitants et à la prise en charge des risques sexuels. ***Conclusion:*** Les conflits de rôles liés au genre et à la gestion des évitants peuvent avoir un effet unique sur la prise de risques sexuels, l'effet des conflits de rôles sur la prise de risques sexuels ne se transmettant pas directement mais indirectement par le biais du rôle de médiateur de la prise en charge des évitants. Les recherches futures devraient être axées sur l'évaluation de modèles supplémentaires mettant en évidence les effets directs et indirects de normes masculines spécifiques sur la prise de risques sexuels via des processus contextuels supplémentaires. Des

recherches futures devraient également examiner l'influence différentielle des normes de masculinité sur le comportement et les résultats des hommes en matière de santé, afin de mettre au point des modèles de prise de risque sexuel tenant compte du déficit et de la masculinité positive et saine. En outre, les recherches futures devraient tester le modèle proposé sur différentes populations démographiques et tester des interventions cliniques individuelles ou en groupe visant à modifier des attitudes spécifiques à l'égard de la masculinité susceptibles de renforcer la capacité d'adaptation des évitants et de réduire celle-ci en général. Les interventions de prévention du VIH et les psychologues travaillant avec des hommes homosexuels et bisexuels devraient aider ces derniers à explorer le sens personnel de leur masculinité et ses implications potentielles pour faire face au stress. Ils devraient également aider les hommes gais et bisexuels à mieux maîtriser leurs compétences en matière de régulation en mettant l'accent sur la confrontation active de leurs réactions émotionnelles désagréables dans des situations de détresse, en tant que stratégie psychologique visant à réduire la capacité d'adaptation des évitants et, par conséquent, le risque de contracter le VIH par la prise de risques sexuels.

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Contribution to Original Knowledge

I (Tyler Brown) hereby confirm that the content of this dissertation is my own original work and serves as a meaningful contribution to the advancement of scientific knowledge. I confirm that this dissertation has not been used for another educational degree or for any additional purpose. I confirm that all scholarly works included in this dissertation have been referenced in compliance with the standards set by the American Psychological Association (APA). I confirm that my doctoral committee has approved this dissertation.

Contribution of Authors

The work detailed in this dissertation has been co-supervised by Dr. Nathan G. Smith in the Department of Psychological, Health, and Learning Sciences at University of Houston and in the Department of Educational and Counselling Psychology at McGill University together with Dr. Joseph Cox in the Department of Epidemiology, Biostatistics, and Occupational Health at McGill University. Dr. Trevor Hart in the Department of Clinical Psychology at Ryerson University provided preliminary editorial feedback for the first three chapters. I (Tyler Brown) conducted the literature review, attained ethics approval, collected and analyzed the data, and wrote the dissertation manuscript. All of these aspects of the dissertation represent original work that meaningfully contributes to scientific knowledge.

Chapter One: Introduction

The first goal of the current study is to examine the role of masculine norm adherence in gay and bisexual men's sexual risk-taking. The second goal of the current study is to examine the role of emotional suppression, social support seeking, and avoidant coping as potential pathways that underlie the association between masculinity norm adherence and gay and bisexual men's sexual risk-taking. Although masculinity can be understood as a biological (e.g., evolutionary and genetic; Geary, Binegard, & Winegard, 2016; Lippa, 2016) and sociocultural phenomenon (Kimmel, 1987; Pleck, 1981), in the current study, masculinity or masculine norm adherence will be defined as a collection of thoughts, feelings, and behaviours traditionally ascribed to men that may be difficult to achieve and can result in strain, stress, or conflict (Mahalik, Locke, et al., 2003; Wester & Vogel, 2012). Emotional suppression will be represented by the two constructs of self-concealment and ambivalence over emotional expression. Self-concealment will be defined as an individual's inclination to keep personally distressing or private information to oneself (Larson & Chastain, 1990). Ambivalence over emotional expression will be defined as a conscious wish to communicate one's feelings while consciously refraining from acting out the wish (King & Emmons, 1990). Social support seeking will be defined as efforts to secure evidence from others that one is acceptable (Cobb, 1976). Avoidant coping will be defined as either physically or psychologically withdrawing from stressful problems without directly or indirectly solving them (Lazarus & Folkman, 1984; Amirkhan, 1990). Regarding HIV-positive men, sexual risk-taking will be defined as condomless anal sex with another man. Regarding HIV-negative men, sexual risk will be defined as condomless anal sex with another man in the absence of every day (i.e., without exception) Pre-Exposure Prophylaxis (PrEP) usage. Several established psychological theories have been drawn from to support the current study including

The Gender Role Strain Paradigm (Levant & Richmond, 2016; Pleck 1981), *Gender Socialization Theory* (Stockard, 1999; O'Neil, 1981), *The Precarious Manhood Theory* (Vandello & Bosson, 2013)*, The Relational Theory of Men's Health* (Courtenay, 2000a), *Symbolic Self-Completion Theory* (Wicklund & Gollwitzer, 1982), *Sexual Strategies Theory* (Buss & Schmitt, 1993), and *The Cognitive Theory of Stress and Coping* (Lazarus & Folkman, 1984). Before addressing these theories, the following introduction will begin by reviewing the HIV statistics on gay and bisexual men living in Canada and the predominant psychological model (i.e., *The Minority Stress Model;* Meyer, 1995; 2003) that has been used to explain higher HIV rates among gay and bisexual men.

HIV Prevalence and Incidence in MSM

Two important terms used by epidemiologists to monitor diseases in populations are *prevalence* and *incidence* (Gerstman, 2013). In the context of HIV research, HIV prevalence represents the number of people who are living with HIV at a point in time. Namely, prevalence tells us how many people *have* HIV. HIV incidence represents the number of new HIV infections in a defined period (usually one year). Namely, incidence tells us how many people are *contracting* HIV.

After dropping in the second half of the 1990s, HIV incidence for men who have sex with men (MSM) increased beginning in 2000 (Sullivan et al., 2009) and continued to expand globally (Van Griensven, Van Wijngaarden, Baral, & Grulich, 2009). In most high-income countries including Canada, new HIV diagnoses attributable to male-female sexual contact have been stable or *decreased*, whereas new HIV diagnoses attributed to male-male sexual contact have been stable or *increased* (Sullivan, Jones, & Baral, 2014). High prevalence and incidence of HIV in MSM continue despite the broad availability and coverage of antiretroviral therapy

(ART) and other elements of comprehensive prevention (Beyrer et al., 2012; Bezemer et al., 2008; George et al., 2006; Katz et al., 2002; Sullivan et al., 2014).

In Canada, HIV disproportionately affects MSM. Although MSM only represent about 2-3% of the Canadian population, they accounted for 51.9% of all Canadians living with HIV in 2016 (i.e., the most recent year these data are available; Public Health Agency of Canada [PHAC], 2018). Accordingly, there were an estimated 32,762 infected MSM in Canada in 2016 out of a total transmission category estimate of 63,110 (PHAC, 2018). This estimate includes 30,980 MSM (i.e., 49.1% of all Canadians living with HIV) whose HIV infection was attributed to sex between men and an additional 1,782 MSM (i.e., 2.8% of all Canadians living with HIV) whose HIV infection may have been due to either injection drug use or sex between men because they reported both behaviours at testing (PHAC, 2018).

MSM accounted for approximately 55.5% of all new HIV infections annually in Canada in 2016 (i.e., the most recent year these data are available; PHAC, 2018). Accordingly, there were an estimated 1,202 new HIV infections in MSM in Canada in 2016 out of a total transmission category estimate of 2,165 (PHAC, 2018). This estimate includes 1,136 MSM (i.e., 52.5% of all new HIV infections among Canadians) whose HIV infections has a route of transmission attributable to sex between men; and 66 men (i.e., 3.0% of all new infections among Canadians) whose HIV infection has a route of transmission attributable to the combined category of injection drug use and sex between men because both behaviours were reported at testing (PHAC, 2018).

Rationale for the Current Study

Based on these statistics, it is clear that gay and bisexual men living in Canada are at increased risk for contracting HIV. On account of this risk, there is a pressing need for

researchers to directly respond to and intervene on the HIV epidemic occurring among gay and bisexual men living in Canada. Sexual risk-taking has been identified as the primary means through which gay and bisexual men become infected with HIV (PHAC, 2014). Previous researchers have attempted to develop theoretical frameworks and related programs of research to advance gay and bisexual men's health by better understanding and intervening on the psychosocial factors that contribute to gay and bisexual men's sexual risk-taking. Among the most prominent and psychologically oriented theories on gay and bisexual men's sexual risk-taking has been the *Minority Stress Model* (Herek & Garnets, 2007; Meyer, 1995; 2003).

The term *minority stress* has been used to refer to stress resulting from having a stigmatized social identity (Brooks, 1981; Meyer, 1995, 2003). That is, minority stress is "psychological stress derived from minority status" (Meyer, 1995, p. 38). This concept rests on the idea that social minorities, including sexual minorities, are subject to chronic stress related to their stigmatization (Meyer, 1995). Moreover, this chronic stress can result in adverse mental health problems (Meyer, 1995). Minority stress has been found to correlate with suicidal ideation, depression, anxiety, substance abuse, body image dissatisfaction, eating disorders, and sexual risk-taking in gay men (Abelson, Lambevski, Crawford, Bartos, & Kippax, 2006; Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008; Meyer, 2003). Minority stress describes stress processes including (a) the experience of prejudice events, (b) expectations of rejection, (c) hiding and concealing, (d) internalized heterosexism, and (e) ameliorative coping processes (Meyer, 2003). Internalized heterosexism has often been used as an independent predictor of sexual risk-taking among gay and bisexual men and occurs when gay and bisexual men internalize negative cultural attitudes toward same-sex sexual identity, relationships, behaviour, and other markers of non-heterosexual identity (Herek, 2004; Meyer, 1995, 2003).

According to Williamson (2000), an association between internalized heterosexism and sexual risk-taking in gay men makes intuitive sense for three main reasons. First, gay men with greater internalized heterosexism are likely to be less connected to the gay community, thereby having less access to safer sex information and resources. Second, internalized heterosexism may relate to lower self-esteem, thereby undermining the desire of gay men with greater internalized heterosexism to protect their health via adherence to safer sex practices. Third, internalized heterosexism may relate to increased substance use/abuse, thereby impairing the judgment of gay men with greater internalized heterosexism while intoxicated and in situations involving sexual opportunities.

Although several studies have indicated a positive relationship between higher levels of internalized heterosexism and higher levels of sexual risk-taking (e.g., Dew & Chaney, 2005, Huebner, Davis, Nemeroff, & Aiken, 2002, Meyer & Dean, 1995, Ratti, Bakeman, & Peterson, 2000, Rosario, Rotheram-Borus & Reid, 1996, Rosario, Hunter, Maguen, Gwadz, & Smith, 2001), many other studies have been unable to replicate these results (e.g., Dudley, Rostosky, Korfhage, & Zimmerman, 2004; Preston et al., 2004; Preston, D'Augelli, Cassab, & Starks, 2007; Shidlo, 1994). In a recent meta-analysis (i.e., a statistical method used to combine research findings across multiple studies; Hedges & Becker, 1986), only a small overall effect size for a direct relationship between internalized heterosexism and sexual risk-taking was found (Newcomb & Mustanski, 2011). Moreover, a significant moderator effect was shown for the year of data collection, indicating that the relationship between internalized heterosexism and sexual risk-taking has decreased with time, perhaps due to changing attitudes toward gay and bisexual men in recent years.

Newcomb and Mustanski (2011) suggested, "researchers would be well-served to consider abandoning the investigation of internalized heterosexism as a predictor of risky sexual behavior" (p. 198). Consequently, a significant paradigm shift in HIV behavioural and social science research and prevention is needed given that minority stress in general and internalized heterosexism in particular has represented one of the most prominent theoretical frameworks for conceptualizing the determinants of gay and bisexual men's health behaviours and outcomes (Johnson, Carrico, Chesney, Morin, 2008). Specifically, new models to conceptualize sexual risk-taking among gay and bisexual men are needed to replace older ones that may no longer be empirically supported.

Research in *The New Psychology of Men* (Levant & Pollack, 1995; Levant & Wong, 2017) using *The Gender Role Strain Paradigm* (e.g., Levant & Richmond, 2016; Pleck 1981) as a framework offers the prospect for a new masculine norm adherence model of HIV vulnerability among gay and bisexual men. Research findings from The New Psychology of Men suggest that health behaviours are a leading cause of many of the adverse health outcomes facing men (Courtenay, 2000a, 2000b, 2000c, Creighton & Oliffe, 2010). A summary of this research conducted by Courtenay (2000b) demonstrated that men are significantly more likely, compared to women, to engage in more than 30 health behaviours that increase their risk of disease, injury, or death. For example, some of these behaviours include *lower* rates of health care utilization, dental service utilization, routine check-ups, cancer testing, and monitoring of cholesterol levels; and *higher* rates of poor nutrition, alcohol/drug/tobacco use, reckless risk-taking (e.g., dangerous driving and sports), suicide, violence toward others, and being a victim of violence. Furthermore, specific to sexual risk-taking, men are more likely to be sexually active, to have more sexual partners, to have sex while under the influence of alcohol or drugs, to have had large numbers of

sexual partners overall, and to be non-monogamous in adulthood (Courtenay, 2000b; Petersen & Hyde, 2010). Moreover, perhaps unsurprisingly, men are at higher risk of developing chronic diseases, suffering severe injuries, and dying at any age across the lifespan (Countenay, 2011; Helgeson, 2012).

Several social scientists (e.g., Courtenay, 2000c; Dworkin, 2015; Eisler, 1995; Griffith & Thorpe, 2016; Oliffe, 2009) have attributed the increase of these adverse health behaviours and outcomes to men's higher—relative to women—overall endorsement of masculine norms (Parent & Smiler, 2013), which can include such traits as winning, emotional control, risk-taking, violence, power over women, being a "playboy" (i.e., sexual prowess), self-reliance, primacy of work, and heterosexual self-presentation (Mahalik, Locke, et al., 2003). This attribution has been based on the concept that health behaviours, like other behaviours, can be used to socially demonstrate masculine norm adherence (Courtenay, 2000a). This demonstration can help men *earn* the social rewards associated with masculine norm adherence and *avoid* the negative social consequences associated with failing to adhere. This social exchange—that is, trading masculine norm adherence for added social status—can have a negative influence on men's health behaviours and outcomes. As an example relevant to the current study, men may decline to engage in behaviours that reduce HIV risk (e.g., safer sex) when those behaviours conflict with masculine norm adherence. Building on this example, the current study suggests that masculine norm adherence may activate or put into motion a causal chain that results in adverse health behaviours, including sexual risk-taking. Two critical links in this causal chain may be emotional suppression and strategies of coping with stress.

Several psychologists and researchers have identified emotional suppression/inexpressiveness as a persistent problem occurring among men (e.g., Balswick, 1988; Brooks, 1998; Lynch & Kilmartin, 1999, Moore & Haverkamp, 1989; Pollack & Levant,

1998; Scher, 1981). Gender socialization has represented the main psychological theory used to explain this problem (e.g. Balswick, 1988; Good & Sherrod, 2004; O'Neil, 1981). According to this theory, men obtain and internalize the cultural attitudes and behaviours locally associated with what it means to "be a man" (O'Neil, 1981). Although this socialization holds the constructive potential to help boys and men learn, embrace, and transmit "the belief that they [men] have a duty to care for and provide for others, work hard, serve their communities, be courageous and self-reliant, and take healthy risks" (Kiselica, Benton-Wright, & Englar-Carlson, 2016, p. 125) it also holds the destructive potential to stigmatize emotional expression, as a sign of weakness, and promote self-defeating forms of emotional suppression/inexpressiveness among men (O'Neil, Good, & Holmes, 1995).

King and Emmons (1990) have suggested that emotional suppression/inexpressiveness can become self-defeating when it co-occurs with a genuine desire to express emotions. Due to male gender socialization and its emphasis on self-reliance, emotional toughness, and stoicism, men who adhere to masculine norms may feel conflicted over talking about themselves or their emotional lives with others (O'Neil, 1981). That is, although they may want to share their feelings with selected others to elicit caring and reassuring responses they may also want to conceal the expression of their feelings to protect their masculine status. Consequently, men may find themselves locked into a conflict between seeking social support through expressing feelings *versus* upholding masculine norms through suppressing feelings. Due to this conflict, men may reject stress coping responses that require emotional expression, which may propel them toward ones designed to exhibit traditional masculine traits (Spendelow, 2015), which may include sexual and substance-related risk-taking (e.g., Oliffe, Ogrodniczuk, Bottorff, Johnson, & Hoyak, 2012).

According to Lazarus and Folkman (1984), coping has been defined as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). Lazarus and Folkman have categorized coping strategies as either being problem- or emotion-focused. Problem-focused coping is aimed at directly solving the problem (e.g., through weighing the alternatives and taking action). Emotion-focused coping is aimed at decreasing personal adverse emotional reactions to the problem (e.g., through avoidance, minimization, or distraction). Emotion-focused coping most commonly occurs in circumstances where people view change as beyond their control and is generally related to more adverse outcomes compared to problem-focused coping (Lazarus & Folkman).

Using factor analysis, Amirkhan (1990) identified three *general* coping strategies (i.e. problem-solving, social support seeking, and avoidance) that encompass a countless number of *specific* stress coping strategies. Amirkhan suggested that problem-solving and avoidance are related to primal physiological "fight or flight" responses to perceived or real threats against personal survival, whereas social support seeking is related to a primal need for human emotional attachment in periods of distress. Gender Socialization Theory (Stockard, 1999; O'Neil, 1981) would suggest that because men acquire and internalize the values associated with masculinity, they might be more likely to engage in problem-focused coping (Ptacek, Smith, & Dodge, 1994; Lengua & Stormshak, 2000). Gender Socialization Theory would also suggest that because seeking social support conflicts with masculine norm adherence through disclosing personal weakness and vulnerability (Mahalik, Locke, et al., 2003; O'Neil, 1981), men would be less likely to seek social support in response to stress and thus, may be more likely to engage in avoidant coping, compared to women, in response to an uncontrollable stressor that cannot be

overcome through problem solving.

According to the findings of a meta-analysis (Tamres, Janicki, & Helgeson, 2002) used to examine stress and coping sex differences, there is no difference between men and women regarding problem-focused coping. However, there is some evidence to suggest that men are more likely to use avoidant strategies to cope with stressors associated with relationships (e.g., family conflict and marital problems) and the health of others (e.g., injury, illness, or death). In interpreting this sex difference, Tamres and colleagues suggested that "men may be more likely to use avoidant strategies for uncontrollable stressors due to gender socialization (i.e., personal control is integral to the male gender role) or due to biological underpinnings (i.e., fight-or-flight responses" (p. 22).

In short, masculine norm adherence may lead to the stigmatization of emotional expression, which may result in increased self-concealment and ambivalence over emotional expression. This discomfort with emotions may decrease men's likelihood of engaging in social support seeking as a coping response to stress in favour of avoidant coping, which may be viewed as more congruent with cultural conceptions of traditional masculinity (e.g., "keeping a stiff upper lip"). Thus, in this manner, masculine norm adherence may increase avoidant coping.

Unfortunately, avoidant coping has also been found to predict increased sexual risk-taking among gay and bisexual men (e.g., Folkman, Chesney, Pollack, & Phillips, 1992; Martin, Pryce, & Leeper, 2005; Robins et al., 1994; Semple, Patterson, & Grant, 2000; Williams, Elwood, & Bowen, 2000). This relationship may occur because people who use avoidant ways of coping may find it difficult to have conversations about safer sex to the extent that these conversations involve sharing fears and concerns about the nature or status of the relationship and the risk of HIV transmission (Folkman et al., 1992).

Purpose of the Current Study

Numerous quantitative studies (e.g., Bogaert & Fisher, 1995; Knipper et al., 2007; Mahalik, Burns, & Syzdek, 2007; Marín, Gómez, Tschann, & Gregorich, 1997; Noar & Morokoff, 2002; O'Sullivan, Hoffman, Harrison, Dolezal, 2006; Pleck, Sonenstein, & Ku, 1993; Santana, Raj, Decker, La Marche, & Silverman, 2006; Shai, Jewkes, Nduna, & Dunkle, 2012) have found a positive correlation between masculine norm adherence and sexual risk-taking among heterosexual men. Qualitative studies (e.g., Bowleg, Teti, Massie, Patel, Malebranche, & Tschann, 2011; Kennedy, Brown, Golinelli, Wenzel, & Wertheimer, 2013) have also revealed links between masculine norm adherence and sexual risk-taking among heterosexual men. While there is some evidence to suggest that masculine norm adherence may contribute to sexual risk-taking among gay and bisexual men (e.g., Brennan et al. 2015; Fields et al., 2015; Halkitis & Parsons, 2003; Hamilton & Mahalik, 2009), most studies have focused on heterosexual men. Therefore, the degree to which masculine norm adherence predicts gay and bisexual men's sexual risk-taking is currently unclear. However, because men, regardless of sexual orientation, are raised together under similar, though not identical, cultural conditions, it could be said that men are exposed to similar masculine norms and that these norms would impact gay and bisexual men's sexual behaviour in ways comparable, though not identical, to how these norms impact heterosexual men's sexual behaviour (Wilson et al., 2010).

Due to limited research on this topic and the need for new models to conceptualize sexual risk-taking among gay and bisexual men, there is pressing need to investigate the role of masculine norm adherence in gay and bisexual men's sexual risk-taking. It is also essential to identify and examine the mechanisms by which masculine norm adherence achieves its hypothesized effect on sexual risk-taking in order to develop more complete study designs

(O'Neil, 2008). By investigating these direct and indirect effects, the current study seeks to expand the current knowledge base related to sexual risk-taking and help inform new HIV prevention intervention programming for gay and bisexual men as well as provide additional clinical directions for psychologists working with gay and bisexual men.

Accordingly, the purpose of the current study is to put forward and test a new conceptual model of HIV vulnerability among gay and bisexual men that incorporates research on masculine norm adherence, emotional suppression, and strategies for coping with stress. Namely, this conceptual model asserts that masculine norm adherence will have a direct effect on sexual risking-taking in addition to an indirect effect on sexual risk-taking mediated through emotional suppression, social support seeking, and avoidant coping.

Testing this conceptual model involves two main analyses. First, the current study will investigate masculine norm adherence as an independent predictor of sexual risk-taking. Second, the current study will investigate emotional suppression, social support seeking, and avoidant coping as mediator variables in the relationship between masculine norm adherence and sexual risk-taking. If findings support these relationships, they could warrant the design of future HIV prevention interventions for gay and bisexual men that target personal-level change in specific attitudes about masculinity to reduce sexual risk-taking and, by extension, HIV transmission. The following literature review provides a detailed account of the current knowledge, including theoretical contributions and substantive research findings, on the hypothesized role of masculine norm adherence in gay and bisexual men's sexual risk-taking, as well as the potential pathways (i.e., emotional suppression and strategies for coping with stress) through which this effect might occur.

Chapter Two: Literature Review

Overview of The Gender Role Strain Paradigm

The New Psychology of Men emerged in the 1990s out of the fields of gender studies and men's studies (Levant, 2011). This perspective on male psychology allows for the exploration of masculinity as a social construct with potential pitfalls as opposed to an objective phenomenon existing independently of our thoughts and feelings about it (Levant, 2011). As stated by Levant and Pollack (1995), The New Psychology of Men provides "a framework for a psychological approach to men and masculinity that questions traditional norms for the male role, such as the emphases on competition, status, toughness, and emotional stoicism," (p. 1) and "views certain male problems (such as aggression and violence, homophobia, misogyny, detached fathering, and neglect of health) as unfortunate but predictable results of the male socialization process" (p. 2).

The New Psychology of Men takes as its foundational theory the Gender Role Strain Paradigm (GRSP; Cochran, 2010), which was originally formulated by Joseph Pleck in his book *The Myth of Masculinity* (1981). The GRSP views gender roles not as biologically determined but rather as socially constructed. As such, GRSP represents a radical departure from previous scholarship on masculinity where gender roles were assumed to be purely the direct by-product of biological sex (Pleck, 1981, 1995). In contrast, Pleck proposes that contemporary gender roles are contradictory and inconsistent; that the proportion of persons who violate gender roles is high; that violations of gender roles lead to condemnation and negative psychological consequences; that actual or imagined violations of gender roles lead people to over conform to them; that violating gender roles has more severe consequences for men than women; that certain prescribed gender role traits (e.g., male aggression) are often dysfunctional; that each sex

experiences gender role strain in its paid work and family roles; and that the prevailing gender norms in a given culture define the gender roles thought to be appropriate for men and women. Additionally, Pleck proposes that men are socialized to adhere to masculine norms and, in the process, are exposed to three types of male gender role strain. The current study is concerned with two of these types of strain: *discrepancy strain* and *dysfunction strain*.

Discrepancy strain occurs when men experience incongruence between themselves and their ideas about what it means to "be a man" (Pleck, 1995). In order to maintain self-esteem or positive self-regard, men who adhere to masculine norms are motivated to ensure that they live up to the cultural meaning of "being a man." Accordingly, men's discrepancies between themselves and traditional masculine norms are often concealed from others to promote a masculine persona (Pleck, 1981). This concealment can be especially challenging or even impossible for gay and bisexual men who are commonly perceived as more feminine and less masculine, compared to heterosexual men, by virtue of their sexual orientation (Blashill & Powlishta, 2009; Mitchell & Ellis, 2011). For example, a study conducted by Mitchell and Ellis (2011) found that simply labelling a man as gay made him more likely to be rated by participants as effeminate. Discrepancy strain also occurs *between* gay and bisexual men who look down on each other for failing to measure up to masculine norms (Lehne, 1989; Skidmore, Linsenmeier, & Bailey, 2006; Taywaditep, 2002). For example, in the context of casual sex and dating, most gay and bisexual men report a preference for traditionally masculine men and want to be more masculine and less feminine themselves (Sánchez & Vilain, 2012). As such, due to discrepancy strain, it could be expected that gay and bisexual men would be motivated to display adherence to masculine norms to gain acceptance from the broader culture and other gay and bisexual men, and that sexual behaviour could become an important platform for demonstrating masculinity

among gay and bisexual men. Mixed methods research conducted by Halkitis, Green, and Wilton (2004) has supported this latter expectation by showing that gay and bisexual men generally do define their masculinity through their sexual behaviour. In the qualitative portion of this mixed methods study, sexual-risk taking as an affirmation of masculinity was identified as a predominant theme in several participant interviews. One such participant described the role of the masculine man as the "hunter-gather who seeks his conquest in other men, the more he succeeds, the more he is able to prove his manhood, his desirability, and his masculinity'' (p. 36). Additionally, in the quantitative portion of this mixed methods study, gay men who engaged in more sexual-risk taking also scored higher regarding the importance they placed on sex as a means for defining their masculinity.

Dysfunction strain occurs when a man adheres to masculine norms because many of the characteristics viewed as desirable in men can have negative side effects on the men themselves and others, including those close to them (Pleck, 1995). Among gay and bisexual men, dysfunction strain is most easily illustrated through the example of sexual risk-taking. According to Courtenay (2000a), engaging in sexual risk-taking may represent dysfunction strain because risk-taking itself, as a masculine norm, simultaneously proves masculine norm adherence while endangering health. Likewise, in some cases, reluctance to engage in HIV testing may also represent dysfunction strain. Results from a study conducted by Parent, Torrey, and Michaels (2012) revealed that endorsing the masculine norm of "heterosexual self-presentation" (i.e., a desire to be viewed by others as heterosexual) is negatively associated with HIV testing. This association may occur because these MSM may perceive HIV testing as an "outing" process that they avoid for the sake of maintaining a masculine self-presentation (Parent et al., 2012). Consequently, by achieving masculine norm adherence (e.g., heterosexual self-presentation)

untested MSM may, if they are HIV positive, increase the risk of transmitting HIV to their sexual partner(s) and jeopardize their own health by delaying essential medical care.

Overview of The Relation Theory of Men's Health

According to Courtenay's (2000a) Relational Theory of Men's Health, "health-related beliefs and behaviors, like other social practices that women and men engage in, are a means for demonstrating femininities and masculinities" (p. 1385). As such, health-related beliefs and behaviours become a context for men to display their commitment to traditional male gender role norms. Put another way, health-related beliefs and behaviours can assist men in defining themselves as men through providing a context that allows for the social performance of traditional masculine norms. For example, through refusing to visit a doctor while sick, men can align themselves with traditional masculine norms like "toughness" or "independence" while concealing their physical vulnerability or dependency on others. Although using health-related beliefs and behaviours in this manner may appeal to many men, doing so can exert a harmful influence on their health, resulting in adverse outcomes.

Likewise, in keeping with Courtenay's (2000a) theory, participating in sexual risk-taking could be interpreted as a way for gay and bisexual men to socially demonstrate masculinity. More specifically, gay and bisexual men may use sexual risk-taking to align themselves with traditional masculine norms in order to define themselves culturally as men. By including elements of risk in their sexual encounters, gay and bisexual men may also be attempting to socially redefine their sexual behaviour *as* masculine. This redefinition may help gay and bisexual men bring their sexual behaviour more in alignment with traditional masculine norms.

Masculine Norms and Sexual Risk-Taking

Masculine norms are a central concept in male gender role strain (Pleck, 1995) and refer to

beliefs about the importance of men abiding by culturally-defined standards of male behaviour (Levant & Richmond, 2016; Pleck et al., 1993). Namely, masculine norms address differences in overall endorsement of standards of masculinity in different men and different groups of men. For instance, men of lower socioeconomic status have been found to endorse traditional standards of masculinity to a greater extent than men of higher socioeconomic status (Levant & Richmond, 2007). It is important to recognize that there are no normative referents for masculine norms (Pleck, 1995). However, there are particular assemblages of standards that seem to cluster together (e.g., achievement and anti-femininity; Pleck, 1995). These standards have been collectively labelled "traditional" masculine norms and have been found to correspond with negative health outcomes (e.g., Eisler, 1995).

It has been theorized that endorsement of traditional masculine norms are connected to sexual risk-taking through attitudes toward condom use and HIV because traditional masculine norms are constructed *against* or *in contrast to* health-promoting behaviour (Campbell, 1995; Dworkin, Fullilove, & Peacock, 2009). Research by Mahalik et al. (2007) supported this theory and determined that men (age range: 18-78) who adopt more traditional masculine norms are more likely to engage in risky health practices, including sexual risk-taking (Mahalik, Lagan, & Morrison, 2006). Pleck et al. (1993) found that adolescent boys high in traditional masculinity norm adherence had more sexual partners, more casual sexual relationships, and used condoms less consistently than did boys low in traditional masculine ideologies. Santana et al. (2006) found that men (18-35 years old) reporting more traditional masculine norms were significantly more likely to report condomless vaginal sex in the past three months. Noar and Morokoff (2002) found that higher endorsement of traditional masculine norms among undergraduate men was related to more negative condom attitudes; more negative condom attitudes were related to

decreased readiness (regarding taking action) to use condoms. However, another study (Shearer, Hosterman, Gillen, & Lefkowitz, 2005) showed that higher endorsement of traditional masculine norms was associated with fewer HIV-risk behaviours among college-aged men, suggesting that some masculine norms may be somewhat *protective*. Namely, higher endorsement of status norms, or belief that men should strive for high status, was associated with a lower probability of ever having had sex without a condom and not having used a condom at most recent intercourse (Shearer et al., 2005). Although some studies have found a negative correlation between some masculine norms and sexual risk-taking, most studies have shown that traditional masculine norms are more of a risk factor than a protective factor (Levant & Wimer, 2014).

Among gay men specifically, Hamilton and Mahalik (2009) found that greater conformity to masculine norms was positively related to health-risk behaviours, specifically substance use and sexual risk-taking. Although this study is the only one at this time to specifically address conformity to masculine norms and sexual risk-taking among gay men, these findings are consistent with several of the findings presented above using heterosexual samples. Although this study is helpful in alerting researchers to the need to explore the role of masculine norm adherence in gay and bisexual men's sexual risk-taking, this study does not identify or explain the underlying mechanisms or processes that allow masculine norm adherence to achieve its hypothesized effect on gay and bisexual men's sexual risk-taking, which is a core focus of the current study.

Gender Role Conflict and Sexual Risk-Taking

According to The Gender Role Conflict Model, men who endorse more traditional masculinity norms experience negative health and social consequences. Moreover, gender role conflict occurs when commitment to rigid gender roles results in restrictions, violations, and

devaluations of self and others. In this manner, gender role conflict is closely related to dysfunction strain within GRSP. Gender role conflict is defined, in operational terms, as (a) restrictive emotionality; (b) restrictive affectionate behaviour between men; (c) needs for success, power, and competition; and (d) conflicts between work and family relationships.

Research has determined a positive correlation between gender role conflict and distress among men (O'Neil, 2008). Presently, there is only one study that has explored the relationship between gender role conflict and sexual risk-taking among gay and bisexual men. The findings of this study suggest that higher scores of gender role conflict in Black MSM may increase sexual risk-taking through social isolation, poor self-esteem, reduced access to HIV prevention material, and limited family-system involvement in sexual development and early sexual decision-making (Fields et al., 2015). Although these findings suggest a significant relationship between gender role conflict and sexual risk-taking among gay and bisexual men, more research is required to demonstrate the generalizability of this relationship to a broader population of gay and bisexual men and to explore additional mediating pathways.

Gender role conflict may also impact gay and bisexual men's sexual risk-taking through influencing condom decision-making. According to Fields et al. (2012), more masculine partners are more frequently given control over condom decision-making because they are considered safer (i.e., more likely to be HIV-negative). This may be particularly problematic because negotiating sexual encounters (e.g., whether to use condoms) can evoke emotions (e.g., needs for affection, safety, security) that are contrary to traditional masculinity norms (Seidler, 1989). Therefore, gay and bisexual men with increased gender role conflict may avoid these negotiations to avoid seeming "unmanly" by engaging emotionally or behaving affectionately with their sexual partner(s). In sum, men with greater gender role conflict may be less likely to

take precautions (e.g., use condoms) to safeguard their health and the health of their sexual partner(s) even though their partner(s) may perceive them as safer and in charge of condom decision-making. In the following section, the potential evolutionary and cultural influences underpinning some men's proclivity to put their health at risk for the sake of masculine norm adherence are outlined.

Manhood as a Precarious Social Status

Cross-cultural anthropological research (Gilmore, 1990) has provided evidence to suggest that the belief that manhood (more so than womanhood) is an achieved social status – hard won and easily lost – is widespread, long-standing, and transcends cultural boundaries by turning up in nearly every culture around the world. Therefore, a general source of distress for men is the precarious nature of masculinity itself. This precariousness lies in the fact that "real manhood...is not a natural condition that comes spontaneously through biological maturation but rather is a precarious or artificial state that boys must win against powerful odds" (Gilmore, 1990, p. 11). The Precarious Manhood Theory (Vandello & Bosson, 2013) aims to develop this idea by proposing three foundational principles about what it means to "be a man." First, manhood status, in contrast to womanhood status, is viewed as an elusive state that must be earned. Second, once earned, manhood status can be lost or taken away. Third, manhood status is primarily confirmed by others and requires continuous public displays of proof.

Research has provided support for The Precarious Manhood Theory. For instance, in a study conducted by Vandello, Bosson, Cohen, Burnaford, and Weaver (2008), both male and female participants attributed the transition from boyhood to manhood more strongly to social factors (e.g., achieved goals) than to biological ones (e.g., reaching puberty). Conversely, the transition from girlhood to womanhood was attributed less strongly to social factors. Likewise,

people agree with statements about the fleeting nature of manhood (e.g., “Manhood is hard won and easily lost”) significantly more strongly compared to the same statements about womanhood. Moreover, people view personal statements about lost manhood (e.g., “Now I am no longer a man”) as easier to interpret than the same statement about lost womanhood. Thus, manhood itself is primarily viewed as elusive (i.e., needing to be earned) and tenuous (i.e., needing to be demonstrated repeatedly through action).

Evolutionary and social role explanations. Researchers in the precarious manhood tradition have argued that the precariousness of manhood is likely due to the evolutionary forces of natural and sexual selection and to the social structures and processes that have emerged from these evolutionary forces (e.g., Bosson & Vandello, 2011; Geary et al., 2016). According to evolutionary theory, the precariousness of manhood may reflect evolved adaptations to environments in which men compete, through public demonstrations of competence or power, for priority access to food, shelter, and fertile female mates (e.g., Buss, 1998; Buss & Schmitt, 1993; Geary, 1998). As such, men may have evolved specialized psychological mechanisms for negotiating social status hierarchies, including a heightened sensitivity toward status threats, because ancestral men who had these mechanisms may have been more successful at attracting mates and passing on their genes through sexual reproduction (Van Vugt & Tybur, 2016).

Buss (2016) stresses this view when he states “because hierarchies are universal features among human groups and resources flow to those who rise in the hierarchy, women solve the adaptive problem of acquiring resources in part by preferring men who are high in status” (p.44). Findings from cross-cultural survey research (e.g., Buss, 1989) reveal that women have a preference for potential mates with higher social status (i.e., as indicated by high financial earnings capacity and ambition) and, moreover, women who, themselves, already have higher

financial earning capacity and ambition prefer men with higher social status more, not less, compared to women without these status assets. Accordingly, it follows that men would be highly concerned with threats to or losses of status, provided that women use male status as a prime criterion in their mate selection (Kenrick, Maner, Butner, Li, Becker, & Schaller, 2002). In this manner, social hierarchy negotiation via competing with other men for social status may act as the most direct route available to men to maximize sexual opportunities.

For men, these opportunities are most likely perceived as extremely rare and valuable relative to the discrepancy between men and women in wanting and pursuing larger numbers of sexual partners. For example, based on a cross-cultural survey of over 16,000 participants from 10 major regions (including North America, South America, West Europe, East Europe, South Europe, Middle East, Africa, Oceania, South/South East Asia, and East Asia), Schmitt (2003; 2005) found that men, regardless of sexual orientation, consistently desire and actively seek out greater numbers of sexual partners compared to women. Among gay and bisexual men, this same preoccupation with social status may occur because, over time, the characteristics that offered individual men competitive advantages over other men (e.g., toughness) were eventually articulated by language and organized into self-perpetuating ideologies (e.g., the cultural or masculine norm that men *should* be tough; Archer, 1996). Many of these ideologies may be viewed as aspirational by gay and bisexual men as evidenced by the research finding that gay and bisexual men frequently report a sexual and social preference for traditionally masculine men and desire to be more masculine themselves (Halkitis et al., 2004; Sánchez & Vilain, 2012).

Alternatively, social role theory would propose that the relative precariousness of manhood has its roots in the physical differences between men and woman that have resulted in long-established and predictable divisions of labour (e.g., Eagly & Wood, 1999; Wood & Eagly,

2002). Namely, because men have historically occupied social roles that involve status seeking and resource acquisition, manhood itself has become associated with power and influence over others, which has led to modern normative gender beliefs and gender socialization. Inherent in these two theories (i.e., evolutionary theory and social role theory) is the notion that "being a man" requires ongoing efforts to prove one's worth and maintain status.

Symbolic Self-Completion and Emotional Expression

One major approach used by men to prove themselves to others is to showcase their capacity to *endure* physical or emotional pain (Pool, Schwegler, Theodore, & Fuchs, 2007). Social norms stress that men must be stoic, thereby leading them to be more likely to suppress or underreport experiences of pain or distress. According to Symbolic Self-Completion Theory (SSCT; Wicklund & Gollwitzer, 1982), "individuals' personal (or group) identities act as defining goals that motivate them to acquire identity-relevant symbols" (Jordan, Mullen, & Murnighan, 2011, p. 701). According to SSCT, men seek to acquire and display symbols that are strongly related to what they perceive to be the ideal masculine self. For example, research by Chiou, Wu, and Lee (2013) suggest that reminders of masculinity may increase men's desire for energy-drinks, as energy-drink consumption seems to enable men to regulate their sense of masculinity. Mahalik, Good, and Englar-Carlson (2003) have used the term masculine "scripts" to identify and describe the sub-goals making up this sense of masculine self-completeness. For example, the *strong-and-silent* script stresses the importance of men being stoic and unemotional whereas the *tough-guy* script builds on this by stressing the suppression of emotion with the aim of being seen as tough in the midst of pain while also refusing to back down in the face of adversity. Gilmore (1990) highlights this tough-guy script while discussing circumcision as a rite of passage, from boyhood to manhood, undertaken by Gisu boys of Eastern Uganda as being

entirely intended to "make 'tough' and 'fierce' men by extirpating the boyish fear of pain" (Gilmore, 1990, p. 164). In sum, men may strive to acquire and display the symbols that they perceive to represent what it means to "be a man." For many men, emotional inexpressiveness or the suppression of emotional expression may act as one of these symbols. Therefore, men may feel compelled to suppress emotional expression, despite a genuine desire for expression, in order to complete a masculine image. The following section describes the influence of dis(comfort) with emotional expression on coping with stress and describes how avoidant coping contributes to adverse health behaviours and outcomes among men, including sexual risk-taking among gay and bisexual men.

King and Emmons (1990) have suggested that understanding the link between emotional expression and health behaviours and outcomes involves understanding a person's degree of ambivalence over expressing emotions. A person who is inexpressive because of ambivalence might have worse health outcomes compared to a person who is inexpressive because they sincerely have no wish to express emotions (Barr, Kahn, & Schneider, 2008). King and Emmons defined *ambivalence over emotional expression* as the conflict between desiring to express emotions while, at the same time, worrying about the potential drawbacks of doing so (e.g., being viewed as insufficiently masculine). Findings support that people with higher ambivalence over emotional expression are less likely to express their emotions even though they have similar levels of emotional experience compared to people with less ambivalence over emotional expression (King & Emmons).

Conflict related to the expression of emotions is also partially reflected in a person's level of *self-concealment* (Barr et al., 2008). Larson and Chastain (1990) have defined self-concealment as an inclination to deliberately hide from others personal information that one

perceives as distressing, negative, or generally unacceptable. According to Larson and Chastain, the motivation behind self-concealment is often the need to maintain personal privacy and assert personal boundaries in order to manage one's public persona. As such, self-concealment may assist men in achieving a sense of masculine self-completeness. That is, self-concealment may help men build a kind of mask designed, on the one hand, to leave a masculine impression on others while, on the other hand, concealing the aspects of their inner selves that are inconsistent with an ideal masculine self. The impact of this mask on stress, coping, and health behaviour will be discussed in detail below in the *overview on the cognitive theory of stress and coping*.

Research has found that higher levels of self-concealment and ambivalence over emotional expression are associated with lower psychological well-being and poorer health outcomes (Kennedy-Moore & Watson, 2001). This association may be due to the use of ineffective strategies in attempting to cope with stress. That is, because of stigma against emotional expression, emotionally ambivalent individuals may be more emotionally inhibited and less emotionally expressive, which may make them less likely to cope with stress by seeking social support. Moreover, because of their need to conceal distress and maintain a positive public persona, ambivalent people may be more likely to use maladaptive strategies in attempting to cope with stress. Instead of confronting stressors directly by using problem-focused coping strategies, ambivalent people may cope with stressors in a more passive or avoidant way (e.g., blaming others, distraction, or escape-based fantasies). A brief description of stress and coping theory is needed to flesh out the relationship between comfort with emotional expression, coping, and sexual risk-taking among gay and bisexual men.

Overview of The Cognitive Theory of Stress and Coping

Folkman and Lazarus (1980) defined coping as "the cognitive and behavioral efforts made to master, tolerate, or reduce external and internal demands and conflicts among them" (p. 223). Moreover, Folkman and Lazarus suggested that coping efforts are made with two main goals in mind. Namely, coping responses aim to modify the person-environment relationship that leads to stress (i.e., problem-focused coping) and aim to regulate stress-inducing emotions (i.e., emotion-focused coping).

Applying these coping concepts to gay and bisexual men, Folkman et al. (1992) conceptualized sexual risk-taking as a dysfunctional emotional-focused coping response to stress. In their study, Folkman et al. (1992) found a relationship between coping reactions to stress and sexual risk-taking in gay and bisexual men. Specifically, condomless anal sex was found to be negatively associated with seeking social support and positively associated with self-controlling coping. Put simply, gay and bisexual men who participated in condomless anal sex were more likely to respond to stress by suppressing their emotions and, likewise, less likely to talk about their feelings with someone else. Therefore, for gay and bisexual men, at least some instances of condomless anal sex could be interpreted as a coping strategy for controlling stressful emotions that these men are fearful of expressing openly.

Folkman et al. (1992) suggested that an important implication of these findings is that for gay and bisexual men who use sex to cope with stress, it may be possible to provide more adaptive (i.e., health preserving) coping strategies through teaching socially-oriented coping skills (e.g., social support seeking). Although this skills-based training approach may be effective in reducing condomless anal sex among some gay and bisexual men, it may be less effective with gay and bisexual men who conform to traditional masculine norms. That is because these men may deliberately choose condomless anal sex as a preferred stress coping strategy over

socially-oriented coping. Two interconnected reasons for making this choice may include gay and bisexual men (a) evaluating condomless anal sex to more closely conform to traditional standards of masculinity through its association with "risk-taking" and (b) experiencing a strong need to respond to stress in a manner consistent with traditional standards of masculinity or, put another way, in a manner that helps them achieve a sense of masculine-completeness.

In support of this assertion, research has provided some evidence to suggest that gay and bisexual men do perceive condomless sex as more masculine compared to safer sex (e.g., Dowsett, Williams, Ventuneac, & Carballo-Dieguez, 2008; Halkitis, Parsons, & Wilton, 2003), despite the fact that condomless sex poses a substantial risk for HIV (Koblin et al., 2006). As a consequence of this perception (i.e., condomless sex as more masculine), gay and bisexual men may incorporate sexual risk-taking into their gender-specific coping repertoires. That is, gay and bisexual men may not engage in sexual risk-taking *despite* the risk of HIV but *as a result of* the association between risk-taking and masculinity.

Although some studies report that men use problem-focused strategies to cope with stress and assert their masculinity (e.g., Levy & Cartwright, 2015; Nielsen, Brixen, & Huniche, 2011; Ojeda & Liang, 2014; Spendelow, Adam, & Fairhurst, 2017), others have reported that mental health, health behaviours (including risk-taking), and health outcomes are influenced by men's masculine norm adherence and the use of maladaptive coping response (e.g., Basterfield, Reardon, & Govender, 2014; Hoyt, Stanton, Irwin, & Thomas, 2013; Iwamoto, Liao, & Liu, 2010). For example, in a systematic review of qualitative studies examining men's coping strategies for depression, Spendelow (2015) found that two of the three most substantive coping domains used by men include social concealment and minimization (e.g., to conceal, downplay, or distract themselves from depressive symptoms) and promotion of traditional masculinity (e.g.,

to exhibit masculine traits like independence, suppression of negative affect, and engagement in risky behaviour).

In this manner, gay and bisexual men who conform more to traditional masculine norms may continue to use condomless anal sex to cope with stress regardless of whether they have been taught socially-oriented coping strategies. That is, although avoidant coping may contribute to sexual risk-taking, intervening at the level of coping alone may not be optimally effective because such an intervention would not take into account the variable (i.e., masculine norm adherence) that came before coping in the causal chain that yielded sexual risk-taking. Therefore, in addition to representing a dysfunctional strategy for coping with stress, as suggested by Folkman et al. (1992), sexual risk-taking among gay and bisexual men may more precisely be said to represent a dysfunctional though predictably "masculine" stress coping reaction.

Building a Masculinity-Informed Model for Sexual Risk-Taking Research

As noted previously, Newcomb and Mustanski (2011) suggested abandoning the investigation of internalized heterosexism as an independent predictor of sexual risk-taking. Therefore, new models to conceptualize sexual risk-taking in gay and bisexual men are needed to replace older ones that may no longer be appropriate due to social change. Research in The New Psychology of Men using The Gender Role Strain Paradigm as a framework offers the prospect for a new masculine norm adherence model of HIV vulnerability among gay and bisexual men.

If findings support these relationships, they could warrant the design of future HIV prevention interventions that target personal-level change in specific attitudes about masculinity to reduce sexual risk-taking and, by extension, HIV transmission. For instance, they could inspire a gender-role-stain-oriented cognitive-behavioural group intervention (e.g., Mahalik, 1999) for gay and bisexual men designed to decrease sexual risk-taking by helping gay and

bisexual men better understand the connection between attitudes about masculinity, emotion, coping strategies, and behaviour and teaching them to identify, evaluate, and modify specific attitudes about masculinity associated with sexual risk-taking. Such an invention may reduce these men's reliance on dysfunctional, though predictable, masculine strategies for coping with stress (i.e., sexual risk-taking) and prepare them to learn and ultimately use healthier alternatives such as socially-oriented coping, as suggested by Folkman et al. (1992).

Among heterosexual men, researchers have found that conformity to traditional masculine norms is associated with sexual risk-taking (e.g., Jewkes & Morrell, 2010). In response to this finding, a new generation of HIV interventions (i.e., gender-transformative health programming for men) has attempted to transform personal-level conceptualizations of masculinity by emphasizing egalitarianism between men and women (Pulerwitz, Michaelis, Verma, & Weiss, 2010; Dworkin, Treves-Kagan, & Lippman, 2013). A systematic review conducted to assess the efficacy of these programs has provided evidence that suggests that these programs increase sexually protective behaviour and reduce the spread of HIV (Dworkin et al., 2013).

Some social scientists have begun to call for such interventions for men *living with* HIV as well (e.g., Dworkin, 2015; Dworkin, Fleming, Colvin, 2015; Mane & Aggleton, 2001; Skovdal et al., 2011; Zissette, Watt, Prose, Mntambo, & Moshabela, 2016). For example, in a recent study with South African men living with HIV, researchers concluded that interventions focusing on transforming personal-level conceptualizations of masculinity could encourage HIV positive men to engage in HIV-related treatment (Zissette et al., 2016). Although research has found an association between masculine norm adherence and sexual risk-taking among heterosexual men and established that challenging specific definitions of masculinity (i.e., those that go against health promotion) can play an important role in reducing HIV risk, the generalizability of these

findings to gay and bisexual men, as an at-risk population, has not been examined.

Summary

This literature review has suggested several gaps in the current scholarship on the relationship between masculine norm adherence and gay and bisexual men's sexual risk-taking and the potential pathways facilitating this relationship. Current research suggests that internalized heterosexism can no longer be used independently to distinguish between different levels of sexual risk-taking among gay and bisexual men. Therefore, behavioural and social science researchers need to develop alternative lines of research to investigate sexual risk-taking among gay and bisexual men to directly respond to and intervene on the HIV epidemic occurring among gay and bisexual. Research in The New Psychology of Men using The Gender Role Strain Paradigm as a framework offers a promising alternative that has proven useful for distinguishing between different levels of sexual risk-taking among heterosexual men. However, research is limited when it comes to exploring whether this association generalizes to gay and bisexual men. Accordingly, researchers need to determine whether the association between masculinity and sexual risk-taking generalizes to gay and bisexual men. Furthermore, if this association does generalize to gay and bisexual men, researchers will need to identify and explain the underlying mechanisms and processes through which this association occurs (i.e., mediational processes).

Purpose and Hypotheses

The purpose of the current study is to examine the role of masculine norm adherence in sexual risk-taking among gay and bisexual men. In addition, the current study examines the hypothesized mediating effects of emotional suppression, social support seeking, and avoidant coping on the relationship between masculine norm adherence and sexual risk-taking among gay

and bisexual men. The hypothesized effect of masculine norm adherence on sexual risk-taking as well as the mediation model is shown in Figure 1. Specifically, this study tested the following hypotheses:

Hypothesis 1: Masculine norm adherence will have a direct effect on sexual risk-taking.

Hypothesis 2: Emotional suppression will mediate the relationship between masculine norm adherence and sexual risk-taking.

Hypothesis 3: Social support seeking will mediate the relationship between masculine norm adherence and sexual risk-taking.

Hypothesis 4: Avoidant coping will mediate the relationship between masculine norm adherence and sexual risk-taking.

Chapter Three: Methodology

Study Procedure

The current study is a cross-sectional analysis (Levin, 2006) using internet-based data collection. The reference population associated with the current study is gay and bisexual men living in urban locations across Canada. Participants were recruited using an online advertisement made available through four community agencies dedicated to enhancing gay and bisexual men's health, located in Montreal, Ottawa, Toronto, and Vancouver. The advertisement prompted users to click on a link that brought them to the study announcement hosted through the web-based survey platform Qualtrics. The four community agencies aided in recruitment by (a) sending out links to the study announcement via listserv, (b) posting the link to the study announcement on their official Facebook pages, and (c) in the case of the Vancouver agency, sponsoring a paid online advertisement through Facebook. Beyond these four community agencies, the online advertisement was also made available through the dating application Scruff and the online bulletin board Craigslist.com

The study announcement informed participants that they were being asked to complete a short online anonymous survey concerning masculinity and gay and bisexual men's health. They were told that in order to be eligible for the study they needed to be: a gay or bisexual man who has had sexual activity with a man in the previous six months, 18 years of age or older, understand written English, and living in Canada. Participants were also told that, after completing the survey, they could enter a draw for a chance to win one of thirty $25 prepaid Visa gift cards. Participants were told that they could access the informed consent and survey by clicking on the link at the bottom of the study announcement.

Participants were then directed to an electronic informed consent form to confirm they

understood the study's purpose, procedure, potential benefits and risks, compensation, and confidentiality procedures. Additionally, contact information for the principal investigator, the two faculty supervisors, and the McGill University Research Ethics Board was provided to allow participants to seek further information about the study or to offer comments or concerns about the study. The electronic informed consent form was followed by an online survey also made available through the web-based survey platform Qualtrics. Finally, they were provided with information about how to enter the draw to win a $25 prepaid Visa gift card. Specifically, a link was provided that took them to an online form where they could enter their contact information (first name, phone number, email). Providing contact information to enter the draw was optional and not a required component of the survey.

Measures

Sociodemographic questionnaire. An author-developed sociodemographic questionnaire was used to assess various participant characteristics including age, citizenship status, educational level, gender identity, geographical location, gross annual income, language, race/ethnicity/culture, sex assigned at birth, and sexual orientation.

Sexual risk-taking. Sexual risk-taking was operationalized as the frequency of condomless anal sex in the absence of PrEP usage in the past six months. Two questionnaires were used to measure sexual risk-taking. First, an author-generated health and related services questionnaire was used to assess participants' current HIV status and PrEP usage. Second, the sexual behaviour questionnaire is an 8-item self-report scale that was used to measure participants' number and types of sexual partners (i.e., regular, occasional, one-night stand, or sex for money partners) over the past six months and participants' frequency of condom use during the past six months. The sexual behaviour questionnaire is scored by calculating the

difference between how many times a participant had anal sex in the past six months and how many of those times a condom was used. Moreover, if participants report instances of condomless sex but are HIV-negative and using PrEP every day (without exception), then their score is returned to zero to reflect their safer sex practice. For the current study, frequencies of condomless anal sex were calculated for the following four types of partners: regular partners, occasional partners, one-night-stand partners, and transactional partners (sex with partners in exchange for money, drugs, or other goods). The sexual behaviour questionnaire was inspired by survey sections designed for and used in the ARGUS study, 2008-2009 cycle (Lambert et al., 2011). The ARGUS study was a surveillance project conducted as a part of the Canadian M-Track Survey, which monitors trends in HIV, sexually transmitted infections, and related risk behaviour in MSM living in Canada (PHAC, 2011). See Table 1 for descriptive statistics and Cronbach's alphas (when applicable) for all study measures.

Masculine norm adherence. Two masculinity-related variables were measured. Gender role conflict was measured using the Gender Role Conflict Scale-Short Form (GRCS-SF; Wester, Vogel, O'Neil, & Danforth, 2012), which is a short form version based on the original Gender Role Conflict Scale (GRCS; O'Neil, Helms, Gable, David, & Wrightsman, 1986). The GRCS-SF consists of 16 items assessing conflicts between the expectations of the socialized male gender role and either interpersonal actions or situational demands across four dimensions: Success, Power, and Competition (SPC; e.g., "winning is a measure of my value or personal worth"); Restrictive Emotionality (RE; e.g., "I have difficulty expressing my emotional needs to my partner"); Restrictive Affectionate Behaviour between Men (RABBM; e.g., "Hugging other men is difficult for me"); and Conflict between Work and Family Relations (CBWFR; e.g., "Overwork and stress caused by a need to achieve on the job or in school, affects/hurts my life").

Items are rated on a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher means scores indicate higher levels of gender role conflict. The original development of the GRCS (O'Neil et al., 1986) indicated that the SPC subscale had an alpha of .85. The RE subscale had an alpha of .82. The RABBM subscale had an alpha of .83. Finally, the CBWFR subscale had an alpha of .75. All four GRCS-SF subscales have been found to significantly correlate with their original GRCS subscales (Wester et al., 2012). Using confirmatory factor analysis, the full-scale four-factor GRC solution has been validated for use with gay men, with results showing similar factors structure to the general population (Herdman, Fuqua, Choi, & Newman, 2012). Internal consistency reliability coefficients observed in the analysis sample (i.e., consisting of both gay men and lesbian women) were strong. That is, the Cronbach's alpha reliability coefficients for SPC, RE, RABBM, and CBWFR were reported as .93, .90, .84, and .88, respectively. In the current study, the reliability coefficient of the total GRC score was .86.

Conformity to masculine norms was measured using the Conformity to Masculine Norms Inventory-46 (CMNI-46; Parent & Moradi, 2009). The CMNI-46 is a 46-item self-report instrument that uses a four-point Likert-type scale with possible responses ranging from 0 (*strongly disagree*) to 3 (*strongly agree*). The CMNI-46 is a psychometrically validated short form of the original 94-item CMNI (Mahalik, Locke, et al., 2003). The purpose of the CMNI-46 is to assess men's conformity to various masculine norms that are widely endorsed in dominant American culture. The CMNI-46 has nine subscales: (a) Winning (six items; e.g., "In general, I will do anything to win"); (b) Emotional Control (six items; e.g., "I tend to keep my feelings to myself"); (c) Risk-Taking (five items; e.g., "I enjoy taking risks"); (d) Violence (six items; e.g., "Sometimes violent action is necessary"); (e) Power Over Women (four items; e.g., "In general, I control the women in my life"); (f) Playboy (four items e.g., "If I could, I would frequently

change sexual partners"); (g) Self-Reliance (five items; e.g., "It bothers me when I have to ask for help"); (h) Primacy of Work (four items; e.g., "My work is the most important part of my life"); and (i) Heterosexual Self-Presentation (six items; e.g., "I would be furious if someone thought I was gay"). Some items are reverse coded, and higher scores represent higher levels of conformity to masculine norms.

Parent and Moradi (2009) reported concurrent validity evidence based on the CMNI-46 and its subscale factors being positively correlated with the theoretically similar scales of the original CMNI. Support for the validity of the original CMNI has been illustrated through a positive correlation between the original CMNI total scores and the total scores of three other masculinity-related variables (Mahalik, Locke, et al., 2003) including the Brannon Masculinity Scale (BMS; Brannon & Juni, 1984), the Gender Role Conflict Scale (GRCS; O'Neil et al., 1986), and the Masculine Gender Role Stress Scale (MGRS; Eisler & Skidmore, 1987). Reliability for the CMNI-46 was demonstrated by the nine subscales producing scale score reliability coefficients ranging from .77 (Primacy of Work) to .91 (Heterosexual Self Presentation), with the total composite CMNI score producing a reliability coefficient of .92 (Parent & Moradi, 2009). Although this scale was developed using a mostly heterosexual sample, this scale has been used to measure conformity to masculine norms in gay and bisexual men (e.g., Parent, Torrey, & Michaels, 2012). In the current study, the reliability coefficient of the total CMNI score was .88.

Emotional suppression. Two scales were used to measure emotional suppression. The Ambivalence Over Emotional Expressiveness Questionnaire (AEQ; King & Emmons, 1990) is a 28-item self-report measure of a person's conflict between their wish to express (versus suppress) emotion and what they actually expressed publicly. Example items include "I'd like to

talk about my problems with others, but at times I just can't." and "I try not to worry others even though sometimes they should know the truth." Each item is rated on a 5-point Likert scale from 1 (*never*) to 5 (*frequently*). Responses are added and averaged across items with higher scores indicating more ambivalence. The Cronbach's alpha reliability coefficient of the AEQ was .89 (King & Emmons, 1990). The AEQ has shown support for its validity through a positive correlation between the AEQ and a measure of general ambivalence (King & Emmons, 1990). In the current study, the reliability coefficient of the AEQ was .93.

The Self-Concealment Scale (SCS; Larson & Chastain, 1990) is a 10-item self-report measure that evaluates a person's tendency to conceal distressing information about themselves from others. Example items include "I have negative thoughts about myself that I never share with anyone" and "I'm often afraid I'll reveal something I don't want to." Each item is rated on a 5-point Likert scale from 1 (*strongly agree*) to 5 (*strongly*). The SCS has a total possible score from 10 to 50, with greater numbers indicating greater self-concealment. The Cronbach's alpha reliability coefficient of the SCS is .83 (Larson & Chastain, 1990). Validity has been supported by a negative correlation with self-disclosure (Larson & Chastain, 1990). In the current study, the reliability coefficient of the SCS was .90.

Social support seeking. Two scales were used to measure social support seeking. Because these two scales have similar names, the first author's name has been added to each scale name to avoid confusion. The Seeking Social Support subscale of Amirkhan's Coping Strategy Indicator (ACSI-SSS; Amirkhan, 1990) consists of 11 statements reflecting attempts at human contact, not necessarily for help in resolving the problem, but solely for the comfort such contact provides. Example items include "Talked to people about the situation because talking about it helped you feel better" and "Accept sympathy and understanding from someone." Each item is

rated on a 3-point Likert scale from 1 (*not at all*) to 3 (*a lot*). Higher mean scores indicate greater social support seeking. The Cronbach's alpha reliability coefficient of the ACSI-SSS was .93. Support for the validity of all ACSI scales has been shown by a positive correlation between the ACSI scales and established measures of coping, personality, and pathology (Amirkhan, 1990). In the current study, the reliability coefficient of the ACSI-SSS was .94.

The Social Support subscale of Tobin's Coping Strategies Inventory (TCSI-SS; Tobin, Holroyd, & Reynolds, 1984) consists of nine statements describing efforts to seek emotional support from people, one's family, and one's friends. Example items include "I accepted sympathy and understanding from someone" And "I found somebody who was a good listener." Each item is rated on a 5-point Likert scale ranging from 1 (*Note at all*) to 5 (*Very much*). Higher mean scores indicate greater social support seeking. Cronbach's alpha reliability coefficient of the TCSI-SS was reported at .89 (Tobin, Holroyd, Reynolds, & Wigal, 1989). Support for the validity of all TCSI scales has been shown by a positive correction with TCSI scales and measures of depression (Tobin et al., 1984). In the current study, the reliability coefficient of the TCSI-SSS was .93.

Avoidant coping. Two scales were used to measure avoidant coping. Once again, because these two scales have similar names, the first author's name has been added to each scale name to avoid confusion The Avoidance subscale of Amirkhan's Coping Strategy Indicator (ACSI-A; Amirkhan, 1990) consists of 11 statements reflecting tendencies to escape problems, both by means of physical and psychological withdraw. Example items include "Tried to distract yourself from the problem" and "Did all you could to keep others from seeing how bad things really were." Each item is rated on a 3-point Likert scale from 1 (*not at all*) to 3 (*a lot*). Higher mean scores indicate greater avoidance coping. The Cronbach's alpha reliability coefficient of

the ACSI-A was .84 (Amirkhan, 1990). Support for the validity of all ACSI scales has been shown by a positive correlation between the ACSI scales and established measures of coping, personality, and pathology (Amirkhan, 1990). In the current study, the reliability coefficient of the ACSI-A was .83.

The Problem Avoidance subscale of Tobin's Coping Strategies Inventory (TCSI-PA; Tobin, Holroyd, & Reynolds, 1984) consists of nine statements describing efforts to deny a problem and avoid thoughts or actions about a stressful event. Example items include "I went along as if nothing were happening" or "I tried to forget the whole thing." Each item is rated on a 5-point Likert scale ranging from 1 (*Note at all*) to 5 (*Very much*). Higher mean scores indicate greater levels of problem avoidance. Cronbach's alpha reliability coefficient of the TCSI-PA was reported at .72 (Tobin, Holroyd, Reynolds, & Wigal, 1989). Support for the validity of all TCSI scales has been shown by a positive correction with TCSI scales and measures of depression (Tobin et al., 1984). In the current study, the reliability coefficient of TCSI-PA was .75.

Quality Control for Online Data Collection

The Internet is a valuable source for studying HIV/AIDS risk behaviour especially among difficult-to-reach populations (Pequegnat et al. 2007); however, several methodological concerns, specific to Internet data quality, may threaten the internal and external validity of a study. Both automated and manual procedures have been recommended by Bauermeister, Pingel, Zimmerman, Couper, Carballo-Diéguez, and Strecher (2012) to minimize invalid data. Automated procedures may serve to identify invalid data *a priori*. Automated procedures can include data checks that can be programmed into the online survey. In the current study, automated procedures included accepting only one submission for an Internet Protocol (IP) address. Additionally, manual procedures can be employed *post hoc*. In the current study, the

manual procedure involved identifying and removing all cases that did not provide any survey data; however, cases that did provide some survey data but also included missing data were retained. The current study did not set sociodemographic quotas or limits on survey completion time.

Data Analysis

Descriptive statistics were computed (e.g., means, standards deviations, ranges, and bivariate correlations) for all measures. Sociodemographic differences based on geographical location and recruitment method were analyzed using *t*-tests. The geographic location variable was analyzed using a *t*-test because it was assumed that some geographical locations might be disproportionately represented in the data because certain locations (i.e., Vancouver) offered superior recruitment assistance. The recruitment method variable was analyzed using a *t*-test because it was assumed that participants recruited through apps/online sites designed to help gay and bisexual men find causal sexual partners (i.e., Scruff and Craigslist.com) may report more sexual risk-taking compared to participants recruited through other means. Additionally, Cronbach's alpha was calculated for each scale. SEM, using *Mplus* (Version 7; Muthén & Muthén, 2012) was used to examine both direct and indirect effects and, consequently, test the four hypotheses. Although SEM is unable to discern cause and effect relationships (i.e., causation), in keeping with the statistical language associated with this type of analysis (Hayes, 2013), the current study employs the language of direct and indirect effects.

Direct effects are the hypothesized influence of one variable on another (Hayes, 2013; Tabachnick & Fidell, 2007). An indirect effect is the hypothesized influence of one or more mediating variables that explains *how* the relationship between two other variables exists (Hayes, 2013; Tabachnick & Fidell, 2007). In SEM, both direct and indirect effects can be tested using

both latent and observed variables.

Latent variables are variables that cannot be directly observed/measured and therefore must be defined in terms of the behaviour(s) that the researcher believes represent the underlying construct (Byrne, 2012). In the current study, one example of a latent variable is masculine norm adherence. Observed variables are the variables that are directly observed/measured and therefore act as indicators of the underlying construct that the latent variable assumes to exist (Byrne, 2012). In the current study, one example of a measured variable is participant scores on the Conformity to Masculine Norms Inventory-46.

Generally speaking, SEM is a statistical technique used for analyzing structural models that contain latent variables (Meyers, Gamst, & Guarion, 2013). SEM consists of two main components: a measurement model and a structural model (Kline, 2016). The measurement model evaluates the connections between latent variables and observed variables (Byrne, 2012). The structural model depicts the interconnections occurring between latent variables within the hypothesized model. The structural model can be used to explain the hypothesized model if the data from the hypothesized model and observed model correspond/match.

In the current study, the nature of the research hypotheses provides the rationale for the use of SEM for data analyses. Therefore, in the current study, measurement models were first tested, followed by a testing of the structural model. Along the same lines as Schwartz, Stratton, and Hart (2016), the Mplus "Model Indirect" command was used to measure the indirect effect of masculine norm adherence on gay and bisexual men's sexual risk-taking mediated through emotional suppression, social support seeking, and avoidant coping. Full-information maximum-likelihood estimation was used to preserve data from participants who did not complete the entire survey for confirming the measurement model fit and structural model analysis (Muthén & Muthén, 2012). Alpha levels for each significance test were set at .05 (Cohen, 1988).

The current study used Kline's (2016) recommended minimum set of fit indices to measure model fit. This minimum set includes: "model chi-square with its degrees of freedom and *p*-value, Steiger-Lind Root Mean Square Error of Approximation (RMSEA; Steiger, 1990) and its 90% confidence interval, Bentler Comparative Fit Index (CFI; Bentler, 1990), and Standard Root Mean Square Residual (SRMR)" (p. 269). The model chi-square (χ^2) likelihood ratio statistic is the most important absolute fit index, and tests for the difference between the theoretical model and the empirical model (Meyers et al., 2013). A significant χ^2 indicates that the theoretical model does not fit the empirical data, while a non-significant χ^2 indicates a good fit – therefore Kline (2016) refers to χ^2 as "badness-of-fit statistic" (p. 270). According to Schumacker and Lomax (2010), "the initial (full) model represents the null hypothesis (H_O)" (p. 113). The RMSEA measures approximation error between the observed covariance and the covariance of the hypothesized model (Meyers et al., 2013). A value of less than .08 represents a good fit. The CFI analyzes differences between the empirical data and the theoretical model. A value of greater then .95 indicates a good fit. The SRMR is a measurement of the average of standardized residuals between the observed and hypothesized covariance matrices (Chen, 2007). A value that is less than .08 represents a good fit.

The current study focuses on the structural model and will test the fit of the hypothesized structural model compared to the observed model. Following the theory and research presented in the literature review above, the current study hypothesizes that masculine norm adherence will directly affect sexual risk-taking as well as indirectly affect sexual risk-taking through emotional suppression, social support seeking, and avoidant coping (See Figure 1).

Minimal sample size requirements for SEM. According to Teo, Tsai, and Yang (2013), while the sample size is a key consideration in structural equation modelling (SEM), "no

consensus has been reached among researchers at present, although some suggests are found in the literature" (p. 10). For example, according to Barrett (2007), reviewers of journal submissions should reject manuscripts for publication using SEM analyses that have a sample size less than $N = 200$. In a review of 73 published studies using SEM analysis, Westland (2010) determined that the median sample size across these studies was $N = 280$. However, Schumacker and Lomax (2010) have recommended as many as 400 participants.

Chapter Four: Results

Participants

Data were obtained between February and June 2018. Five hundred and twenty-three participants participated in the current study. Out of this sample size, 23 participants indicated that their biological sex was female. These 23 participants were removed from the data set. An additional 18 participants were also removed from the sample because they reported being either heterosexual or asexual men. Therefore, the final sample size included 482 participants.

Participants provided sociodemographic information and were assessed on 11 study measures of interest. The demographic features of the sample are presented in Table 2. Participants ranged in age from 18 to 75 (M = 38.37, SD = 12.64). The majority (68.9%, n = 332) of participants reported living in Vancouver. A total of 378 participants were recruited through community health agencies via their Facebook pages (78.4%), 56 through craigslist.org (11.6%), 39 through Scruff (8.1%), and 9 through word of mouth/friends (1.9%). The sample included 412 gay men (85.5%), 60 bisexual men (12.4%), and 10 men (2.1%) who described their sexual orientation using other categorical labels (e.g., pansexual or queer). Sample participant's HIV status, as per their last test, included 394 participants who reported to be HIV-negative (81.7%), 43 were HIV-positive (8.9%), 9 participants who did not receive the results (1.9%), 1 participant who did not know his test results (.2%), and 35 participants who did not answer the question (7.3%). Sample participants included 378 participants not currently taking PrEP (78.4%), 101 participants taking PrEP (21.0%), and 3 participants who did not answer the question (.6%).

The majority of the sample (70.6%, n = 340) reported their racial identity as White. The sample's gross annual income before taxes was rather evenly distributed, though skewed toward lower incomes, with participants most frequently earning between $40,000 and $50,000 (14.5%,

n = 70). The majority of the sample included 166 participants holding a bachelor's degree (34.5%) and 108 participants holding a university certificate, diploma, or degree above the bachelor's level (22.4%). The language spoken in the household within the sample included 418 speaking English (86.8%), 32 speaking French (6.6%), and 32 speaking other languages (6.6%). The citizenship status of sample participants included 423 Canadian citizens (87.8%), 30 permanent residents (6.2%), 26 temporary residents (5.4%), 1 refugee/refugee claimant (.2), and 2 participants who did not answer the question (.4%).

Demographic Differences by Geographical Location and Recruitment Method

Independent samples *t*-tests were completed to determine whether demographic differences were significantly associated with scores on measures of interest. These *t*-tests compared study variable scores based on (a) participants' geographical location within Canada and (b) the recruitment method used to notify participants of the study. Because the majority of the sample reported their location as "Vancouver" (*n* = 332), all participants reporting other locations were collapsed into a single group (*n* = 150). Likewise, because the majority of the sample reported their recruitment method as "community health agency via their Facebook page" (*n* = 378), all participants who were informed about the study using a different recruitment method were collapsed into a single group (*n* = 104).

Results of the independent samples *t*-tests revealed that conformity to masculine norms, self-concealment, and number of regular partners differed significantly as a function of participants' geographical location (i.e., Vancouver as a group versus all other locations as a group). Participants geographically located in Vancouver reported significantly lower conformity to masculine norms scores (*M* = 1.28; *SD* = .15) compared to participants geographically located in the other areas of Canada (*M* = 1.34; *SD* = .18), $t(418) = -3.456$, $p = .001$. Participants

geographically located in Vancouver reported significantly lower self-concealment scores (M = 2.84; SD = .99) compared to participants geographically located in the other areas of Canada (M = 3.09; SD = 1.01), $t(372) = -2.254$, $p = .025$. Participants geographically located in Vancouver reported significantly higher numbers of regular sex partners (M = 7.55; SD = 18.71) compared to participants geographically located in the other areas of Canada (M = 4.62; SD = 11.19), $t(419.060) = 2.087$, $p = .037$.

Regarding recruitment method, conformity to masculine norms scores and numbers of regular sex partners differed significantly as a function of the recruitment method used to notify participants of the study (i.e., community health agency via their Facebook pages versus all other recruitment methods). Participants who were recruited to take the study by community health agencies via their Facebook pages reported significantly lower conformity to masculine norms scores (M = 1.29; SD = .15) compared to participants recruited by all other methods (M = 1.35; SD = .19), $t(117.989) = -2.756$, $p = .007$. Participants who were recruited to take the study by community health agencies via their Facebook pages reported significantly higher numbers of regular sex partners (M = 7.79; SD = 18.42) compared to participants recruited by all other methods (M = 2.35; SD = 6.76), $t(422.823) = 4.616$, $p = .000$.

Means, standard deviations, ranges, and alphas (α) for all study variables are shown in Table 1. Additionally, correlations between potential predictors, mediators, and outcome variables are shown in Table 3. To test the model (See Figure 1), the present study used SEM. Below are the results of the measurement model, the structural model, and the mediation model.

Measurement Model

Although the model chi-square was significant, indicating a lack of perfect fit, CFI, RSMEA, and SRMR values were all within acceptable limits, $\chi^2(44) = 129.37$, $p < .001$, $(\chi^2/df) =$

2.94, CFI = .95, SRMR = .05, RMSEA = .06 (90% CI [.05, .08]). Thus, the measurement model provided an acceptable fit to the data. After reviewing the model for possible areas of misfit, it was determined that the model contained two non-positive definite matrix errors. First, the estimated correlation between the masculine norm adherence and emotional suppression latent variables was equal to 1. This result suggests that these two latent variables were statistically indistinguishable from one another and could not be included simultaneously in the model (Muthén & Muthén, 2012). To account for this degree of collinearity, the model was adjusted by removing the masculine norms adherence latent variable and examining conformity to masculine norms and gender role conflict as separate predictor variables. Second, a linear dependency involving the one-night stand measured variable was identified. This result suggested that the one-night stand variable could be explained by another variable or linear combination of other variables and that, to keep the one-night stand variable in the model, the linear dependency would need to be removed (Muthén & Muthén, 2012). To account for this collinearity, the model was adjusted a second time by removing both the occasional partners and transactional partners measured variables from the model. After applying these changes to the model, no further non-positive definite matrix errors were detected. Moreover, the final adjusted measurement model demonstrated acceptable fit to the data, $\chi^2(14) = 27.41$, $p < .05$, $(\chi^2/df) = 1.96$, CFI = .99, SRMR = .03, RMSEA = .05 (90% CI [.02, .07]).

Structural Model

Although the model chi-square was significant, indicating a lack of perfect fit, CFI, RSMEA, and SRMR values were all within acceptable limits, $\chi^2(22) = 45.78$, $p < .005$, $(\chi^2/df) = 2.08$, CFI = .98, SRMR = .03, RMSEA = .05 (90% CI [.03, .07]). Thus, the model presented in Figure 2 provided an acceptable fit to the data. The model demonstrated that gender role conflict

(β = .06, *SE* = .13, *p* > .05) and conformity to masculine norms (β = .17, *SE* = .09, *p* > .05) were not significantly associated with sexual risk-taking. However, both gender role conflict and conformity to masculine norms were positively associated with emotional suppression and avoidant coping. Gender role conflict was negatively associated with social support seeking whereas conformity to masculine norms was non-significantly associated with social support seeking. Of the three mediator variables, avoidant coping was positively associated with sexual risk-taking whereas emotional suppression and social support seeking were non-significantly associated with sexual risk-taking. Concerning the relationships between the mediator variables, emotional suppression was found to be negatively associated with social support seeking and positively correlated with avoidant coping. Additionally, social support seeking was found to be negatively associated with avoidant coping. The effect size was determined by using the squared multiple correlations statistic (R^2) to measure the overall amount of variance of sexual risk-taking accounted for by the model. This model was found to account for 12.6% of the variance in overall sexual risk-taking.

Mediation Model

The present study examined (a) the direct effect of gender role conflict and conformity to masculine norms on sexual risk-taking (i.e., hypothesis 1) and (b) the indirect effect of gender role conflict and conformity to masculine norms on sexual risk-taking mediated through emotional suppression (i.e., hypothesis 2), social support seeking (hypothesis 3), and avoidant coping (i.e., hypothesis 4). First, as noted above, the direct effect of gender role conflict on sexual risk-taking was found to be non-significant (β = .06, *SE* = .13, *p* > .05). Controlling for the effects of all other mediator variables, results showed that specific indirect effects were significant for one of three mediators when examining the relationship between gender role

conflict and sexual risk-taking. The indirect effect of avoidant coping (β = .09, *SE* = .05, $p < .05$) was significant, whereas the indirect effects for emotional suppression (β = -.34, *SE* = .18, $p > .05$) and social support seeking (β = -.01, *SE* = .01, $p > .05$) were both non-significant. Results showed that the total effect (i.e., the sum of the direct and indirect effects on the outcome variable; Hayes, 2013) of gender role conflict – transmitted through one or more mediator variables – on sexual risk-taking was significant and negatively associated with sexual risk-taking, β = -.20, *SE* = .10, $p < .05$. This finding indicates that gender role conflict only has an effect on sexual risk-taking through avoidant coping.

Second, as noted above, the direct effect of conformity to masculine norms on sexual risk-taking was also found to be non-significant (β = .17, *SE* = .09, $p > .05$). Controlling for the effects of all other mediator variables, results showed that specific indirect effects were non-significant for all three mediators when examining the relationship between conformity to masculine norms and sexual risk taking. Namely, the indirect effect of emotional suppression (β = -.12, *SE* = .07, $p > .05$), avoidant coping (β = .10, *SE* = .05, $p > .05$) and social support seeking (β = -.002, *SE* = .004, $p > .05$) were non-significant. Results showed that the total effect of conformity to masculine norms – transmitted through one or more mediator variable – on sexual risk-taking was significant and positively associated with sexual risk-taking, β = .14, *SE* = .07, $p < .05$.

Chapter Five: Discussion

The purpose of the current study was to extend the scientific knowledge base on masculine norm adherence and sexual risk-taking in the context of gay and bisexual men as a key HIV-affected population. Previous research has shown a positive association between masculine norm adherence and sexual risk-taking using samples of heterosexual men (e.g., Pleck et al., 1993). However, it remains unclear whether masculine norm adherence similarly predicts gay and bisexual men's sexual risk-taking. In response to this gap in the research literature, the current study sought to explore whether there is a direct relationship between masculine norm adherence and sexual risk-taking among gay and bisexual men. Pertinent to the mandate of the current study, researchers who examine men's psychological and health outcomes (e.g., O'Neil, 2008) have called for the development of more complete study designs that incorporate the contextual variables that mediate or moderate relationships between predictor and outcome variables. In following this recommendation and developing a more complete model, the current study proposed three mediating pathways through which masculinity might exert its influence over sexual risk-taking.

First, it was proposed that emotional suppression would mediate the hypothesized relationship between masculine norms adherence and sexual risk-taking. The concept of emotional suppression was proposed because of its close ties to specific masculine scripts including the *strong-and-silent* script and the *tough-guy* script (Mahalik, Good, & Englar-Carlson, 2003). Men may be drawn to these scripts as they hold the potential to help men convert social status into sexual opportunities (e.g., Buss & Schmitt, 1993) and regulate a valued personal or group identity (e.g., Wicklund & Gollwitzer, 1982). However, these scripts may also

produce some adverse consequence as they may superimpose ideas that run counter to safer sex onto men's sexual behaviour (e.g., real men take risks including sexual risks).

Second, it was proposed that social support seeking would mediate the hypothesized relationship between masculine norm adherence and sexual risk-taking. The concept of social support seeking was proposed because of the finding by Folkman et al. (1992) that gay men who report higher levels of social support seeking were less likely to engage in sexual risk-taking. Additionally, social support seeking was added to the model because of the conceptual incoherence between social support seeking and the *tough-guy* script (Mahalik, Good, & Englar-Carlson, 2003). Namely, the commitments required to be a tough guy appear incompatible with social support seeking, as tough guys need to *suppress* emotion in painful and uncomfortable situations, whereas social support seekers need to *express* emotion in painful and uncomfortable situations.

Finally, it was proposed that avoidant coping would mediate the hypothesized relationship between masculine norm adherence and sexual risk-taking. The concept of avoidant coping was proposed because of earlier findings of its connection to sexual-risking-taking among gay and bisexual men (e.g., Martin et al., 2005). It was also proposed because of the finding that men often prefer stress coping strategies that permit them to engage in stereotypically masculine behaviour (e.g., Spendelow, 2015) such as sexual and substance-related risk-taking (e.g., Oliffe et al., 2012). These strategies may provide men with a standard set of actions that allow them to distract themselves from their distress while also remaining loyal to the *tough-guy* script by concealing their distress from others. Additionally, avoidant coping was proposed due to findings from a meta-analysis on sex difference in coping (Tamres et al., 2002) showing that men use more avoidant stress coping strategies compared to women specifically in the contexts of

relationships and the health of others, which both have conceptual attachments to sexual risk-taking.

Summary of Findings

First hypothesis. Hypothesis one was not supported. Conformity to masculine norms and gender role conflict were not shown to have a significant direct effect on sexual risk-taking. At the bivariate level (i.e., the relationship between two measured variables; See Table 3), three significant associations were found between the two measured variables of gender role conflict and conformity to masculine norms and the four measured variables (i.e., regular partners, occasional partners, one-night stand partners, and transactional partners) making up the latent/outcome variable of sexual risk-taking. Namely, gender role conflict was shown to be negatively associated with both occasional partners and one-night stand partners whereas conformity to masculine norms was shown to be positively associated with transactional partners. As mentioned in the results chapter, the two measured variables of occasional partners and transactional partners were removed from the model to correct for a linear dependency, which was discovered in the measurement model. Accordingly, the sole remaining significant correlation identified in the analyses for hypothesis 1 was the significant *negative* correlation between gender role conflict and one-night stand partners. Consequently, it makes sense that a significant direct effect was not found because the data used in the final model (i.e., after removing the occasional partners and transactional partners variables), at the bivariate level, mostly contained non-significant associations except for a single negative correlation between gender role conflict and one-night stands partners.

A second possible explanation for not identifying a direct effect could be that only specific subscales associated with the total GRCS-SF (i.e., Gender Role Conflict Scale-Short

Form) and total CMNI-46 (i.e., Conformity to Masculine Norms Inventory-46)—as opposed to the total scale scores used in the current study—are related to sexual risk-taking. Furthermore, some subscales might be positively associated with sexual risk-taking while others might be negatively associated with sexual risk-taking. Such varied associations between the subscales of the two predictor variables and the outcome variable could have nullified or cancelled out the direction (i.e., positive or negative) of a potential direct effect, rendering the association non-significant.

A third possible explanation for the finding that conformity to masculine norms and gender role conflict did not directly affect sexual risk-taking might be that gay and bisexual men – as a demographic group – generally report less traditional attitudes about masculinity compared to heterosexual men. McDermott et al. (2017) provide some evidence for this difference in their study in measurement differences between specific groups (e.g., heterosexual men versus gay men) on the Male Role Norms Inventory-Short Form (MRNI-SF; Levant, Hall, & Rankin, 2013). The MRNI-SF is a popular scale used to measure what men ought to be and do from a third-person perspective. According to McDermott et al.'s findings, the MRNI-SF measures the same latent construct (i.e., traditional masculine ideology) between gay men and heterosexual men; however, gay and bisexual men and heterosexual men may differ in the ways they respond to the items. McDermott and colleagues suggest that this difference may be due to the wording of particular items that tap into or capture cultural differences in the expression of traditional masculine ideology. For example, some of the items explicitly tap into anti-gay attitudes (e.g., "homosexuals should never marry"). Therefore, although masculinity may play a significant role in the lives of gay and bisexual men (e.g., Sánchez, 2016), cultural differences

may cause gay and bisexual men to underreport on certain items associated with typical measures of masculinity that may be reported with higher frequency among heterosexual men.

This underreporting may weaken the hypothesized association between masculine norm adherence and gay and bisexual men's sexual risk-taking to the degree that the direct effect, which tends to show up in heterosexual samples, is lost in a sample of gay and bisexual men. This explanation may clarify the finding that although the current study did not show a direct effect of conformity to masculinity norms on sexual risk-taking, the association did approach significance (i.e., $p = .055$). Unfortunately, however, it is not possible to compare the means between past studies, using heterosexual samples, and the current study, using a gay and bisexual sample, to determine if this measurement difference did occur.

The reason this is not possible is because past studies used either author-generated scales for measuring masculinity or different standardized scales (e.g., the Male Role Norms Scale; Thompson & Pleck, 1986) compared to the two standardized scales used in the current study (i.e., the Gender Role Conflict Scale-Short Form and the Conformity to Masculine Norms Inventory-46). Therefore, a related explanation for not detecting a direct effect could be that past studies and the current study used different measurements of masculinity. It is possible, however, to compare the mean of the Conformity to Masculine Norms Inventor-46 total score derived from the current study (i.e., 1.30) to the means of the Conformity to Masculine Norms Inventor-46 total score derived from two different, online collected, samples of mostly heterosexual men (i.e., 2.25 and 2.40; Hammer, Heath, & Vogel, 2018). It should be noted that this study did not examine sexual risk-taking as an outcome variable. Comparing these means (i.e., 1.30 versus 2.25 and 2.40) and noting the apparent difference could explain that the direct effect was not

found in the current study because of potential measurement differences between gay and bisexual men and heterosexual men on typical measures of masculinity.

A fourth possible explanation for the finding that conformity to masculine norms and gender role conflict did not directly affect sexual risk-taking may be that the meaning associated with "being a man" has changed over time. This explanation relies on the same logic used by Newcomb and Mustanski (2010). In their meta-analysis, the authors provided a rationale for the small overall effect size they found for the direct relationship between internalized heterosexism and sexual risk-taking. Namely, they showed that a significant moderator effect had occurred for the year of data collection, indicating that the effect had decreased over time, perhaps due to changes in attitudes toward gay and bisexual men. Likewise, a significant moderator effect for the year of data collection might explain why the current study was unable to show a significant direct effect of masculine norm adherence on sexual risk-taking among gay and bisexual men while studies completed years or decades earlier, using heterosexual samples, were able to show a significant direct effect. Namely, the criteria for "being a man" may have changed between the period in which the majority of the previous studies were conducted (i.e., the 1990s, 2000s, and early 2010s) and the period in which the data for the current study were collected (i.e., February to June 2018). This explanation is in line with research findings (e.g., Gilmore 1990; Vandello & Bosson, 2013) that suggest, although manhood status remains precarious across time and between cultures, shifts in the social standard for "being a man" frequently occur.

Results from a mixed-methods study by Oliffe et al. (2018) provide some evidence for a potential recent change in what it means to "be a man." This study involved a qualitative portion, drawing on a sample size of 30 interview participants and a quantitative portion drawing on a sample size of 600 survey participants. Both samples consisted of young (i.e., between the ages

of 15 and 29) western Canadian men. In the qualitative portion of the study, a total of five health-related masculine values emerged including selflessness, openness, well-being, strength, and autonomy. In the quantitative portion of this study, it was determined that participants most strongly endorsed (i.e., indicated strongly agree or agree) the item that "a man should help people out" (90.7% of participants), followed by the item "a man should care about other people" (89.0%). The lowest participant endorsements were for the item, "a man should be 'independent'" (78%) and the item "a man should have physical strength" (75%). These findings suggest that although young men in western Canada continue to value traditional masculine norms such as strength and autonomy, they may have come to appreciate values like selflessness (i.e., caring for and helping others) even more. This potential change in the meaning of manhood may help explain the non-significant association between masculine norm adherence and gay and bisexual men's sexual risk-taking in the current study compared to the earlier studies (i.e. in the 1990s, 2000s and early 2010s) showing a direct effect using samples of heterosexual men.

A fifth possible reason the current study did not find that conformity to masculine norms and gender role conflict had a direct effect on sexual risk-taking may have something to do with the level of educational attainment in the current sample. As mentioned earlier, the majority of the participants in this study were highly educated with 35.5% of participants having a Bachelor's degree and 22.4% of participants having a University certificate, diploma or degree above the bachelor's level. In a study conducted by Schoon, Cheng, Gale, Batty, and Deary, (2010), both men and women who hold higher educational attainment tended to be more liberal in their general social attitudes (e.g., gender equality). Such socially liberal attitudes would be entirely consistent with the idea of challenging traditional categories and ideas including traditional masculine ideologies. Accordingly, because participants in the current study had a

higher level of educational attainment (and may have more socially liberal attitudes), the perspective of gay and bisexual men with more moderate or more conservative social attitudes might be underrepresented in the findings. This underrepresentation may have contributed to the non-significance of the direct effect of conformity to masculine norms and gender role conflict on sexual risk-taking because gay and bisexual men who are more moderate or more conservative in their social attitudes may be the most likely to endorse more traditional masculine ideologies.

Despite the lack of a significant direct effect, gender role conflict and conformity to masculine norms were both shown to have a significant *total* effect on sexual risk-taking, indicating the possibility for a significant indirect-only effect (Zhao, Lynch, & Chen, 2010). Although early specialists in mediation analysis (i.e., Barron and Kenny, 1986) required a significant direct effect to demonstrate mediation, more recent specialists have stated that there is no need to detect a significant direct effect to establish mediation (e.g., Hayes, 2009, 2013; Preacher & Hayes, 2004; Rucker, Preacher, Tormala, & Petty, 2011; Shrout & Bolger, 2002; Zhao et al., 2010). For example, according to Rucker et al. (2011), the "lack of an effect, whether it be total or direct, does not preclude the possibility of observing indirect effects" (p. 362). Moreover, Rucker et al. (2011) warn researchers that narrowly focusing on the significance of the total or direct effect may needlessly limit theory building, hypothesis testing, and, ultimately, research advancement. Accordingly, Rucker et al. (2011) recommend that mediation analysis should be guided by theoretical arguments (i.e., if there are strong reasons to predict the presence of indirect effects) regardless of whether there are significant total or direct effects. Hence, under this definition, mediation can be said to have occurred if the predictor variable leads to the mediator variable, which in turn leads to the outcome variable (Zhao et al., 2010).

Findings from the current study showed that conformity to masculine norms was positively associated with emotional suppression and avoidant coping. However, it was not associated with social support seeking. Gender role conflict was significantly associated with all three-mediator variables; it was positively associated with emotional suppression and avoidant coping as well as negatively associated with social support seeking. These findings could indicate that conformity to masculine norms and gender role conflict, as well as one or more of the mediator variables, produce a *unique* effect whereby the only way conformity to masculine norms and gender role conflict are significantly associated with sexual risk-taking is through one or more of the mediator variables (i.e., indirect-only effect; Zhao et al., 2010). For example, perhaps conformity to masculine norms and gender role conflict are only significantly associated with sexual risk-taking among gay and bisexual men when they are having sex to avoid or distract themselves from emotional distress (i.e., avoidant coping and emotional suppression) or when they desire but lack emotional connection and closeness with others (i.e., social support seeking).

Second hypothesis. In the current study, hypothesis two was not supported. Emotional suppression was not shown to mediate the relationship between conformity to masculine norms and gender role conflict and sexual risk-taking among gay and bisexual men. Emotional suppression was positively and significantly associated with both gender role conflict and conformity to masculine norms. Although emotional suppression was not shown to mediate the association between gender role conflict and sexual risk-taking, this association did approach significance (i.e., $p = .058$). Perhaps an explanation for the lack of a mediator effect is that one or more of the other variables overshadowed or dominated the emotional suppression variable in the structural equation (i.e., multicollinearity). Table 3 shows that gender role conflict and

conformity to masculine norms were found to be highly correlated with self-concealment and ambivalence over emotional expression. Accordingly, all of these variables may have been measuring the same or a similar construct, thereby confounding the contribution of emotional suppression.

Third hypothesis. In the current study, hypothesis three was not supported. Social support seeking was not shown to mediate the relationship between conformity to masculine norms and gender role conflict and sexual risk-taking among gay and bisexual men. Social support seeking was negatively associated with gender role conflict and non-significantly associated with conformity to masculine norms. Social support seeking was also non-significantly associated with sexual risk-taking.

Fourth hypothesis. In the current study, hypothesis four was supported (i.e., an indirect-only effect was detected). The indirect effect of gender role conflict on sexual risk-taking mediated through avoidant coping was significant, with gender role conflict being positively associated with avoidant coping and avoidant coping being positively associated with sexual risk-taking. The indirect effect of conformity to masculine norms on sexual risk-taking mediated through avoidant coping approached significance (i.e., $p = .053$), with conformity to masculine norms being positively associated with avoidant coping and avoidant coping being positively associated with sexual risk-taking.

This finding may indicate that gender role conflict plays a role in shaping gay and bisexual men's coping responses and, in so doing, increasing their likelihood of engaging in sexual risk-taking. These results are also in line with the research literature on men's masculine norm adherence and poorer physical health outcomes. Additionally, these findings are consistent with the research literature on men's preference for using coping strategies that are in accordance

with traditional masculine norms. As mentioned previously, these strategies often involve emotional suppression and distraction and many hinder conversations about safer sex, as such conversations may require sharing fears and concerns about the nature or status of the relationship and the risk of HIV transmission (Folkman et al., 1992).

Limitations of the Study

Although the current study adds a significant contribution to the psychological study of sexual risk-taking and HIV transmission among gay and bisexual men, it has several limitations. First, although the model demonstrated an acceptable fit to the data, the overall amount of variance of sexual risk-taking explained by the model (12.6%) is considered small (Cohen, 1988). Therefore, additional variables not captured in the current study would need to be included in future models to better explain sexual risk-taking among gay and bisexual men. Second, in defining the sexual risk-taking variable, the current study only inquired about the participant's frequency of condomless anal sex across four different partner types (e.g., one-night stand partners) over the past six months, HIV status, and PrEP use. This definition leaves out several critical aspects of an HIV-related sexual risk profile including partner HIV status and viral load of HIV-positive partners. To the extent that participants have an accurate discernment of their partner's HIV status and viral load, the sexual risk-taking measure used in the current study may overestimate the actual risk of contracting HIV via participant's reported sexual behaviour. This risk will be overestimated because the measure has coded men who have sex with seroconcordant partners (i.e., partners with the same HIV status) as engaging in the same level of risk as compared to men who have sex with serodiscordant partners (i.e., partners with mixed HIV status). Additionally, this measure coded men who have sex with HIV-positive men with undetectable viral loads (i.e., non-transmittable) as engaging in the same level of risk as

compared to men who have sex with HIV-positive men with detectable viral loads (i.e., transmittable). The decision to leave out the partner's HIV status and viral load from the measure of sexual risk-taking was made because participants might be an unreliable source of information concerning the actual HIV status and viral loads of their sexual partners, especially in the case of one-night stand partners. Third, alternative behavioural categories of sexual risk-taking (e.g., condomless oral sex) were not captured by the current study. The current study focused on anal intercourse because it is the behavioural category of sexual behaviour most significantly associated with HIV transmission (PHAC, 2014). Other behavioural categories of sexual risk-taking were not considered to keep the survey brief enough to be completed in 25 minutes and, consequently, reduce participant fatigue. Fourth, because this study was cross-sectional in design and did not use data obtained from experimental or longitudinal designs, it is not possible to understand the temporal or causal nature of observed correlations between study variables. Instead, tentative inferences are offered that are derived from the pairing of theoretical arguments and observed correlations. Fifth, the sociodemographic variables of the current study were shown to be generally homogeneous (e.g., the majority of participants where ethnically White, English-speaking, and highly educated), indicating that findings should be generalized with caution toward groups of gay and bisexual men differing demographically from the majority groups represented in the sample. Additionally, despite this general homogeneity, demographic differences by geographical location and recruitment method were observed in some measures of interest, suggesting that the findings may be more relevant for some subgroups within the current study compared to others. Sixth, because this study was exclusively advertised online using health agency Facebook pages, scruff.org, and craigslist, the most appropriate application of the findings may be restricted to men accessing these sorts of social media networking and

information sites (i.e., men using gay and bisexual men-specific health sites and casual sex and dating sites). Accordingly, these findings may not be generalizable to a broader population of gay and bisexual men.

Directions for Future Research

Research in the psychology of sexual risk-taking and HIV transmission among gay and bisexual men as a function of masculine norm adherence has been minimal. Therefore, future research on this topic is warranted to understand better how (i.e., mediation) and when (i.e., moderation) masculine norm adherence results in sexual risk-taking among gay and bisexual men. Future research should consider adding a broader range of variables into similar models to enhance the amount of variance in sexual risk-taking explained by the model. One potential area of inquiry may be the connections between masculinity, substance use, and sexual risk-taking. For example, research by Wells et al. (2014) has shown that the total composite CMNI (i.e., Conformity to Masculine Norms Inventory) score is directly and positively associated with heavy drinking and negative drinking consequences (e.g., condomless sex) among heterosexual men. Moreover, findings have shown that problematic substance use (i.e., recreational drug and alcohol use) are highly prevalent among urban gay and bisexual men (Stall et al., 2001) and has been shown to significantly increase sexual risk-taking in this population (Koblin et al., 2006).

Future research may also want to focus on particular masculine norms (e.g., playboy or emotional restrictiveness) rather than the total composite scales associated with either conformity to masculine norms or gender role conflict. This recommendation is in line with recent research (i.e., Hammer, Heath, Vogel, 2018; Hammer, McDermott, Levant, & McKelvey, 2018) that was published after the data analysis phase of the current study was completed. For example, according to Hammer, Heath, and Vogel (2018), using confirmatory analysis and ancillary

bifactor measures in two separate samples of men, the CMNI-46 (i.e., Conformity to Masculine Norm Inventory-46) can reliably measure conformity to specific masculine norms. However, it cannot be counted on to reliably measure overall conformity as the total conformity to masculine norms variable accounted for minimal variance in the two different samples. Based on similar research, Hammer, McDermott, et al. (2018) made the same recommendation concerning the Gender Role Conflict Scale-Short Form. Namely, researchers should continue to use the four subscales in their work, however, they should stop using the total composite score.

Future research may also want to explore the role of positive-healthy masculinity in sexual risk-taking among gay and bisexual men. According to Kiselica and Englar-Carlson (2010), The New Psychology of Men "has largely emphasized deficit models of male development" (p. 267). It should be noted that the current study did rely on a deficit model of male development through its use of the GRCS-SF and CMNI-46 (i.e., the Gender Role Conflict Scale-Short Form and the Conformity to Masculine Norms Inventory-46). However, Kiselica and Englar-Carlson have recommended a theoretical model based on the "positive psychology of boys and men, which accentuates positive aspects of masculinity, male development, and the male socialization process" (p. 268). In considering positive-healthy masculinity, researchers can better determine the masculinity-specific protective factors that reduce HIV risk among gay and bisexual men. However, this model is in its infancy and has not been fully articulated into a research program with validated scales of construct measurement.

Some hypothetical examples of what a healthy-positive model of male development might include are (a) the worker/provider tradition of men, (b) male courage, daring, and risk-taking, and (c) the male ways of caring (i.e., action-based empathy; Kiselica & Englar-Carlson, 2010). Furthermore, although there has been limited research in this area, there is increasing

acknowledgment that the relationship between masculine norm adherence and adverse mental health and health behaviour outcomes are likely more nuanced than previously believed by researchers in the psychology of men and masculinity using the gender role strain paradigm. For example, research by Hammer and Good (2010) found that a higher endorsement of masculine-related norms such as risk-taking, dominance, primacy of work, and pursuit of status may be associated with higher levels of healthy-positive characteristics such as personal courage, autonomy, endurance, and resilience.

Future research that can integrate and utilize *both* deficit and positive-healthy masculinity models may offer enhanced insight into the complex and mixed motives related to gay and bisexual men's sexual risk-taking. For example, two concepts that might be used to integrate these two models might be dominance-based social status hierarchies versus prestige-based social status hierarchies (Van Vugt & Tybur, 2016). Both of these status hierarchies can be navigated to achieve social status (i.e., priority access to valued resources in a competitive situation; Van Vugt & Tybur, 2016). However, people striving to negotiate dominance hierarchies obtain status by exploiting others whereas people striving to negotiate prestige hierarchies obtain status by individually solving, or cooperating with others to solve, essential problems and using their skills to help others reach desirable goals (Van Vugt & Tybur, 2016). If masculinity can be described as a set of attitudes and behaviours used by men to traverse status hierarchies, future research should focus on identifying and encouraging (e.g., through group-based interventions) the strategies most effective at helping men obtain social status while also helping them to improve the lives of those around them.

Future research could also explore whether the findings of the current study generalize to other groups of men. For example, researchers could explore whether avoidant coping also

mediates the relationship between masculine norm adherence and sexual risk-taking among heterosexual men or gay and bisexual men from specific ethnocultural populations? Additionally, future research may seek to identify the specific patterns of avoidance that potentially mediate the relationship between masculine norm adherence and sexual risk-taking. The current study focused on behavioural avoidance; experiential avoidance may represent a second pattern of avoidance that may also mediate the relationship between masculine norm adherence and sexual risk-taking in gay and bisexual men. Experiential avoidance refers to the propensity to avoid uncomfortable *thoughts* and *feelings*, regardless of the long-term consequences and has recently begun to receive increased theoretical, clinical, and research consideration, including the development and validation of construct measures (Rochefort, Baldwin, & Chmielewski, 2018).

Future research on clinical interventions could be explored to determine the efficacy of group-based interventions based on modifying the variables of interest in the current study that were shown to contribute to sexual risk-taking (e.g., avoidant coping). For example, future research could capture longitudinal (i.e., pre-intervention and post-intervention) data to determine whether changes in attitudes toward masculinity and levels of avoidant coping via different clinical interventions (e.g., cognitive behavioural interventions or affect regulation training) lead to decreases in sexual risk-taking. Dobson and Dobson (2018) discuss the challenges associated with cognitive, emotional, and behavioural patterns of avoidance as well as present recommendations for clinically assessing and treating avoidance in psychotherapy clients. Because the current study has added to the literature on the connection between avoidant coping and gay and bisexual men's sexual risk-taking, future research could seek to empirically test the clinical efficacy of Dobson and Dobson's (2018) recommendations. The focus of this

research would be to determine whether these recommendations might significantly reduce avoidant coping in gay and bisexual and, by extension, reduce sexual risk-taking.

Clinical Implications

In addition to offering several directions for future research, the findings of the current study also hold several clinical implications for HIV prevention interventions and psychologists working with gay and bisexual men. First, based on the findings of the current study, psychologists should recognize that masculine norm adherence plays an influential role in the lives of gay and bisexual. The finding that avoidant coping mediates the relationship between masculine norm adherence and sexual risk-taking may help psychologists better understand that masculinity does play a role in influences gay and bisexual men's sexual risk-taking. More specifically, psychologists working with gay and bisexual men may find that higher levels of masculine norm adherence may impact gay and bisexual men's perceptions of and judgments about what constitute appropriate strategies for responding to psychological stress. That is, psychologists should be aware that the specific stress coping strategies used by some gay and bisexual men might draw their justification from deeply-held beliefs about the meaning of manhood. Moreover, psychologists should be aware that marked avoidance of stereotypically feminine ways of responding to stress, even when those ways appear to represent potential solutions, might signal an attempt to preserve a masculine persona/reputation among gay and bisexual men. Psychologists should also be aware that the preservation of this persona/reputation might lead to avoidant coping especially when facing more uncertain or uncontrollable circumstances. Psychologists may find that higher rates of sexual risk-taking may be one adverse outcome associated with gay and bisexual men's reliance on avoidance-based coping.

Psychologists should be aware that although masculine norm adherence may predict avoidant coping, which in turn may predict sexual risk-taking, the relationship between masculine norms and sexual risk-taking is more nuanced than straightforward. Therefore, psychologists should refrain from overgeneralizing adverse effects associated with some masculine norms in some situations to all masculine norms in all situations. Psychologists should recall that gender role conflict (i.e., stress resulting from held beliefs) and not conformity to masculine norms (i.e., held beliefs) was shown to predict sexual-raking, albeit indirectly, in the current study. Therefore, similarly to the often-cited criterion in the *Diagnostic and Statistical Manual*, 5th edition, psychologists should focus on determining whether men experience specific masculine norms as causing them "clinically significant distress or impairment in social, occupational, or other important areas of functioning" (American Psychiatric Association, 2013, p. 21). Otherwise, psychologists may run the risk of overgeneralizing the negative aspects of traditional masculinity and shaming men for healthy expressions of traditional masculinity (e.g., competitiveness and assertiveness in the pursuit of a meaningful goal as well as deference to hard truths over emotional whims). To this end, Wong et al. (2013) offer a clinical tool designed to help psychologists assess the potential stress related to men's subjective experiences of what it means to "be a man."

Having provided this disclaimer, one recommendation, based on the indirect effect of masculine norm adherence on sexual-raking, is to help gay and bisexual men explore what being a man means to them and how this meaning relates to their broader self-concept and assumptions about how men should cope with stress. Psychologists seeking guidance to effectively achieve this recommendation should refer to the work provided by Liddon, Kingerlee, Seager, and Barry (2019). In this book chapter, these authors outline critical factors to consider in designing male-

friendly psychological services that utilize a gender-sensitive/exploratory approach. To achieve a richer theoretical understand of how or when masculinity may impact men's stress coping strategies, psychologists may wish to familiarize themselves with the biologically- and socially-based perspectives on men and masculinity (e.g., Barry, Kingerlee, Seager, & Sullivan, 2019). Additionally, they may also wish to familiarize themselves with the long-established psychoanalytic perspective on the internal elements of masculinity (e.g., Hollis, 1994) to obtain a fuller understanding of the more experiential meaning behind masculinity and to help deepen psychotherapy with men.

Second, beyond exploring meaningful narratives related to masculinity, psychologists should help gay and bisexual men recognize how these narratives may influence their emotional states and stress coping responses along with the adverse consequences of avoidant coping. One recommendation to help reduce gay and bisexual men's reliance on avoidant coping is to focus early treatment planning around affect regulation training to reduce their need to avoid difficult emotional reactions. This mandate could include helping gay and bisexual men become more conscious of their affective states, correctly label their affective states, clearly identify the factors that strengthen or maintain their affective state, and learn how to modify unpleasant affective states in constructive and non-avoidant ways (Berking & Schwarz, 2013). Additional interventions would include helping gay and bisexual men learn how to accept and tolerate unpleasant affective states when necessary, practice exposing themselves to the situations and people that cue unpleasant affective states, and learn how to encourage themselves compassionately in moments of distress (Berking & Schwarz, 2013).

These last three interventions may help gay and bisexual men become more aware of their tendencies toward avoidance and help them to confront short-term discomfort as opposed to

avoiding it. Therefore, to incorporate tendencies toward avoidance into clinical case conceptualization and treatment planning, early psychological assessment should involve asking questions about avoidance. Dobson and Dobson (2018) provide example questions designed to assess for avoidance, such as "Are there situations, individuals, or problems that you are not facing at the present time?" or "What problems have you avoided facing in the past?" (Dobson & Dobson, 2018, p. 34). Psychologists may wish to familiarize themselves with the theoretical and practice literature on behavioural activation (e.g., Beck, 2011) and exposure therapy (e.g., Abramowitz, Deacon, & Whiteside, 2011), as these treatment modalities have been developed specifically to decrease avoidance (Dobson & Dobson, 2018).

Throughout these interventions (i.e., affect regulation training, behavioural activation, and exposure therapy), psychologists should help gay and bisexual men identify and explore whether participation in these interventions raises personally-distressing concerns linked to gender role conflict. For example, some men may struggle to tolerate or accept negative feelings because they fear that consciously carrying such feelings, as opposed to avoiding them through distractions, may interfere with their work performance (i.e., themes of success, power, and competition). Additionally, some men may have a hard time exposing themselves to people who cue their negative feelings because they believe that they might be unable to control themselves emotionally if they spent too much time around such people (i.e., restrictive emotionality).

These examples highlight the clinical utility of the findings derived from the current study in that what psychologists *clearly* observe in their patients (i.e., avoidance behaviour) might be overcompensation for or reaction to what psychologists *do not clearly* observe in their patients so easily (i.e., gender role conflict). Therefore, it is essential that psychologists refrain from merely treating clearly observed surface-level symptoms without considering the possible

cause of or motivating context for symptoms. As an alternative, psychologists should consider gender role conflict as a motivating context for avoidant coping in their assessment, case conceptualization, and treatment planning with gay and bisexual men in cases involving sexual risk-taking to explore beyond immediate symptoms and address their potential source(s).

Conclusions

The first objective of the current study was to explore the direct effect of masculine norm adherence on gay and bisexual men's sexual risk-taking. The second objective was to explore the indirect effects of masculine norm adherence on sexual risk-taking mediated through emotional suppression, social support seeking, and avoidant coping. The best-fitting model demonstrated that gender role conflict and conformity to masculine norms (i.e., the two masculine norm adherence predictor variables) have no *direct* effects on sexual risk-taking. However, both predictors were shown to have significant *total* effects on sexual risk-taking, albeit through indirect actions. A total effect in the association between gender role conflict and sexual risk-taking occurred, in part, because avoidant coping was shown to mediate the relationship between these two variables. Namely, gender role conflict was positively associated with avoidant coping and avoidant coping was positively associated with sexual risk-taking.

Similarly, a total effect was observed between conformity to masculine norms and sexual risk-taking. The indirect effect of conformity to masculine norms on sexual risk-taking mediated through avoidant coping approached significance, with conformity to masculine norms being positively associated with avoidant coping and avoidant coping being positively associated with sexual risk-taking. These results support the notion that masculine norm adherence can influence gay and bisexual men's coping strategies and organize them around a principle of avoidance.

Additionally, these results add support to the idea that increases in avoidant coping correspond with increases in sexual risk-taking among gay and bisexual men.

Future research on the psychological study of sexual risk-taking and HIV transmission as a function of masculine norm adherence is warranted. Within this research program, particular emphasis should be given to the testing of additional contextual models (e.g., substance use as a mediator variable), the development of both deficit and positive-healthy masculinity frameworks of sexual risk-taking, the testing of the current study's models in different subpopulations, and the testing of clinical group interventions aimed at modifying attitudes toward masculinity and levels of avoidant coping. The critical result of the current study is that gender role conflict and avoidant coping may create a unique effect on sexual risk-taking whereby the effect of gender role conflict on sexual risk-taking is not influenced directly but only indirectly through the mediating role of avoidant coping. Therefore, HIV prevention interventions and psychologists working with gay and bisexual men can help gay and bisexual men explore the meaning of their masculinity and its implications for how they, as men, should cope with stress. As well, they can help them to learn better affect regulation skills such as actively confronting their unpleasant emotional reactions in distressing situations as a psychological strategy for reducing avoidant coping and, consequently, their risk of contracting HIV through sexual risk-taking. Given that masculinity may shape gay and bisexual men's coping responses and that those coping responses may increase their probability of contracting HIV via sexual risk-taking, gay and bisexual men may be informally exchanging adverse health behaviour for social status and reputation. Overall, the broader goal of this study has been to highlight this potential problem and to suggest tenable responses to advance the psychology of men's health in general and reduce HIV transmission among gay and bisexual men in particular.

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Table 1

Descriptive Statistics and Alpha Values for All Study Variables

Measure	M (*SD*)	Range	Alpha (α)
Masculine Norm Adherence			
Conformity to masculine norms	1.30 (.16)	.84-2.23	.88
Gender role conflict	3.40 (.92)	1-5.88	.86
Emotional Suppression			
Ambivalence over emotional expression	2.80 (.75)	1-4.86	.93
Self-concealment	2.92 (1.00)	1-5	.90
Social Support Seeking			
Seeking social support (Amirkhan)	2.08 (.60)	1-3	.94
Social support (Tobin)	2.99 (1.11)	1-5	.93
Avoidant Coping			
Avoidant coping (Amirkhan)	1.98 (.48)	1-3	.83
Problem avoidance (Tobin)	2.35 (.78)	1-5	.75
Sexual Risk-Taking			
Regular partners	6.64 (16.79)	0-150	n/a*
Occasional partners	2.58 (9.52)	0-100	n/a*
One-night stand	1.65 (7.20)	0-80	n/a*
Sex in exchange for money .	06 (.56)	0-10	n/a*

* α could not be calculated because the measure only contains one item.

Table 2

Participant Demographic Information

Geographical Location*	*n*	Percentage
Vancouver, BC	332	68.9
Montreal, QC	59	12.2
Ottawa, ON	20	4.1
Toronto, ON	19	3.9
Calgary, AB	19	3.9
Halifax, NS	12	2.5
Edmonton, AB	4	.8
Moncton, NB	2	.4
Quebec City, QC	2	.4
Chilliwack, BC	1	.2
Victoria, BC	1	.2
Whitehorse, YT	1	.2
Charlottetown, PEI	1	.2
Fraser Valley, BC	1	.2
Port Alberni, BC	1	.2
Hamilton, ON	1	.2
Corner Brook, NL	1	.2
Regina, SK	1	.2
Recruitment	*n*	Percentage
Community Health Agencies via their Facebook pages	378	78.4
Craigslist.org	56	11.6
Scruff	39	8.1
Word of Mouth/Friends	9	1.9
Sexual Orientation	*n*	Percentage
Gay	412	85.5
Bisexual	60	12.4
Other	10	2.1
Latest HIV Test Results**	*n*	Percentage
HIV Negative	394	81.7
HIV Positive	43	8.9
Did not Receive Results	9	1.9
Did not Know Results	1	.2
PrEP Usage***	*n*	Percentage
Currently not taking PrEP	378	78.4
Currently taking PrEP	101	21.0
Racial, Ethnic, or Cultural Identity/Identities	*n*	Percentage
White	340	70.6
Chinese	33	6.9
Latin American	23	4.8
Filipino	16	3.3

Aboriginal/First Nations	15	3.1
South Asian	12	2.5
Arab	4	.8
Black-African	3	.6
South East Asian	3	.6
West Asian	3	.6
Black-Caribbean	1	.2
Korean	1	.2
Other	28	5.8
Gross Annual Income Before Taxes****	*n*	Percentage
Below $10,000	23	4.8
$10,001 to $20,000	54	11.2
$20,001 to $30,000	53	11.0
$30,001 to $40,000	58	12.0
$40,001 to $50,000	70	14.5
$50,001 to $60,000	41	8.5
$60,001 to $70,000	44	9.1
$70,001 to $80,000	39	8.1
$80,001 to $90,000	22	4.6
$90,001 to $100,000	21	4.4
$100,001 to $110,000	14	2.9
$110,001 to $120,000	10	2.1
$120,001 to $130,000	5	1.0
$130,001 to $140,000	3	.6
$140,001 to $150,000	5	1.0
$150,001 to $160,000	0	0
Over $160,000	17	3.5
Highest Level of Education to Date	*n*	Percentage
Less than high school diploma or its equivalence	11	2.3
High school diploma or a high school equivalent certificate	67	13.9
Trade certificate or diploma	43	8.9
Other non-University certificate or diploma such as cégep or college	42	8.7
University certificate or diploma below the bachelor's level	45	9.3
Bachelor's degree	166	34.5
University certificate, diploma or degree above the bachelor's level	108	22.4
Language Spoken Most Often at Home	*n*	Percentage
English	418	86.8
French	32	6.6
Other	32	6.6
Citizen Status in Canada*****	*n*	Percentage
Canadian Citizen	423	87.8
Permanent Resident	30	6.2
Refugee/Refugee Claimant	1	.2
Temporary Resident	26	5.4
Undocumented	0	0

Note. Frequencies unequal to 482 and percentages unequal to 100 reflect cases with missing demographic data.
* Missing 4 case responses.
** Missing 35 case responses.
*** Missing 3 case responses.
**** Missing 3 case responses.
***** Missing 2 case responses.

Table 3

Correlations between Predictors, Mediators, and Outcomes Variables

Variables	1.	2.	3.	4.	5.	6.
1. Conformity to masculine norms	1					
2.Gender role conflict	.317**	1				
3. Ambivalence over emotional expression	.312**	.584**	1			
4. Self-concealment	.344**	.502**	.552**	1		
5. Seeking social support (Amirkhan)	.-.100	-.205**	-.229**	-.269**	1	
6. Social support (Tobin)	-.047	-.156**	-.214**	-.248**	.864**	1
7. Avoidant coping (Amirkhan)	.268**	.291**	.471**	.428**	-.169**	-.154**
8. Problem avoidance (Tobin)	.320**	.212**	.317**	.295**	-.142**	-.51
9. Regular partners	-.013	-.090	-.107*	-.065	.071	.042
10. Occasional partners	.042	-.103*	-.079	-.068	.080	.013
11. One-night stand	.067	-.132**	-.111*	-.134**	.106*	.065
12. Sex in exchange for money	.171**	-.048	-.044	-.032	-.022	-.049

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

Variables	7.	8.	9.	10.	11.	12.
1. Conformity to masculine norms						
2. Gender role conflict						
3. Ambivalence over emotional expression						
4. Self-concealment						
5. Seeking social support (Amirkhan)						
6. Social support (Tobin)						
7. Avoidant coping (Amirkhan)	1					
8. Problem avoidance (Tobin)	.575**	1				
9. Regular partners	-.065	-.093	1			
10. Occasional partners	.043	.013	.374**	1		
11. One-night stand	.051	.079	.234**	.760**	1	
12. Sex in exchange for money	.036	.007	-.007	.205**	.358**	1

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

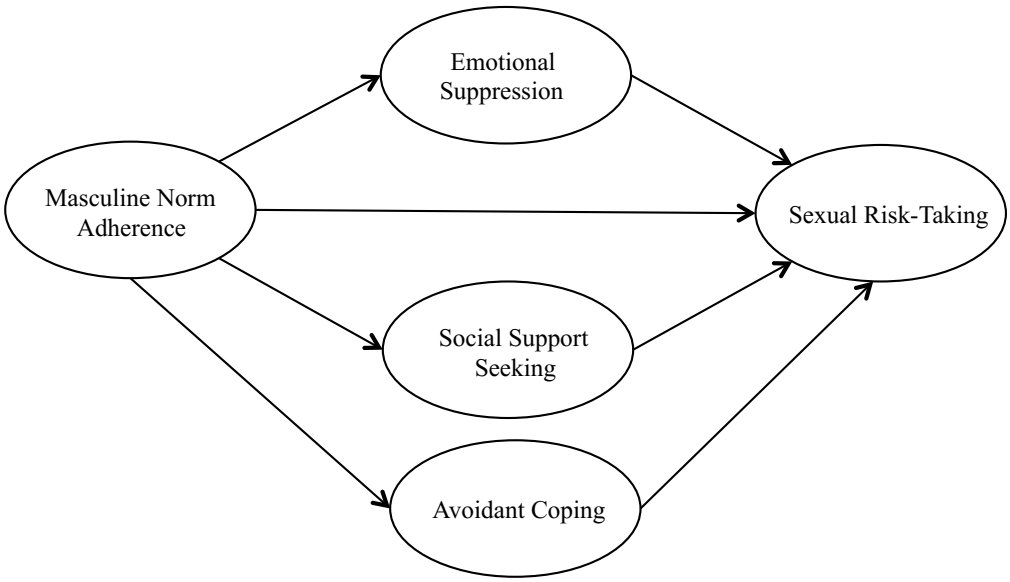

Figure 1. The hypothesized relationships proposed in the masculinity-informed model for sexual risk-taking.

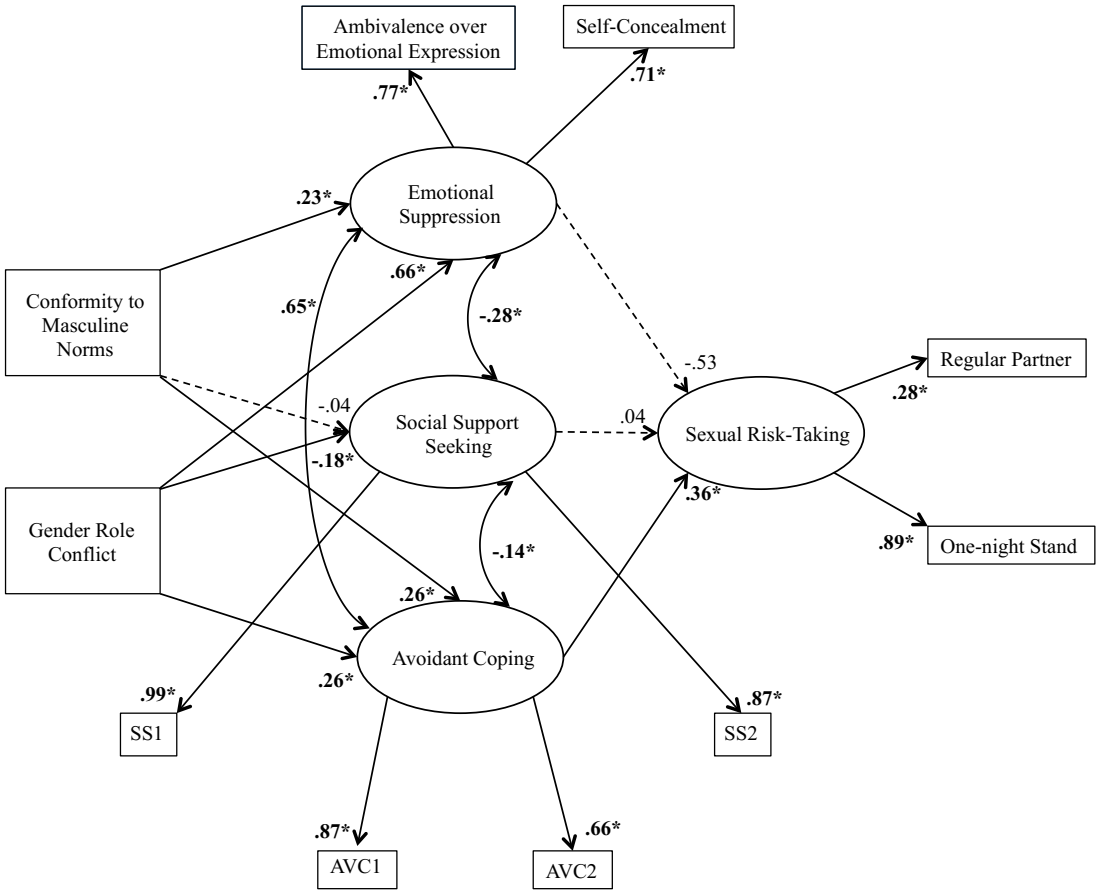

Figure 2. The effect of conformity to masculine norms and gender role conflict on sexual risk taking via emotional suppression, social support seeking, and avoidant coping. To simply the figure, the non-significant direct effects between conformity to masculine norms and gender role conflict on sexual risk-taking were not depicted. SS1 = Seeking Social Support (Amirkhan), SS2 = Social Support (Tobin), AVC1 = Avoidance (Amirkhan), and AVC2 = Problem Avoidance (Tobin). Standardized path coefficients are presented. Solid lines represent significant associations; dashed lines represent non-significant associations; and curved lines represent covariance associations. *$p < .05$.

Appendix A: Informed Consent Form

Participant Consent Form

Principal Investigators:
Tyler L Brown, MA, McGill University
Nathan G Smith, PhD, McGill University
Joseph Cox, MD, McGill University

Title of Project

Masculinity's Influence on Gay and Bisexual Men's Health

Sponsor(s)

Canadian Institutes of Health Research and Canadian Association of HIV Research

Purpose of Study

The principal investigators listed above are conducting this study. You are being asked to participate in this study to further our understanding of masculinity-related variables and their impact on the health-related behaviour among gay and bisexual men.

Study Procedure

If you choose to participate in this study you will be asked to disclose some sociodemographic information (e.g., age, educational level), health and related services information (e.g., HIV Status, PrEP usage) and to complete a survey. Among other things, this survey will measure your attitudes about masculinity, coping skills, and sexual behaviour.

Voluntary Participation

If you choose to participate, you are not obligated to provide your name or identifying information to complete the survey. Participants may refuse to participate in any part of the study, may decline to answer any question, and may withdraw from the study at any time without penalty or discrimination. If you decided to withdraw from the study, the researchers will retain the information you have provided.

Potential Risk

This study poses minimal risk to participants. However, there is a slight chance that you may feel uncomfortable while answering some of the survey questions due to their personal nature. For instance, questions about sexual behaviour will ask you to report on your number of sexual partners and frequency of condomless sex. These questions may make some participants feel uneasy.

Potential Benefits

A potential benefit of participating in this study is the opportunity to learn more about the way your attitudes about masculinity may impact your health-related behaviour. Moreover, your participation may help raise awareness about the impact of masculinity on men's health. Furthermore, your participation may help inform the development of health-promoting programing aimed toward men at risk.

Compensation

In exchange for your participation, you can choose to be entered into a draw for a chance to win one of thirty $25 Visa gift cards. Odds of winning are equal to 1 out of 10.

Confidentiality

Your participation in this study is anonymous and you cannot be identified in any way. Your survey answers will remain strictly confidential. Your survey answers will not be linked to any form of personal identification and will be identified solely by a randomly assigned numerical code. Your survey answers will be stored in a secure digital data storage device that will only be accessed by the principal investigators listed above. The principal investigators will at all times comply with the Tri-Council ethical guidelines for research with human subjects.

After completing the survey, as a reward for your participation, you will be given the opportunity to enter a draw for a chance to win a $25 Visa gift card. You may choose to complete the survey without entering the draw.

If you decide to enter the draw, you can click on the provided link that will take you to an online form where you will be asked to provide your contact information (first name, phone number, email address). By providing your contact information, we ensure that your survey data cannot be linked to your personal contact information. Namely, the contact information that you provide will be kept separate from your survey answers, and will only be used to contact the winner of the draw at the conclusion of the study.

Contacts

If you have any questions, comments, concerns, or complaints, or if you require further information about this study you may contact the principal investigators by email at the follow addresses:

Tyler Brown, MA at tyler.brown@mail.mcgill.ca

Nathan G. Smith, PhD at nathan.smith@mcgill.ca

Joseph Cox, MD at joseph.cox@mcgill.ca

If you have any ethical concerns or complaints about your participation in this study, and want to speak with someone not on the research team, please contact the McGill Ethics Manager at 514-398-6831 or lynda.mcneil@mcgill.ca

Participant's Consent (QUALTRICS LINK)

By clicking the link below, I have indicated that I have consented to volunteer as a research participant for this study and that I have read and understood the information provided above. I can print a copy of this participant consent form as a record of my involvement.

Appendix B: Sociodemographic Questionnaire

Sociodemographic Questionnaire

1. Where do you live?
    - Montreal and area, QC
    - Vancouver and area, BC
    - You don't have an option that applies to me. I live in (*Please specify*) _____

2. How did you hear about this study?
    - Craigslist
    - Scruff
    - Health Initiative for Men (Vancouver)
    - Rezo Sante (Montreal)
    - You don't have an option that applies to me. I heard about this study through (*Please specify*) _____

3. What is your age? _____

4. How do you describe your sexual orientation?
    - Bisexual
    - Gay or homosexual
    - Straight or heterosexual
    - You don't have an option that applies to me. I identify as (*Please specify*) _____

5. How do you describe your gender identity?
    - Man
    - Trans man
    - Genderqueer / Gender non-conforming
    - Two-spirit
    - You don't have an option that applies to me. I identify as (*Please specify*) _____

6. What sex were you assigned at birth, on your original birth certificate?
    - Male
    - Female

7. Which language do you speak in your household?
    - English
    - French
    - You don't have an option that applies to me. I speak (*Please specify*) _____

8. This question is about your **racial, ethnic, or cultural identity/identities**. The list below contains categories developed by Statistics Canada. Which, if any, of these categories do you identify?
    - o Aboriginal/First Nations
    - o Arab
    - o Black – African
    - o Black – Caribbean
    - o Chinese
    - o Filipino
    - o Japanese
    - o Korean
    - o Latin American
    - o Southeast Asian (e.g., Vietnamese, Cambodian, Malaysian, Laotian, ect)
    - o South Asian (e.g., East Indian, Pakistani, Sri Lankan, etc)
    - o West Asian (e.g. Iranian, Afghan, etc)
    - o White (e.g. Canadian or European background)
    - o You don't have an option that applies to me. I am (Please specify)
      _____

9. What is your gross annual income (before taxes)?
    - o Below $10,000
    - o $10,001 to $20,000
    - o $20,001 to $30,000
    - o $30,001 to $40,000
    - o $40,001 to $50,000
    - o $50,001 to $60,000
    - o $60,001 to $70,000
    - o $70,001 to $80,000
    - o $80,001 to $90,000
    - o $90,001 to $100,000
    - o $100,001 to $110,000
    - o $110,001 to $120,000
    - o $120,001 to $130,000
    - o $130,001 to $140,000
    - o $140,001 to $150,000
    - o $150,001 to $160,000
    - o Over $160,000

10. What is the highest certificate, diploma, or degree that you have completed?
    - o Less than high school diploma or its equivalence
    - o High school diploma or a high school equivalent certificate
    - o Trade certificate or diploma
    - o Other non-University certificate or diploma such as cégep or college (other than trades certificates or diplomas)
    - o University certificate or diploma below the bachelor's level (e.g., associate's degree)
    - o Bachelor's degree (e.g., B.A., B.Sc.)

- University certificate, diploma or degree above the bachelor's level (e.g., MBA, MA, PhD, MD)

11. What is your citizen status in Canada?
    - Canadian citizen
    - Permanent resident
    - Refugee/refugee claimant
    - Temporary resident (work, visitor, student)
    - Undocumented
    - You don't have an option that applies to me. I am (*Please specify*)

Appendix C: Health and Related-Services Questionnaire

Health and Related-Services Questionnaire

1. Have you been tested for HIV?
    - No
    - I don't know
    - Yes

2. What was the result of your last HIV test?
    - I did not receive the result
    - I don't know
    - I was HIV negative, I did not have the virus
    - I was HIV positive, I have the virus

3. "PrEP" stands for *Pre-Exposure Prophylaxis*. PrEP is a new highly effective HIV prevention method whereby a HIV-negative person takes a prescription HIV medication, Truvada, that was developed to *treat* HIV infection in HIV positive people, but can also be used by HIV negative people to *lower risk of HIV infection* if taken as prescribed. Are you currently taking PrEP?
    - Yes
    - No

4. How often do you usually take PrEP?
    - Every day, without exception
    - Generally, every day, although I may miss an occassional dose
    - About 6 days a week
    - About 5 days a week
    - About 4 days a week
    - About 3 days a week
    - About 2 days a week
    - About once a week or less