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A Stress Process Model of Depression and Sexual Risk Among HIV-Seropositive Men Who Have Sex with Men

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UNIVERSITY OF MIAMI

A STRESS PROCESS MODEL OF DEPRESSION AND SEXUAL RISK AMONG
HIV-SEROPOSITIVE MEN WHO HAVE SEX WITH MEN

By

Aubrey L. Florom-Smith

A DISSERTATION

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy

Coral Gables, Florida

August 2013

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A STRESS PROCESS MODEL OF DEPRESSION AND SEXUAL RISK AMONG
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A Stress Process Model of Depression and Sexual Risk
Among HIV-Seropositive Men Who Have Sex With Men.

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In the United States, men who have sex with men (MSM) remain at greatest risk for acquiring HIV infection. MSM are also at increased risk for depression, and depression and sexual risk behavior among MSM appear to be linked. Stigma, in the forms of gay related stigma and HIV-related stigma, have been associated with depression and high-risk sexual behavior among MSM living with HIV infection, as has the internalization of these stigmata over time. As stigma is socially constructed, the stress process model provides a useful framework for understanding the influence of stress and contextual factors on depressive symptoms and high-risk sexual behavior. The purpose of this study was to test a stress process model examining the mechanisms by which discrimination-related stress influences depression and high-risk sexual behavior among MSM living with HIV infection, and to understand the role of internalized gay related and HIV-related stigma as intervening variables.

A cross-sectional observational design was used. A convenience sample of 102 men living with HIV infection, aged 18 and over, self-identifying as MSM, who reported sex with another man in the past 12 months, spoke and read English, and resided at least part time in South Florida were recruited in Broward and Miami-Dade Counties.

Participant ages ranged from 24 to 69 years, with mean participant age of 48.03 ($SD =$

10.3) years. In terms of ethnicity or culture, 23.5% of the sample identified as African American ($n = 24$), 9.8% as Hispanic/Latino ($n = 10$), 55.9% as White ($n = 57$), and 10.8% as Other ($n = 11$).

Variables conceptualized as stressors were gay related stigma and HIV-related discrimination. Outcome variables included depressive symptoms and high-risk sexual behavior (i.e., instances of unprotected sex in past year). Intervening variables included internalized homophobia and internalized HIV-related stigma. Contextual variables, controlled in primary hypotheses, and not controlled in exploratory analyses, included life experiences and social support. Other control variables included age, ethnicity, education, and employment. Demographic variables included county of residence, income level, sexual orientation, age since participant knew he was gay, bisexual, or interested in sex with other men, relationship status, year of HIV diagnosis, if ever diagnosed with AIDS, if currently on medication for HIV infection, if on medication, number of doses of HIV medication missed in previous week, last CD4+ count, and last viral load.

The original study analysis plan was to use structural equation modeling, which failed to converge on solutions. Multiple and logistic regression were used as an alternative, and the study hypotheses were revised to follow the original hypotheses as closely as possible. The two stressor variables, and the two intervening variables, were each combined to a single variable due to significant shared variance. It was hypothesized that perceived/enacted stigma, the single stressor variable, would predict the outcomes, and that internalized stigma, the single intervening variable, would mediate or moderate the relationship between perceived/enacted stigma and the outcomes.

The study hypotheses were not supported, with the exception of a significant relationship between perceived/enacted stigma and internalized stigma; the relationship between internalized stigma and depressive symptoms approached significance. Exploratory analyses were conducted to examine effects of covariates/controls and no significant relationships were found.

The participants in this study experienced depressive symptoms and engaged in high-risk sexual behavior, but these outcomes were unrelated to the proposed predictor and intervening variables. It appears that other factors may be driving these findings. Possibilities include the influence of unmeasured components of the stress process, such as coping, characteristics of the sample, and participant bias. Recommendations for future nursing research are discussed.

For my participants: thank you to the most amazing group of men I've ever met. Thank you for your time, and for sharing your stories through these surveys. I will never forget you, and I am forever grateful to you.

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CHAPTER 1

Introduction

In the United States, men who have sex with men (MSM) remain at greatest risk for acquiring HIV infection. Although recent overall HIV incidence rates have remained stable, MSM are the risk group most adversely affected, accounting for an estimated 63% of new HIV infections among MSM and 78% of all new HIV infections among males in 2010 (Centers for Disease Control and Prevention [CDC], 2012a), despite composing only 3.9% of the US adult male population and only 2% of the total US population (Purcell et al., 2012). These infection rates represent a 12% increase in new HIV infections among MSM since 2008. Ethnic minority MSM are at disproportionate risk. In 2010, 10,600 (72%) of all new estimated HIV infections among Black males were among Black MSM, 6,700 (79%) of all new estimated HIV infections among Hispanic males were among Hispanic/Latino MSM, and 11,200 (85%) of new estimated HIV infections among White males were among White MSM (CDC, 2012a). Younger MSM are at increasing risk as well. In 2010, young Black MSM aged 13 to 24 accounted for an estimated 4,800 (45%) of new HIV infections among all Black MSM, and young Black MSM men aged 25 to 34 accounted for an estimated 3,300 (29%) of new HIV infections among this population. Hispanic MSM aged 13 to 24 composed 1,900 (28%) of all new estimated HIV infections among Hispanic MSM. Hispanic MSM in the 25 to 34 years age range accounted for a larger proportion of new estimated infections with 2,600 cases, accounting for 39% of new HIV infections among Hispanic men. Among White MSM, 1,800 (16%) new estimated HIV infections were among 13 to 24 year old men, and 3,300 (29%) of new estimated infections were among White MSM aged 25 to 34. These

estimates, extrapolated from HIV surveillance data, represent significant increases in HIV infection among all subpopulations of young MSM between 2008 and 2010. Men who have sex with men, and minority and young MSM in particular, are the subpopulation of the US most adversely and disproportionately affected by HIV/AIDS.

The disparity in HIV infection rates experienced by MSM is further evidenced by examination of HIV/AIDS incidence and prevalence rates in Florida. In 2010, over 9,400 Floridians aged 13 and over were diagnosed with HIV/AIDS (CDC, 2012b). These rates comprise the second highest number of new HIV infections and the third highest number of AIDS diagnoses, respectively, in the US. As of December 2012, over 125,000 individuals over age 13 are living with HIV/AIDS in Florida (Florida Department of Health, 2013). Forty percent of these Floridians are MSM.

The South Florida Counties of Miami-Dade, Broward, and Monroe have large MSM populations, have high HIV/AIDS rates among their general population, and have high HIV/AIDS rates among MSM residents. Although separate county estimates of MSM populations are not available, recent analyses and US Census results are indicative of the large MSM populations in Florida in general, and in South Florida in particular. It is estimated that over 500,000 MSM reside in Florida (Lieb et al., 2011). Over 48,000 Florida couples identified as same-sex in the 2010 US Census (Gates & Cooke, n.d.). In Broward County, Florida, Fort Lauderdale ranked first and Hollywood ranked 24th among mid-size US cities, by same-sex couples per 1,000 households; among small cities, Wilton Manors and Oakland Park ranked second and tenth, while Miami Shores in Miami-Dade County ranked 12th.

In all three South Florida counties, men in general, and MSM in particular, account for the majority of HIV infections (Table 1). MSM also account for the greatest percentage of HIV infections when compared to the next largest risk group in all three counties. In Miami-Dade County, 55% of HIV infections were among MSM, yet the next highest male risk group, heterosexual men, accounted for 15.7% of HIV infections in that county (Miami-Dade County Health Department, 2013). In Monroe County, MSM comprised nearly 80% of the male population living with HIV, which far exceeded the next closest risk categories of MSM who use injection drugs (3.4%) and males with no risk factor reported (8.8%) (Miami-Dade County Health Department, 2012). Similar patterns are observed in Broward County. New HIV infections diagnosed among MSM surpassed those of the next closest risk group among men, males with no identified risk, who accounted for 21.8% of new HIV infections from January to December 2012, compared to over 65% of new HIV infections among MSM (Broward County Health Department, 2013). In total, over 28,300 MSM in Miami-Dade, Broward, and Monroe Counties are living with HIV infection.

This disparity in infection rates is a serious public health concern and calls for renewed efforts to address HIV prevention, including secondary prevention efforts focused on persons living with HIV. Recent National Institutes of Health Requests for Applications are directed towards bolstering HIV prevention efforts among MSM (Grants.gov, 2013). Over the course of the HIV/AIDS epidemic in the US, among prevention efforts deemed to offer best evidence of efficacy, few are designed specifically for HIV prevention with MSM, and even fewer interventions are designed with HIV infected MSM in mind (Lyles et al., 2007). A recent meta-analysis, which

assessed three interventions for MSM, demonstrated that these best-evidence interventions decrease unprotected anal intercourse and in some cases, decrease sex with serodiscordant partners. However, only one of these interventions was designed for prevention with HIV infected MSM. Given that sexual contact is the primary source of HIV infection among MSM (CDC, 2012a), MSM living with HIV infection (henceforth referred to as MLHIV, United Nations, 2011) may be a promising target for HIV prevention efforts.

National HIV Prevention Strategies

National HIV/AIDS Strategy, High-Impact HIV Prevention, National Prevention Strategy. Focused research that will ultimately result in innovative, cost-effective and efficacious HIV prevention with MLHIV is congruent with national objectives. The advent of the National HIV/AIDS Strategy for the United States, CDC's new High-Impact HIV Prevention plan, the recently unveiled National Prevention Strategy, and the evolution of the nation's Healthy People goals provide additional support for addressing HIV prevention through research with MLHIV. These strategies prioritize a reduction in the number of new HIV infections among risk groups hardest hit by the epidemic (CDC, 2011b; National Prevention Council, 2011; ONAP, 2010; USDHHS, 2013b) such as gay and bisexual men (CDC, 2011b), as critical to combating HIV in the US. In addition, these reports document the need for HIV prevention research targeting those most affected by the epidemic, such as gay and bisexual men (ONAP, 2010). Further, these reports document the need for research that will facilitate the elimination of disparities in depression among sexual minority youth (National

Prevention Council, 2011), in addition to expanding prevention intervention with individuals living with HIV (CDC, 2011b; ONAP, 2010).

Healthy People. The national strategies and priorities discussed above would not exist were it not for *Healthy People*, the US' 10-year guide that drives and demonstrates the nation's health priorities (US DHHS, 2013b). The evolution of *Healthy People's* attendance to HIV and to the health care needs of MSM and other sexual minorities illustrates the growing recognition among health care providers, researchers and policy makers that multiple factors influence health outcomes among unique groups of individuals. The history of *Healthy People's* understanding of the health issues affecting MSM, and later recognition of the impact of co-occurring mental health issues and social factors on the health outcomes of MSM, provides a useful means for describing the progression of health science thinking on these issues.

Healthy People and HIV. At *Healthy People's* inception, sexually transmitted infections were primarily conceptualized as barriers to reproduction among heterosexual individuals (US Department of Health, Education and Welfare, 1979). However, in subsequent versions of *Healthy People*, sexually transmitted infections, including HIV, have come to be understood as preventable diseases contributing to human suffering in the general population and to health disparities among ethnic and sexual minority populations (US Department of Health, Education and Welfare, 1979; US DHHS, 1980; US DHHS, 1991; US DHHS, 2000; US DHHS, 2013a). It was not until *Healthy People 2010* (US DHHS, 2000), however, that a *Healthy People* document explicitly stated that MSM were a distinct at risk group for HIV infection acquisition; this was also the first *Healthy People* with a goal of reducing HIV infections among MSM. *Healthy People*

2020 (US DHHS, 2013c) furthers the goals of *Healthy People 2010* with inclusion of specific objectives targeting reductions in HIV infections among MSM.

Healthy People and depression. In *Promoting Health/Preventing Disease: Objectives for the Nation* (a companion to *Healthy People 1979*; US DHHS, 1980) the influence of stress on depression was noted, and the importance of interventions promoting individual coping and group social support were acknowledged. The 1990 *Healthy People* (US DHHS, 1991) document cited mental health conditions such as depression as a priority area of concern and linked the relationships between stress and additional influential factors to adverse mental health outcomes. The *Healthy People 2010* (US DHHS, 2000) document recognized that gay and bisexual men were at increased risk for depression, and in addition, the influence of the acceptance of one's sexual orientation by family and others on mental health was denoted as a potential area of concern for some individuals. The goals of *Healthy People 2020* for sexual minorities, including MSM, include decreases in suicide and increases in depression screening for this population among primary healthcare providers (US DHHS, 2013c).

Healthy People and MSM. The *Healthy People 2010* acknowledgement of MSM as a group disproportionately affected by HIV infection is evidence of the evolving views on HIV and other sexually transmitted infections within the *Healthy People* documents. These views parallel the emerging understanding of the importance of addressing and meeting the unique health care needs of MSM as a distinct group of individuals. Originally thought of only as a group at increased risk for sexually transmitted infections and mental health problems (US Department of Health, Education and Welfare, 1979; US DHHS, 1980), MSM were not perceived as a group experiencing health disparities until

Healthy People 2010 (US DHHS, 2000). *Healthy People 2020* (US DHHS, 2013c) appears to be the *Healthy People* document to date that most comprehensively addresses the health care needs of MSM. In addition to objectives aimed at sexual health are objectives aimed at improving the overall health and wellbeing of MSM and other sexual minorities.

Healthy People and stress. The conceptualizations and roles of stress and stigma have likewise evolved over time within the *Healthy People* documents. Stress, initially considered a contributing factor to other health conditions (US Department of Health, Education and Welfare, 1979), was not well understood and was thought to impact individuals for only a short time, and it was believed that all but the most vulnerable individuals would recover from stress. Nevertheless, early focuses on stress emphasized the influence of stress on depression, acknowledged the importance of interventions promoting group social support, and delineated the necessity for a reassessment of cultural norms and public attitudes about stress and depression (US DHHS, 1980). A later version of *Healthy People* cited depression as a priority area of concern, and recognized that stress, originating from such sources as chronic strain, life events, or the environment, could be related to many other health or social conditions, and could precipitate adverse behavioral and emotional health outcomes (US DHHS, 1991). Such stress required intervention. HIV/AIDS was not included among the numerous health issues considered as related to stress.

Healthy People and stigma. Early views of the effect of stigma were related to its influence on accessing health care for sexually transmitted infections, as stigma was considered a barrier to treatment by groups considered high risk, such as MSM, who were

described as lacking political resources or influence (US Department of Health, Education and Welfare, 1979). In *Promoting Health/Preventing Disease: Objectives for the Nation* (US DHHS, 1980), the role of stigma is mentioned, as the authors noted that future sexually transmitted infection prevention interventions would require clinical services to be provided free of stigma. *Healthy People 2010* (US DHHS, 2000) acknowledges the influence of acceptance of one's sexual orientation by family and others on mental health, and this was denoted as a potential problem for some individuals. *Healthy People 2020's* (US DHHS, 2013c) objectives include improving the health and wellbeing of sexual minorities, including gay and bisexual men. Further, the contributors to *Healthy People 2020* acknowledge that improved health outcomes among these individuals are not achievable without addressing the social determinants of health, largely in the form of discrimination and stigma, that have historically contributed to and resulted in poorer physical and mental health among sexual minorities (US DHHS 2013a).

Relationship Between Depression and Sexual Risk Behaviors

MLHIV are at high risk for depression (Hirshfield et al., 2008) and depression and sexual risk behavior among MSM appear to be linked (De Santis, Arcia, Vermeesch, & Gattamorta, 2011; De Santis, Colin, Vasquez, & McCain, 2008; Parsons, Halkitis, Wolitski, & Gómez, 2003). Among MLHIV, HIV-related stigma has been found to correlate with depression (Dowshen, Binns, & Garofalo, 2009) and with high-risk sexual behavior, such as attending private sex parties (Courtenay-Quirk, Wolitski, Parsons, & Gomez, 2006) or sex with anonymous partners (Natale, 2009). Further, among MLHIV, gay related stigma has been found to positively correlate with depressive symptoms

(Frost, Parsons, & Nanin, 2007) and engaging in intentional unprotected anal intercourse (Kelly, Bimbi, Izienicki, & Parsons, 2009).

Stressful Effects of Gay Related Stigma

MSM have specific sources of stress that affect numerous aspects of their lives. Stressors related to their sexual orientation include the coming out process, family and relationship conflicts, and society's negative stance toward gay and bisexual men (Iwasaki & Ristock, 2007). In a qualitative study of 30 gay men and lesbians, some gay men described their lives as defined through challenges, conflict, and anxiety, such that the experiences of stress and daily life were difficult to disentangle. Some gay men reported sources of stress that included societal attitudes toward gay men and internal conflict over sexual orientation. Contextual factors may influence stigmatization. Reisner and colleagues (2009) found that among MSM reporting a worst traumatic or stressful life event, many reported having experienced gay bashing, and the most common worst event was being diagnosed with HIV; nearly half of the sample reported depressive symptoms, and unprotected sex with a male casual partner. LeBeau and Jellison (2009) found that among MSM, reported gay community involvement had different influences on participants. For some, involvement increased self-esteem, but others reported experiencing stigmatization by the gay community

Stressful Effects of HIV-Related Stigma

The experience of stigmatization from others may lead MLHIV to accept and internalize stigmatization (Herek, 2007; 2009b; Link & Phelan, 2001), and may result in adverse health outcomes. Wolitski and colleagues (2009) found that HIV-related stigma was significantly associated with depression, and among young African American

MLHIV, HIV-related stigma was found to be associated with more unprotected receptive anal intercourse (Radcliffe et al., 2010). Ross, Rosser, & Neumaier (2008) found that higher levels of internalized homophobia were significantly associated with not being openly MSM, not disclosing serostatus to partners and with engagement in serodiscordant unprotected anal intercourse among HIV infected MSM.

Stigma as Stressor: The Stress Process Model

The stress process model (Pearlin, 1989; 1999; Pearlin, Menaghan, Lieberman, & Mullan, 1981) provides a useful framework for understanding the influence of multiple convergent stressors, chronic strain, and contextual factors on health outcomes such as depressive symptoms and high-risk sexual behavior. Examining stressors, resultant chronic strain, and the individual and contextual conditions that exacerbate or ameliorate the impact of stressors can produce an improved understanding of the important pathways contributing to adverse health outcomes (Pearlin, 1989).

Increased understanding of the rudimentary relationships between these stressors (enacted/perceived stigma), chronic strain (internalized stigma), and adverse health outcomes (depressive symptoms and high-risk sexual behavior) can inform the future development of more precise stress process models that will include mediators (i.e., social support or coping) (Aneshensel, 2009; Pearlin et al., 1981), and ultimately inform the development of interventions to reduce depressive symptoms and high-risk sexual behaviors among MLHIV. Internalized homophobia and internalized HIV-related stigma are potentially malleable and modifiable intervention points of entry. MLHIV can be assisted to develop and increase personal resources of social support and coping,

thereby facilitating changes in health outcomes (Pearlin, 1999) via the development of more efficacious HIV interventions.

Knowns/Unknowns of the Problem

Depression prevalence is increased among MLHIV in comparison to MSM and heterosexual men not living with HIV (Hirshfield et al., 2008; Safren et al., 2010).

Research has shown that among MLHIV depressive symptoms and high-risk sexual behavior may be linked (Carballo-Diequez et al., 2011; De Santis et al., 2008).

Experiences of stigmatization, such as gay related and HIV-related stigma, may influence the outcomes of depressive symptoms and high-risk sexual behavior among MLHIV (Kelly et al., 2009; Courtenay-Quirk et al., 2006). Internalization of these experiences may result in internalized homophobia and internalized HIV-related stigma among MLHIV, and may also work to influence depressive symptoms and high-risk sexual behavior among MLHIV (Bianchi et al., 2010; Wolitski et al., 2009). These factors (HIV-related stigma, depressive symptoms, high-risk sexual behavior) are associated (Hatzenbuehler, Keyes, & McLaughlin, 2011; Prachakul, Grant, & Keltner, 2008) but it is not known if both experienced gay and HIV-related stigma work directly to influence the outcomes of depressive symptoms and high-risk behavior among MLHIV, or if internalized homophobia and internalized HIV-related stigma mediate or moderate the relationship between these experienced factors and outcomes. The stress process framework can provide a means to conceptualize a model incorporating all of these influences on depressive symptoms and high-risk sexual behavior.

Purpose of the Study

The purpose of this study was to use the stress process model to examine the mechanisms by which discrimination-related stress influences depressive symptoms and high-risk sexual behavior among MLHIV, and to better understand the role of internalized gay related and HIV-related stigma as intervening variables. The potential pathways between indicators may reveal both direct and indirect connections between gay and HIV-related stigma, internalized homophobia and internalized HIV-related stigma, and depressive symptoms and high-risk sexual behavior, and are potential points of entry for future intervention development and implementation. Altering the disposition of perpetrators of discrimination against MLHIV is a worthy undertaking but requires an evolution of societal values that will take time. However, nurses and other healthcare providers can intervene at the level of potentially modifiable individual and interpersonal factors (Aneshensel, 2009), such as internalized homophobia, internalized HIV-related stigma, and social support to reduce the negative consequences of discrimination. If the proposed models are supported, intervention development should target these malleable, chronic strains.

Theoretical Model and Research Hypotheses

This study tested two proposed stress process models predicting depressive symptoms and high-risk sexual behavior among MLHIV. The model is depicted in Figure 1. The model depicts the proposed relationship between the stigma stressors (i.e., gay and HIV-related stigma, expressed as perceived/enacted stigma), and the outcomes (depressive symptoms and high-risk sexual behavior), with internalized stigma (internalized homophobia and internalized HIV-related stigma) conceptualized as chronic

strain emerging from stigma stress. One stress process model tests the chronic strain (internalized stigma) as statistical moderators, and the other model tests the chronic strain as statistical mediators of the relationship between the stigma stressors and the outcomes.

To place the stigma stressors into context, life events and social support are included in the models. The effects of life events and social support on depressive symptoms and high-risk sexual behavior will be controlled, in order to uncover the impact of the gay and HIV specific factors. In addition, an exploratory analysis will be conducted to test the possibility that life events may influence the impact of gay and/or HIV-related stigma on internalized homophobia and/or internalized HIV-related stigma (path e) and the outcomes of depressive symptoms and high-risk behaviors (path f), and social support will be tested as a potential mediator of the relationship between life experiences and the outcomes. Demographic variables (age, ethnicity, education, employment status, and income) will be examined as control variables to ensure they do not mask the effects of interest.

Two hypotheses will be tested:

Hypothesis 1: Experiences of gay- and HIV-related stigma predict depressive symptoms and high-risk sexual behavior among MLHIV (Figure 1, path c).

Hypothesis 2: Internalized homophobia and internalized HIV-related stigma either moderate (Figure 1, path d, an interaction effect) or mediate (Figure 1, product of paths a*b) the relationship between gay related and/or HIV-related stigma and depressive symptoms and high-risk sexual behavior.

Assumptions

Based upon the theoretical model of this study, assumptions are as follows:

1. Experiences of stigma over time due to sexual orientation and/or living with HIV are stressful for MLHIV.
2. MLHIV internalize stress related to sexual orientation and living with HIV, which manifests as chronic strain.
3. Stress and chronic strain influence negative health outcomes such as depressive symptoms and high-risk sexual behavior among MLHIV.

Conceptualization and Operationalization of Variables

In order to facilitate clearer understanding of the following study variables, a conceptual definition of stigma, perceived (felt) stigma, and enacted stigma (discrimination) follow:

Stigma

Stigma is a profoundly discrediting attribute possessed by an individual (Goffman, 1963). These discrediting attributes are socially constructed. Stigma is expressed as perceived, enacted, or courtesy stigma (Herek, 2007). In addition, stigma may be internalized.

Perceived stigma: Perceived stigma refers to stigma that manifests as negative perceptions, attitudes or beliefs about stigmatized individuals or groups, and anticipation of stigma may induce persons to change their behavior to avoid stigmatization (Herek, 2007).

Enacted stigma. Enacted stigma refers to specific acts, including discrimination, against stigmatized individuals (Herek, 2007). Experiences of discrimination and fear of

discrimination can lead to internalization of negative stereotypes held by others among stigmatized individuals (Link & Phelan, 2001).

Internalized stigma: Internalized stigma is the internalization of stigmatization (e.g., gay related stigma, see below) within an individual's own self-concept, and thus this individual accepts society's condemnation (Herek, 2007; 2009b).

Because both perceived stigma and enacted stigma are constructs of interest in this study, study variables concerned with both expressions of stigma will be referred to as "stigma" henceforth, as both constructs pertain to aspects of stigmatization. The conceptual and operational definitions of the study variables are as follows:

Gay Related Stigma

Conceptual definition. Gay related stigma is conceptualized as enacted stigma resulting from society's devaluation of those with same-sex orientation (Herek, 2007; 2009b), and may be experienced by MSM through poor treatment, such as refused service or adverse experiences in childhood or adulthood (Ramirez-Valles et al, 2010). Experiences of enacted stigma may result in internalization of negative stereotypes (Link & Phelan, 2001).

Operational definition. Gay related stigma was assessed by the 14-item Experienced Homosexual Stigma Scale (Ramirez-Valles et al., 2010).

HIV-Related Stigma

Conceptual definition. HIV-related stigma is the adverse attitudes and enacted stigma encountered by individuals living with HIV (Herek, 2002). HIV-related stigma is conceptualized as perceived HIV-related stigma, which is the individual living with HIV's perception of real or potential changes in how others perceive that person, fewer

opportunities, and decreased social acceptance (Berger, Ferrans, & Lashley, 2001; Herek, 2002). This stigma may result in adverse changes in self-concept.

Operational definition. HIV-related stigma was measured by the 18-item Perceived HIV-related Stigma Subscale of the Berger HIV Stigma Scale (Berger et al., 2001).

Internalized Homophobia

Conceptual definition. Internalized homophobia is conceptualized as an individual's inner feelings of shame and self-blame due to being gay or bisexual, often accompanied by a desire to change to a heterosexual orientation, discomfort with other gay or bisexual men, and gay or bisexual identity disclosure concerns (Ramirez-Valles, Kuhns, Campbell, & Diaz, 2010; Ross et al., 2008).

Operational definition. Internalized homophobia was measured by the 13-item Internalized Homosexual Stigma Scale (Ramirez-Valles et al., 2010).

Internalized HIV-Related Stigma

Conceptual definition. Internalized HIV-related stigma is the self-blame and/or negative internal perception or representation one holds related to living with HIV (Kalichman et al, 2009).

Operational definition. Internalized HIV-related stigma was measured by the six-item Internalized AIDS-Related Stigma Scale (Kalichman et al., 2009).

Life Experiences

Conceptual definition. Life experiences are conceptualized as life changes, including those that may be considered impactful to some individuals, that are common across a wide range of persons (Sarason, Johnson, & Siegel, 1978).

Operational definition. Life experiences were assessed by the 47-item Life Experiences Survey (Sarason et al., 1978).

Social Support

Conceptual definition. Social support is the access, as perceived by an individual, to resources provided by friends, family, and/or a significant other, groups or organizations that help that individual deal with challenges, and may positively impact an otherwise negative outcome for that individual (Pearlin, et al., 1981; Zimet et al., 1988; Zimet et al., 1990).

Operational definition. Social support was measured by the Multidimensional Scale of Perceived Social Support, a 12-item scale (Zimet, et al., 1988).

Depressive Symptoms

Conceptual definition. Depressive symptoms are conceptualized as those symptoms associated with feelings of depressed mood, unworthiness, helplessness, poor appetite, and poor sleep (Radloff, 1977)

Operational definition. Depressive symptoms was assessed by the 20-item Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977).

In addition, in order to assess suicidal ideation, a single item from the Beck Depression Inventory was included (Beck, Steer, & Garbin, 1988).

High-Risk Sexual Behavior

Conceptual definition. High-risk sexual behavior is conceptualized as any sexual behavior resulting in the exchange of bodily fluids in which pathogens may exist (Farlex, Inc., 2013).

Operational definition. High-risk sexual behavior was measured by the 38-item Sexual Activity Questionnaire. Participants were asked to indicate the number of times they engaged in unprotected receptive or insertive anal and/or vaginal intercourse with men, transgender persons, and/or women in the previous 12 months (Ramirez-Valles et al., 2010).

Summary

MSM remain the group at highest risk for HIV infection in the US and in South Florida. MSM bear the brunt of disproportionate prevalence and incidence rates of HIV infection in comparison to their total numbers. Most HIV infections among MSM are acquired through sexual transmission; approximately a quarter of MSM who are living with HIV engage in unsafe sexual practices with partners of unknown or non-infected status (Crepaz et al., 2009). In order to reduce HIV infection rates in the US and in South Florida, HIV prevention initiatives must focus on reducing sexual risk behaviors among HIV infected MSM. The influence of depression on HIV risk, and the impact of stress on adverse health outcomes has long been acknowledged. Now, both long-standing and newer national health promotion and disease prevention guidelines, in addition to new national HIV initiatives are including the role of social determinants of health among sexual minorities. Included are factors such as the influence of stigma on mental health and high-sexual risk behavior. Knowledge of the relationships between stressors such as gay related and HIV-related stigma, chronic strain that may result from these stressors in the forms of internalized homophobia and internalized HIV-related stigma, and resultant depressive symptoms and high-risk sexual behavior among MLHIV, may lead to better understanding of where and how to best intervene in order to affect optimal health

outcomes. As stated above, changing society's view of MSM living with HIV/AIDS may not be achievable in the short term. But a clearer understanding of the factors leading to depressive symptoms and high-risk sexual behavior may lead to interventions that buffer the effects of stigmatization.

CHAPTER 2

Review of the Literature

The following review will present the relevant literature on the key concepts central to this study. The review is organized into six sections. The scope of the problem regarding prevalence of depression and sexual risk behavior among MSM and MLHIV is presented in the first section, and includes a review of the relevant depression and sexual risk literature. Section two presents an overview of stigma, and includes a review of the 1) gay related stigma; 2) HIV-related related stigma; 3) internalized homophobia; and 4) internalized HIV-related stigma relevant literature. The third section includes a review of the literature on the contextual factors, life events and social support, considered in this study. Gaps in the literature are discussed in the fourth section. Described in the fifth section is the theoretical framework of this study, the stress process model. Section six presents a summary of the chapter and a reiteration of the purpose of the study.

Scope of the Problem: Depression and Sexual Risk Behavior among MSM and MLHIV

Prevalence of Depression among MSM

Numerous studies have found disparities in depression rates between MSM and their heterosexual counterparts. In a recent meta-analysis of Western European and North American studies assessing differences in mental health disorders between sexual minorities and heterosexual individuals, Lewis (2009) found that in all but one study, depression rates for MSM ranged from 8 to 13%, compared to heterosexual men's rates of 3 to 6%. Further, of all disorders assessed, depression was found to be the disorder with the greatest disparity in prevalence among sexual minority and heterosexual populations. These findings were preceded in the US by a study conducted with a large

population-based probability sample of MSM ($n = 2,881$; Mills et al., 2004). The researchers found that 17% of MSM reported depressive symptoms, and 12% were distressed (i.e., CES-D scores of 16 to 21, which characterized conditions with dysphoric components that were not mood disorders).

Depression prevalence has also been found to be higher among young MSM than among their heterosexual peers. The authors of a recent meta-analysis demonstrated disparities in depressive symptoms between sexual minority youth and their heterosexual counterparts, with sexual minority youth reporting significantly higher rates of depressive symptoms ($d = .33$, 95% CI [- .22-.43], $z = 6.02$, $p < .0001$), and with no differences in effect across gender or by sexual orientation definition (Marshall et al., 2011). Using data from a large representative national sample of youth aged 11 to 21 ($n = 18,924$; 1,388 sexual minority youth, 17,456 youth peers), Williams and Chapman (2011) found that 19.8% of young MSM participants reported moderate to severe depressive symptoms, which was significantly more depressive symptoms than their heterosexual counterparts (11.9%).

Prevalence of Depression among MLHIV

Disparities in depression prevalence have been found between MLHIV and MSM not living with HIV. In a cross-sectional study designed to test a sexual risk intervention for MLHIV, Safren and colleagues (2010) found that 12% of their sample ($n = 403$) screened in for major depression. In a cross-sectional study aimed at identifying MSM with depressive symptoms, Hirshfield and colleagues (2008) found that on both bivariate and multivariate analysis, MLHIV were at significantly greater odds (bivariate logistic analysis: OR: 1.9, 99% CI [1.3-2.9], $p < .001$; multivariate logistic analysis: OR: 2.0,

99% CI [1.3-3.2], $p < .001$) of screening positively for depressive symptoms when compared to untested MSM.

Prevalence of High-Risk Sexual Behavior among MSM and MLHIV

Prevalence of high-risk sex among MSM. Recent data on HIV risk among MSM from the National HIV Behavioral Surveillance System (CDC, 2011c) suggests that slightly over half of MSM are engaging in unprotected sex with male and/or female partners. Among participants, 54% reported unprotected anal sex with a main male partner, and of MSM reporting sex with female partners also, 63% reported unprotected vaginal or anal sex with female partners and 54% reported unprotected anal sex with male partners. Nineteen percent of MSM reported not knowing the HIV serostatus of a most recent main male partner, while 53% reported not knowing the HIV serostatus of a most recent casual male partner.

Young MSM are also engaging in sexual risk with main and casual partners. In Sullivan and colleagues' (2009) recent analysis of HIV infection transmission among MSM in major metropolitan areas of the US (including Miami) by partner type, the authors found that 68% of HIV infection transmissions were from main partners, and 32% resulted from unprotected sex with casual partners. The authors found a decreasing trend in transmission by main partners with respect to age; as MSM aged, fewer unprotected sex acts resulting in HIV transmission occurred. The authors suggest this finding may be related to undiagnosed HIV infection among young MSM, and differences in perception of main partnerships or length of relationships held by younger and older MSM.

Prevalence of high-risk sex among MLHIV. Similar to prevalence rates of high-risk sex among MSM, approximately half of MLHIV appear to be engaging in high-risk sexual behavior. In a recent CDC report describing characteristics of individuals receiving care for HIV infection, 54% of MLHIV who reported engaging in anal sex in the previous year reported engaging in unprotected sex (CDC, 2011a). Twenty percent of MLHIV who reported engaging in oral or anal sex reported not knowing the HIV serostatus of their most recent male sex partner. These findings are in concordance with Crepaz and colleagues' (2009) findings from their recent meta-analysis, in which the authors found that 43% of MLHIV engaged in unprotected anal intercourse, with 30% engaging in unprotected anal intercourse with HIV seropositive partners, 16% with HIV seronegative partners, and 26% with unknown serostatus partners. Unprotected anal intercourse was significantly lower among studies with samples of primarily minority MSM.

Review of the Literature: Depression and High-Risk Sexual Behavior among MSM and MLHIV

Association of Depression and High-Risk Sexual Behavior

As evidenced by the findings above, MLHIV are at high risk for depression and a large percentage may be engaging in high-risk sexual behavior. Linkages between depression and high-risk sexual behavior among MSM have been demonstrated (De Santis et al., 2011; De Santis et al., 2008; Parsons et al., 2003), and researchers have continued to describe the relationships between these factors. A recent literature review of condom use among MSM found that included in the factors associated with high-risk sexual behavior were psychosocial issues, including depression (Neville & Adams,

2009). This finding is supported by Carballo-Diequez and colleagues (2011), who, in a qualitative study with 120 MSM, found that for some MSM engaging in “barebacking” (i.e., intentional condomless anal intercourse) was related to feeling depressed. Alvy and colleagues (2010), in a study of baseline data from MSM engaged in a sexual safety intervention in Chicago, New York, San Francisco, and Los Angeles ($n = 1,540$; age range = 18-51; 47% HIV seropositive, 44% seronegative), found depressive symptoms and high-risk sexual risk behavior (specifically, unprotected anal intercourse) were significantly related.

Among participants in the Urban Men’s Health Study ($n = 2,881$), Stall and colleagues (2003) found that among MSM who reported increasing numbers of psychosocial problems, including depression, the odds of both high-risk sexual behavior and HIV infection increased when compared to MSM reporting no psychosocial health problems. Similar findings have been found among younger MSM. Mustanski and colleagues (2007) found that among a diverse sample of MSM aged 16 to 24 years old ($n = 310$), higher scores on the syndemic factor, (i.e., a variable representing multiple psychosocial health factors, including psychological distress, illicit substance abuse, and sexual assault) increased the odds of having multiple sex partners by 24%, unprotected anal intercourse by 42%, and of having an HIV seropositive status by 42%.

The connection between depression and high-risk sexual behavior was described in a cross-sectional study designed to better understand the health and health habits of MSM aged 18 to 24 years old ($n = 526$), in which Kipke and colleagues (2007) found that 21% of the participants reported depressive symptoms, and 18% reported distress. Ten

percent of the sample reported considering suicide, 4% reported a plan, 4% reported attempting suicide, and 2% of the sample had attempted suicide and harmed themselves seriously enough to require medical attention. Suggestive of high-risk sexual behavior, 25% of the participants reported having ever been diagnosed with a sexually transmitted infection, and 7% had been diagnosed with more than one STI. Three percent of this sample reported HIV seropositivity; however, 17% reported not knowing their HIV serostatus.

Overview of Stigma

This study will look at two stigmatized conditions: that of belonging to a sexual minority, (i.e., gay or bisexual orientation), and living with HIV. This section will present a general introduction regarding the conceptualization of stigma, and then will describe some of the issues related to each of the specific stigmatized conditions under consideration in this study.

Conceptualization of Stigma

Stigma is socially constructed, in that members of society sort or classify others into categories, deciding who is “normal” and who is not normal (Goffman, 1963). Stigma pertains to the traits or attributes possessed by individuals that society at large deems discreditable. Further, these socially constructed norms are often so deeply entrenched that stigmatized individuals may believe and internalize the negative characteristics ascribed to them by society. Goffman (1963) contended that society dehumanizes stigmatized individuals, and thus tacitly permits stigmatization and acts of discrimination to be perpetrated against these persons.

Many researchers base their conceptualization of stigma upon the work of Goffman, and it was Link and Phelan (2001) who held that researchers who are not members of the stigmatized groups with whom they conduct research may inadvertently promote assumptions about these populations. Goffman (1963), Link and Phelan (2001) also posit that focusing on stigma experienced at the micro-level (individual level) may prevent increased understanding of structural causes of stigma, particularly acts of discrimination. To address these and other issues, the authors delineated the components of stigma, which are the co-occurrences of *labeling*, *stereotyping*, *separation*, *status loss*, and *discrimination* within a power system. Conceptualizing stigma in this manner, in addition to understanding the manifestations of stigma (e.g., perceived or enacted stigma), is useful in order to better understand the social construction of stigma. As the authors contend, throughout history power-wielders have used stigma to maintain their influence and control over those with less power. Without a power differential in society, stigma would not exist and adverse effects of stigmatization would not be experienced.

Link and Phelan (2001) described the process of stigmatization as follows: *labeling* is the affixation of socially chosen and significant differences among individuals or groups. *Stereotyping* is the connection of individuals who have been negatively labeled. *Separation* occurs when labeled individuals are separated by society into a separate category from individuals not bearing labels. Finally, *status loss* and *discrimination* result from the first three components. *Discrimination*, explicit negative acts against those who are stigmatized, occurs on individual and structural levels, and exposure to cultural norms regarding negative stereotypes may lead to the internalization

of these norms. Further, anticipation and fear of discrimination may cause great strain for these individuals.

As stated above, stigma is also manifested on both an individual and structural level, through *enacted stigma*, *perceived stigma*, and *internalized stigma* (Herek, 2007; 2009b). *Perceived stigma* is the expectation that stigma is likely to occur under certain circumstances, and causes individuals to change their behavior because of fear of this impending stigmatization. *Enacted stigma* involves actual acts against sexual minorities, such as discrimination, harassment, violence and/or abuse, and ostracism. Experiences with both of these types of stigma may lead to *internalized stigma*, the internalization of stigmatization by an individual so that these feelings impact one's own self-concept. Internalization leads to the individual's acceptance of society's negative norms and thus this individual accepts society's condemnation of sexual minorities.

Gay Related Stigma

Herek's (2007; 2009b) framework of sexual stigma (i.e., the stigmatization of sexual minorities) guides the conceptualization of gay related stigma for this study. Sexual stigma is the assignation of low respect, status, and power to sexual minorities by society. Herek (2007; 2009b) holds that in the US, sexual stigma differs from other stigmatization, such as racial/ethnic or religious prejudice, in that sexual stigmatization is not considered inappropriate and is tolerated in many segments of American society. Further, individuals may subscribe to negative views of same sex orientation, despite their own sexual orientation, because of prevailing negative stereotypes. Herek (2007; 2009b) suggests sexual stigma, i.e., gay related stigma, manifests in several ways. Through the cultural institutionalization of policy and practices that place sexual

minorities at a disadvantage, the difference in power that stigmatizes sexual minorities is not only justified and perpetuated, but also frames sexual minorities as inferior to others in society and exposes sexual minorities to poor treatment, belligerence, discrimination, and violence.

In the US, sexual minorities experience stigmatization, often as enacted stigma in the form of discrimination, in nearly every facet of their lives. In many situations, discrimination is legal. Essential components of survival, such as housing or employment, in which heterosexual individuals are unlikely to face scrutiny over their sexual orientation, are often sources of discrimination for sexual minorities. In the US, only 20 states and the District of Columbia ban housing discrimination based on sexual orientation (Human Rights Campaign, 2013f). Currently, workplace discrimination against individuals based on sexual orientation and gender identity is illegal in 17 states and the District of Columbia, and discrimination based on sexual orientation only is illegal in four states (Human Rights Campaign, 2013e). Florida is not one of the states that bans employment discrimination based on sexual orientation and/or gender identity, however, Florida is one of only two states (Wisconsin is the other state) in which some protection against discrimination has been afforded transgender individuals through interpretation of the law by various entities. For MSM, the implications of workplace discrimination can be severe, and are borne out through the tenets of economic theory. Schmitt (2008) holds that experience and education, measurable human capital, are adversely influenced and impeded by discrimination among sexual minorities. Supporting this conceptualization was the finding from three large national surveys that the earnings penalty endured by MSM ranges from 11% to 32%, relative to heterosexual men.

Joint adoption by sexual minority couples is allowed statewide in only 21 states and in the District of Columbia (Human Rights Campaign 2013b). Second parent adoption is legal in 18 states and the District of Columbia, and has been successfully petitioned for in seven states (Human Rights Campaign, 2013X). Seven states maintain legal obstacles for second parent adoption. Although progress in this area is slow, it is being made: until September 22, 2010, sexual minority individuals in Florida were denied the right to adopt children, although they could legally serve as foster parents (*Florida Department of Children and Families vs. in re: Matter of Adoption of X.X.G. and N.R.G.*, 2010). However, Florida's Third District Court of Appeals ruled on that day that denying sexual minority individuals the right to adopt children denied them, and their prospective adopted children, equal protection under the law.

Hate crimes are illegal in 30 states and the District of Columbia, but language specifically addressing hate crimes based on sexual orientation and gender identity is not included in the hate crime laws of 15 states, including Florida (Human Rights Campaign, 2013d). This specific lack of protection has been found to influence the mental health of some sexual minorities. Hatzenbuehler, Keyes, and Hasin (2009) found significant interactions between sexual minority status and the likelihood of an anxiety or mood disorder for individuals living in states without language-specific protection for sexual minorities in hate crime laws.

Despite the recent ruling on the Defense of Marriage Act (United States Supreme Court, 2013), which established marriage equality in terms of benefits and rights at the federal level, individual states retain discretion over whether same-sex couples may marry. Although 13 states and the District of Columbia issue same-sex marriage licenses,

only seven states and the District of Columbia permit the same level of spousal rights for same sex couples as for heterosexual couples within the state (Colorado, Hawaii, Illinois, Nevada, New Jersey, and Oregon) (Human Rights Campaign, 2013X). Twenty-nine states have enacted constitutional amendments and 12 states have enacted laws limiting marriage to heterosexual couples only (Human Rights Campaign, 2013g). Qualitative research findings suggest that state constitutional amendments banning same-sex marriage are considered legislated acts of discrimination by many sexual minority individuals (Rostosky, Riggle, Horne, Denton, & Huellemeier, 2010). Further, this discrimination resulted in negative feelings, including depression, for many participants. Klausner and colleagues (2006), in a quantitative study with MSM on the influence of domestic partnership on sexual risk and HIV infection ($n = 2,881$; data from Urban Men's Health Study), found that participants reporting a domestic partner (i.e., reporting they had a domestic partner or same sex spouse) were significantly less likely to engage in unprotected anal intercourse with a casual partner, less likely to have two or more male sex partners, and to have had a "one night stand" in the past year than were participants reporting no domestic partners. These findings indicate that relationship stability among MSM may be connected to formal recognition of relationships, and it is possible that prohibition against same-sex marriage impacts sexual risk behavior.

Negative Impact of Gay Related Stigma

Gay related stigma and MSM. Investigators have found connections between early experiences of stigmatization due to sexual orientation and depression as a later adverse health outcome. In a secondary data analysis of the Urban Men's Health Study, Friedman and colleagues (2008) hypothesized that among young MSM, earlier gay

related development was associated with several factors, including increased gay related harassment, and with negative health outcomes in adulthood, including depression and HIV infection acquisition. The sample ($n = 1,383$) of young MSM, aged 18 to 40, were grouped according to gay related development: early development (third grade), middle development (sixth grade), and late development (eighth grade). Early developers were found to be at 176% greater odds of experiencing gay related harassment during adolescence than the late developing group. Further, for the early developers, the odds of experiencing gay related victimization were 86% greater, living with HIV was 213% greater, having depression was 119% greater and attempting suicide was 113% greater than were the odds for the late development group

National surveys have shown that gay related stigma, the result of society's devaluation of individuals of same-sex orientation (Herek, 2007; 2009b), has been experienced by many individuals in multiple forms. Using a probability sample via the Internet ($n = 662$; 241 gay men, 110 bisexual men), Herek (2009a) surveyed US gay, lesbian and bisexual adults on experiences of perceived and enacted stigma. Overall, approximately 20% of sexual minorities experienced a crime due to sexual orientation since age 18. Gay men were significantly more likely to have experienced workplace and housing discrimination, to have experienced verbal abuse due to sexual orientation, and to have experienced anti-gay violence than other groups of sexual minorities.

Further evidence of a relationship between gay related stigma and depressive symptoms may be found in a retrospective chart review conducted by Berg, Mimiaga, and Safren (2004). In this quantitative study presenting mental health problems among 56 MLHIV (average age: 37.4; range: 23-59) at a community health center were

investigated. The authors found depression and complaints related to same sex orientation were common chief complaints. Depression was the most common reason participants reported for seeking care (58.1%). However, 96.3% of the participants endorsed depressive symptoms, 16.1% of the participants reported suicidal ideation, and 21.4% of the participants were diagnosed with major depression. Further, 71.4% of the participants reported experiencing stressors, in areas such as relationships, social support, isolation, and in internalized homophobia and HIV disclosure. Together, these findings may suggest that depressive symptoms and same sex orientation complaints were related to issues of stigmatization.

Other researchers have found connections between gay related stigma, depressive symptoms, and high-risk sexual behavior. In a quantitative study of 594 MSM (mean age = 37.83, range = 18-77), Frost, Parsons, and Nanin (2007) sought to examine the relationship between gay related stigma, depressive symptoms, and history of sexually transmitted infections. As described by the authors, gay related stigma within the context of this study is stigma related to concealment of one's gay identity, and as such, both personalized (i.e., perceived) stigma and concealment were measured. Personalized stigma was found to positively correlate with concealment and depressive symptoms, but not with history of sexually transmitted infections. Concealment was negatively correlated with history of sexually transmitted infections. In path analysis, and after controlling for HIV status, age, and race, personalized stigma was not significantly related to history of sexually transmitted infections, but lower concealment and higher depressive symptoms were significantly related to greater variance in history of sexually transmitted infections.

Seeking to replicate and expand on previous research through exploration of cultural influences among Latino MSM, who in addition to experiencing gay related stigmatization, may experience ethnicity-related discrimination, Jarama and colleagues (2005) surveyed MSM of Central and South American origin who were currently living in Virginia ($n = 250$, mean age: 30.0). Among other variables, the authors were interested in understanding the influence of gay related discrimination, internalized homophobia, gay organization involvement, and other factors related to high-risk sexual behavior outcomes. Forty-three percent of the participants reported not knowing the HIV serostatus of their last partner, and 62% reported having sex with more than one partner in the past three months. The average number of total sex partners among these participants was six partners. While 85% of the sample identified as gay, and 21% identified as bisexual, only 45% reported involvement with a gay organization; however, involvement in a gay organization was significantly related to a higher number of sex partners. The participants were moderately discriminated against overall and did not report high levels of internalized homophobia.

Employing the stress process, social integration and social movements theory in a quantitative study to examine if involvement in HIV/AIDS or GLBT organizations, Ramirez-Valles and colleagues (2010) theorized providing social support would moderate the relationship between gay related and racial discrimination, sex under the influence of alcohol and illicit substances, and high-risk sexual behavior among gay, bisexual and transgender individuals ($n = 643$; age range: 18 to 73). The authors found that experienced gay related discrimination, sex under the influence, and in turn, high-risk sexual behavior, were indirectly linked through internalized homophobia. Further, the

authors found that upon examination of those who reported involvement in the past 12 months versus those who did not, no difference was found on sex under the influence or high-risk sexual behavior. However, experienced gay related discrimination (discriminatory events occurring across an individual's lifespan and in various environments, e.g., home, work, social situations), working through internalized homophobia and sex under the influence, significantly influenced high-risk sexual behavior among the uninvolved group of individuals; internalized homophobia was also significantly associated with high-risk sexual behavior among this group, working through sex under the influence.

Gay related stigma and MLHIV. Among young MLHIV of color stigmatization has been found to be stressful. Hightow-Weidman and colleagues (2011) found that among a sample of young African American, Latino and multiracial MLHIV ($n = 351$), 74.1% reported having experienced ridicule or derision due to their sexual orientation, and of these individuals, 55% reported these experiences as stressful. Further, 58% of the sample reported unfair or rude treatment due to sexuality, with 62.4% reporting these experiences as stressful, and 57% of the sample reported experiencing physical violence due to sexual orientation. A high level of bullying was reported by 31.1% of the sample, and was significantly associated with depressive symptoms, as was having attempted suicide. High levels of bullying due to sexual orientation also significantly predicted depressive symptoms, as young MLHIV were found to be at 2.29 greater odds of reporting depressive symptoms than those not reporting bullying due to sexual orientation. Using cross-sectional, probability-based data from the National HIV Behavioral Surveillance survey of San Francisco ($n = 521$; age range: 18 to 79, median

age: 36), Raymond and colleagues (2011) sought to examine the relationship between early life stressors occurring between the ages of 12 to 14 and 15 to 18, and HIV serostatus. Stressors included experiences of anti-gay discrimination and harassment, connectedness to gay communities, and comfort with sexual orientation. Fifty-six percent of participants reported experiencing anti-gay harassment, 67% reported being uncomfortable with their sexual orientation at those ages, and 92% reported not being connected to gay communities at those ages. MLHIV were found to have experienced significantly less discrimination, and although not significant, reported greater discomfort with sexual orientation and disconnectedness from gay communities at ages 12 to 18 than did HIV seronegative MSM. Black MLHIV also reported significantly less discrimination at ages 12 to 18 than did Black HIV seronegative MSM, and also reported less discomfort with sexual orientation. The authors posit that experiences of harassment and discrimination related to sexual orientation may inhibit sexual activity among young MSM, and thus limit exposure to HIV.

In striving to identify reasons for engaging in high-risk sexual behavior, researchers have provided insight into gay related stigma and depressive symptoms. Using a cross-sectional survey, Kelly and colleagues (2009) examined reasons for engaging in “barebacking”, intentional condomless anal intercourse, among MLHIV ($n = 66$; 24 MLHIV self-identified as barebackers). Among variables examined, stressors potentially contributing to engaging in barebacking were gay related stigma, conceptualized as the adverse consequences of disclosing sexual orientation, and gay related stress, conceptualized as the stress experienced by an individual due to sexual orientation. Depression was measured by the CES-D, and no differences were found

between MLHIV who identified as barebackers and those who identified as non-barebackers in depression. MLHIV who identified as barebackers, however, reported significantly higher levels of gay related stress.

Because social support is a contextual factor in this study, its influence on gay related stigma and depressive symptoms is of interest. In a cross-sectional study of Latino MLHIV in New York City and Washington, D.C. ($n = 155$, mean age: 39.5), Ramirez-Valles and colleagues (2005) tested a stress process model to ascertain if participation in gay and HIV/AIDS organizations (i.e., community involvement, or social support) protected or mitigated the adverse effects of gay related stigma on mental health outcomes, including depression. Overall, experienced homosexual stigma levels were moderate, and after controlling for demographic factors, experienced homosexual stigma was found to be significantly associated with depression. Further, gay related stigma and community involvement were both found to be significantly associated with depression, but showed no interaction effect. These findings suggest that gay related stigma and community involvement may impact depression independently, with gay related stigma having an adverse affect, but with community involvement having a positive effect, on depression.

Black MSM may also face multiple stressors that impact risk behaviors, including stigmatization related to both sexual orientation and race. Jerome and Halkitis (2009) conducted a grounded-theory qualitative study ($n = 52$; average age: 39.3; 42% HIV seronegative, 52% HIV seropositive, 5.8% HIV status unknown or refused to answer) of Black MSM in New York City in order to explore the relationship between stigmatization, discrimination, methamphetamine use, and sexual risk behavior resulting

in HIV seroconversion. Overall, participants reported needing to hide emerging same-sex attraction as children, which resulted in ongoing stress for these individuals. Participants reported instances of isolation and punishment from family due to sexual orientation. Sexual orientation and HIV serostatus were often reported as being concealed in order to protect others and one's role as perceived by the family and community. As a result, participants reported seeking a "family" within the gay community, one that frequently became a conduit to substance use. Participants also reported believing they would be accepted within the White gay community, but some reported experiencing stigmatization at the hands of the White gay community due to race.

HIV-Related Stigma

HIV-related stigma is a worldwide phenomenon, and is manifested on both individual and structural levels (Mahajan et al., 2008). Differences in definitions of HIV-related stigma have rendered the construct difficult to study. Nevertheless, considering and including the influence of HIV-related stigma in HIV prevention interventions is important. In this study, HIV-related stigma is conceptualized as the perceptions of the individual living with HIV of real or possible differences in his social acceptance, with resultant reduced opportunities and negative views of the self (Berger et al., 2001). A broader definition of HIV-related stigma, upon which Berger and colleagues' definition is founded, is Herek's (2002) definition: HIV-related stigma is the expression of prejudice, discounting, discrediting, and discrimination perpetrated against individuals living with HIV and against those associated with these individuals. Herek contended that HIV is stigmatized because: 1) HIV is associated with behaviors that are perceived to be avoidable, and allows society to assign blame to individuals who contract HIV; 2) HIV is

incurable; and 3) HIV presents a perceived risk to other individuals (e.g., fear of contagion). Together, these factors produce multiple means by which HIV-related stigma can manifest, and as such, HIV-related stigma has had devastating implications in various areas of the lives of individuals living with HIV.

Negative Impact of HIV-Related Stigma

HIV-related stigma is similar to gay related stigma, in that it negatively affects many aspects of daily life. Among the most important of these affected areas are family and social relationships. Disclosure fears due to HIV-related stigma are common (Block, 2009), and in qualitative and quantitative studies with a variety of participants, individuals living with HIV have reported self-imposed social isolation, loneliness, marginalization, and a decreased quality of life related to HIV-related stigma (Emlet, 2006b; Foster & Gaskins, 2009; Holzemer et al., 2009; Ware, Wyatt, & Tugenberg, 2006). Families with a parent living with HIV have reported experiencing HIV-related stigma also, in the forms of fear of discrimination and actual abusive behavior at the hands of others (Bogart et al., 2008). The effects of HIV-related stigma may be farther reaching among some children. HIV-related stigma has been found to be significantly related to delinquency among the adolescent children of mothers living with HIV (Murphy, Austin, & Greenwell, 2006).

Another aspect of daily living impacted by HIV-related stigma is housing and employment. HIV-related stigma has been found to negatively impact housing stability among mothers living with HIV and their children, in that some mothers and children have been rendered homeless due to harassment because of HIV status (Greene et al., 2010). HIV-related stigma and a lack of knowledge of HIV transmission have been found

to influence hiring decisions and company image concerns among employers in the US, Hong Kong, and in China (Rao, Angell, Lam, & Corrigan, 2008).

HIV-related stigma poses a barrier to accessing health care for some individuals living with HIV, and fear of disclosure to family leads some to forgo needed health care visits. Rural HIV infected women have reported missing health care appointments if they lacked childcare, because they did not want to bring their children to their appointments, which would have disclosed their serostatus (Kempf et al., 2010). For some persons, HIV-related stigmatization was perpetrated at the hands of health care providers. Individuals with HIV have reported decreased access to providers such as dentists and medical specialists, and to being treated rudely or differently when they were able to access care, due to HIV serostatus (Zukoski & Thorburn, 2009). Some individuals with HIV have reported being blamed for their HIV serostatus by health care providers and others, and to being subjected to uncomfortable questioning from medical personnel regarding how their HIV infection was acquired (Sayles et al., 2007).

Health care providers have also been affected by HIV-related stigma. Rural health care providers have reported difficulty in referring their HIV infected patients to physician specialists and other providers, some of whom declared they had no room in their practice for HIV infected patients, or who stated they lacked the expertise to care for these patients (Yannessa, Reece, & Basta, 2008). A related lack of support regarding the ethical care of HIV infected patients was documented among nursing students. Relf and colleagues (2009) found that 11.5% of South African nursing students and 0% of US nursing students were fully supportive of ethical standards of nursing care. The authors suggested that the lack of support for the ethical care of persons with HIV, such as

maintaining confidentiality, was a product of HIV-related stigma in the home countries of both cohorts of nursing student participants.

In addition to feelings of shame and denial (Konkle-Parker, Erlen, & Dubbert, 2008), for MSM and others living with HIV/AIDS, HIV-related stigma and internalized HIV-related stigma may lead to poor adherence to antiretroviral medications (Brion & Menke, 2008; Konkle-Parker, Erlen, & Dubbert, 2008; Sayles, Wong, Kinsler, Martins, & Cunningham, 2009). Fear of others' discovery of HIV serostatus led some individuals to miss doses of HIV medication (Brion & Menke, 2008), and others have felt the need to hide taking medication to avoid shame while at work (Konkle-Parker, Erlen, & Dubbert, 2008).

HIV-related stigma affects the health of individuals by deterring HIV testing. In a quantitative study of Black and Hispanic young adults in Broward County, Florida ($n = 2,002$; aged 18-39), participants who reported never having been tested for HIV were significantly more likely to endorse HIV-related stigmatizing attitudes than those that had been tested at least once (OR = 0.67, 95% CI [0.54 – 0.84], $p < .001$) (Darrow, Montanea, & Gladwin, 2009). These findings are reflective of earlier national, probability based findings ($n = 1,335$), in which Herek and colleagues (2003) found that 37% of participants reported that their decision to engage in HIV testing would be influenced by concern over HIV-related stigma.

HIV-related stigma and MLHIV. Although HIV-related stigma appears to be well documented among the general population living with HIV, the authors of a recent literature review of HIV-related stigma among MSM suggested that the literature is, for the most part, somewhat anecdotal and splintered (Smit et al., 2011). However, the

authors identified several areas in which the literature documents the experiences and effects of HIV-related stigma on MLHIV.

A recent study conducted with persons living with HIV ($N = 341$; MSM = 138, heterosexual men = 87, heterosexual women = 116) found that despite no subgroup differences in reported experiences of HIV-related stigma, MLHIV were significantly less likely to disclose their HIV status to partners of unknown HIV status than were heterosexual women (Przybyla et al., 2013).

Some researchers suggest that among MLHIV, experience with gay related stigma may buffer the effects of HIV-related stigma. In a quantitative study of sexual orientation as a predictor of HIV-related stigma among heterosexual ($n = 36$) and gay men ($n = 82$) living with HIV/AIDS, Gonzalez and colleagues (2011) found that heterosexual men had greater disclosure concerns than gay men did. The authors suggested that these findings may be due to gay men's ability to cope with gay related stigma, and that these men use this experience to deal effectively with HIV serostatus disclosure.

Nevertheless, MLHIV may experience HIV-related stigma from within the gay community. Courtenay-Quirk and colleagues (2006), in the quantitative portion of a mixed-methods study (quantitative portion: $n = 206$ HIV infected MSM; qualitative portion: $n = 250$ HIV infected MSM) to explore the beliefs regarding HIV-related stigma within the gay community, found that among participants (mean age 38.2, range 20-67), 61.6% agreed that MSM discriminate against individuals living with HIV. On bivariate analysis no association was found between reporting perceived HIV-related stigma and unprotected sex (e.g., condomless insertive or receptive anal intercourse or oral sex). However, engaging in high-risk behaviors such as attending sex parties or sex clubs in

the three months prior to the study was associated with increased levels of perceived HIV-related stigma. Perceived HIV-related stigma was not associated with internalized homophobia, but was significantly associated with depressive symptoms and with considering and/or attempting suicide.

Similar experiences of HIV-related and gay related stigmatization were found among French MLHIV. In a subsample of MLHIV ($n = 1,309$) of a larger study of MLHIV ($n = 2,932$), Lert and colleagues (2010) sought to describe diversity of this population in terms of self-identification and experiences related to living with HIV, including experiences of discrimination. Participants were grouped into subcategories of sexual biography profiles according to self-identification. MSM in the *exclusive gay* group reported more discrimination from potential sex partners than did MSM in the other groups, and MSM in the *heterosexuals with male-to-male sex history* reported more discrimination from family and friends than did MSM in the other groups.

Few studies have explored possible outcomes due to HIV-related stigma among young MLHIV. In a quantitative study of young MLHIV, Dowshen et al. (2009) examined how HIV-related stigma was experienced by these individuals, how it was related to other psychosocial factors, and whether HIV-related stigma was increased among individuals who were more recently diagnosed with HIV. The authors found that the participants' ($n = 42$; mean age: 21.3 years; range = 16-24) total HIV-related stigma scores were higher for those diagnosed within the previous year, but were not significant. Of the four HIV-related subscales measured (e.g., personalized stigma, public attitudes, negative self image, and disclosure concerns), disclosure concerns had the highest mean scores, indicating this aspect of HIV-related stigma was most highly experienced by this

sample. Overall HIV-related stigma was found to be significantly and positively correlated with depressive symptoms.

Although few studies have connected the links between HIV-related stigma and social support among young MLHIV, research with older individuals living with HIV may provide understanding of these relationships. As disclosure of HIV serostatus may serve as either a conduit to social support or as a protective measure against stigmatization, Emlert (2006a) used quantitative methods to compare the experiences of individuals with their younger counterparts (older group $n = 44$, age range: 50 – 71, mean age: 55.45; younger group $n = 44$, age range: 21 – 39, mean age: 34.66) in the Pacific Northwest. Stigma scores were negatively associated with social support in the form of a confidant and a person to call on for help. On hierarchical regression analysis, the number of HIV services accessed was found to be significantly associated with HIV-related stigma (accounting for 21.6% of the variance in stigma). The author suggested that risking disclosure may be judged worthwhile for some individuals, in order to secure access to services and social support available from HIV/AIDS service organizations.

These findings are of interest in light of the fact that few studies have assessed the influence of HIV-related stigma on depression among young MLHIV, and insight may be gained through examining results of studies conducted with older individuals. In a mixed-method study aimed at exploring HIV-related stigma, including perceived HIV-related stigma, among older adults living with HIV in the Pacific Northwest ($n = 25$; mean age: 56.1; age range: 50-72), Emlert (2007) found that higher depressive symptom scores were significantly correlated with the HIV-related subscales of personalized stigma, negative self-image, and public attitudes, and with the overall HIV-related stigma scale, and was

positively correlated with the disclosure concerns subscale. In the qualitative analysis of personalized HIV-related stigma, 56% of participants reported experiences of rejection from family, friends, and others. These results suggest that for these participants, perhaps increased HIV-related stigmatization and decreased social support impact depressive symptoms. Grov and colleagues (2010) quantitatively examined the relationship between HIV-related stigma (domains assessed including perceived HIV-related stigma), loneliness, perceived health, and depression ($n = 914$; median age: 54; age range: 50-78; 22.5% gay or lesbian) among older adults living with HIV/AIDS. On multivariate analysis, the authors found that increased HIV-related stigma, increased loneliness, younger age, and lower energy levels and cognitive functioning explained 42% of the variance in depression. The addition of HIV-related stigma and loneliness to the model accounted for 8% of the 42% variance in depression.

Internalized Homophobia

Socially constructed, internalized homophobia (also known as internalized homonegativity or internalized heterosexism; authors' terminology is used below) is an individual's inner feelings of shame and self-blame due to gay or bisexual orientation (Ramirez-Valles, Kuhns, Campbell, & Diaz, 2010; Ross et al, 2008). Some researchers contend that the results of a recent meta-analysis, in which the relationship between internalized homophobia and high-risk sexual behavior resulted in an overall small effect size, suggest that this bivariate relationship appears to have lessened over time, perhaps in relation to the improved circumstances of and attitudes toward sexual minorities in the US, and that internalized homophobia should not be researched as a predictor of high-risk sexual behavior among US MSM any longer (Newcomb & Mustanski, 2011). Ross,

Rosser, and Smolenski (2010) hold that results have been mixed, with some studies showing no direct effects of internalized homophobia on high-risk sexual behavior, while still others have found that internalized homophobia indirectly effects high-risk sexual behavior, and ignoring these relationships may impede the opportunity to intervene and effect more positive outcomes. In a related meta-analysis of the relationship between internalized homophobia and depression and anxiety among lesbian, gay and bisexual individuals, Newcomb and Mustanski (2010) found a small to moderate effect size for the relationship between these variables. Further, the authors found that when considered across studies, the association between internalized homophobia and depression was statistically higher than that of internalized homophobia and anxiety. The role of internalized homophobia within the larger context of Herek's (2002, 2009b) sexual stigma framework and the inconclusive results found by researchers studying internalized homophobia and sexual risk point to the importance of continued study of internalized homophobia. In addition, the findings regarding the relationship between internalized homophobia and depression, and the potential influence of internalized homophobia on depressive symptoms and sexual risk requires further exploration.

Internalized homophobia and MSM. Among MSM, relationships have been found between internalized homophobia, depressive symptoms and other mental health indicators, and sexual health. Upon assessing correlations between depression and other factors among American MSM in a large US quantitative study ($n = 2,881$), Mills and colleagues (2004) found that not self-identifying as gay, despite an individual's measure of "outness" to the public significantly predicted depression and distress, a finding that is suggestive of a relationship between internalized homophobia and depressive symptoms.

In a cross-sectional study investigating internalized homophobia, homosexuality [*sic*] and mental health among MSM living in the Midwest ($n = 422$; internalized homonegativity [*sic*] was found to be significantly associated with depression, adjustment disorder, dysthymia, and being in therapy; further, internalized homophobia and sexual health indicators were found to be strongly and negatively correlated (Rosser, Bockting, Ross, Miner, & Coleman, 2008). In addition, internalized homonegativity was negatively associated with disclosing sexual orientation, socializing, reading gay media and going to gay places, and knowing others with HIV infection. Higher internalized homonegativity appeared to be related to higher social isolation.

In a cross-sectional study conducted in North Carolina to explore the relationship between internalized homonegativity, experiences of discrimination related to race/ethnicity, Black identity achievement, coping, and mental health outcomes, including depression, among Black MSM ($n = 54$; mean age = 31; age range = 19 – 50; HIV serostatus not assessed), Graham and colleagues (2011) found upon regression analysis that internalized homonegativity [*sic*] and experiences of discrimination due to race/ethnicity together explained 51% of the variance in depression scores, with internalized homonegativity alone accounting for 13%.

Using an Internet survey to assess the relationship between internalized homophobia, sexual sensation seeking, substance use outcomes expectancies (sexual enhancement) and substance use during sex, and high-risk sexual behavior among MSM ($n = 209$; 84% HIV seronegative; mean age: 36.7; age range: 18-68), Kashubeck-West and Szymanski (2008) found that sexual attraction to men and internalized homophobia were inversely related, in that lower scores on attraction to men correlated with higher

scores on internalized homophobia. Substance use expectancy mediated the relationship between internalized homophobia and high-risk sexual behavior; however, substance use did not mediate the relationship between internalized homophobia and high-risk sexual behavior.

Preston, D'Augelli, Kassab, and Starks (2007) examined the relationship between stigma and high-risk sexual behavior among rural MSM in a cross-sectional study ($n = 414$; mean age 40 years, age range 18 – 76). The participants' perceived stigma from family, community, and health care providers was measured separately, but stigma from each of those sources was conceptualized as consisting of both gay related discrimination and HIV-related stigma. On path analysis, stigma from family was found to be significantly and negatively associated with internalized homophobia, and lower internalized homophobia was associated with high self-esteem. Both low internalized homophobia and low self-esteem were associated with higher sexual sensation seeking, which was in turn associated with increased high-risk sexual behavior. Internalized homophobia, contrary to the authors' hypothesis, was not directly related to high-risk sexual behavior, but was instead worked indirectly through sexual sensation seeking.

In Jerome and Halkitis' (2009) grounded-theory qualitative study of Black MSM who used methamphetamine, some participants reported feeling that because they did not fit the ideal of the Black gay man in New York City, they were avoided. Other participants reported no experiences of discrimination, but when the authors asked about methamphetamine use in regards to experienced stress, these participants displayed internalized homophobia, in that they reported that dating other Black men was undesirable due to the perception that they may be taken advantage of by Black gay men,

or that there would be a great deal of emotional upheaval when dating a Black man, and they complained about and disparaged Black gay men they deemed too feminine. Methamphetamine use was described as an escape from the stress of expectations regarding what Black men, and Black gay men, should be.

Similar findings of internalized homophobia within the context of partner selection among Latino immigrant MSM in the New York area were reported in a qualitative study using grounded theory methodology by Bianchi and colleagues (2010; $n = 49$; average age: 35; age range: 18-58). Although the Latino MSM in this study were from different countries of origin (e.g., Brazil, Dominican Republic, Colombia), a theme that emerged was the desire for masculinity in sexual roles and preferences. Participants equated insertive partners with masculinity and receptive partners with femininity. One participant described beginning relationships in the male role, as the insertive partner. Some participants described feeling effeminate, and felt they had to try to act more masculine, and still others reported desiring partners who behaved in a more masculine fashion.

In a cross-sectional Internet study examining the relationship between compulsive sexual behavior and high-risk sex among Latino MSM ($n = 963$; mean age =28.2), Smolenski and colleagues (2009) found internalized homophobia and compulsive sexual behavior to be positively correlated. Further, among Latino MSM with higher internalized homophobia who were not members of gay organizations, compulsive sexual behavior and high-risk sexual behavior were not associated. However, among Latino MSM who had higher internalized homophobia and were members of gay organizations, compulsive sexual behavior and high-risk sexual behavior were strongly associated.

Internalized Homophobia and MLHIV. By playing a mediating role, internalized homophobia may be related to adverse outcomes among MLHIV. Using cross-sectional (i.e., pretest) data from a randomized control trial of an HIV prevention intervention, Ross and colleagues (2008) analyzed the relationships between internalized homophobia and high-risk sexual behavior among MLHIV ($n = 675$, median age = 42). Internalized homophobia was significantly correlated with depressive symptoms. Further, internalized homophobia significantly worked through several variables, 1) being “out” as MSM, serodisclosure to secondary partners, and also through 2) sexual comfort and condom self efficacy, to high-risk sexual behavior.

Nevertheless, internalized homophobia may not always be related to high-risk sexual behavior as expected, even in samples endorsing high levels of discomfort with sexual orientation. Using baseline data from a randomized control trial of a sexual health intervention conducted in Boston, New York, and Houston, Brennan and colleagues (2010) examined the influence of treatment optimism on high-risk sexual behavior among MLHIV ($n = 346$; median age: 43.0; age range: 21-69). The influence of psychosocial variables, including internalized homophobia and depressive symptoms, were included in the authors’ analysis. Approximately one quarter (21.9%) of the sample reported being very uncomfortable with their sexual orientation. Increased susceptibility scores, that is, scores related to being on HIV treatment regimens or having low or undetectable viral loads, were significantly associated with high-risk sexual behavior, but neither internalized homophobia or depressive symptoms was associated with high-risk sexual behavior.

The findings of indirect effects of internalized homophobia reinforce the importance of exploring the influence of this factor among MLHIV. Smolenski and colleagues (2011) found in a cross-sectional study of 1,699 HIV infected and non-infected MSM (5.15% HIV infected; age range: 18 –45+) surveyed via the Internet that internalized homophobia did not directly affect unprotected anal intercourse, but did, however, have an indirect influence. Higher levels of internalized homophobia worked through higher levels of sexual compulsivity to increase frequency in unprotected anal intercourse. Further, increased levels of internalized homophobia among participants reporting lower levels of sexual compulsivity resulted in a significant reduction in the frequency of unprotected anal intercourse. The authors surmise that as indirect associations in opposite directions were evidenced, mediation and suppression were present, which may account for the lack of direct effects of internalized homophobia on sexual risk behavior seen in others' research.

O'Leary and colleagues (2007), in the quantitative analysis of a mixed-methods, cross-sectional study with an ethnically diverse sample of 456 MLHIV in New York and San Francisco ($n = 137$ African Americans, mean age: 36.2; $n = 137$ European Americans, mean age: 40.2; $n = 112$ Latinos, mean age: 35.4; $n = 69$ Other, mean age: 37.2), examined differences in influence of internalized homophobia, participation in gay community activities, HIV serostatus disclosure, and other factors on high-risk sexual behavior, including bisexual behavior, among this sample. The authors found that African American MSM reported significantly higher levels of internalized homophobia than did European MSM or Other MSM. In addition, African American MSM reported significantly more instances of sex with women in the past year than did all other groups

of MSM. On multivariate analysis, African American ethnicity and internalized homophobia were associated with sex with women; African American MSM had four times greater odds of having sex with a woman than MSM of other ethnicities, and MSM with higher levels of internalized homophobia had 2.6 times greater odds of having sex with a woman than MSM with lower levels of homophobia.

When reporting on the results of a randomized controlled trial of which compared tailored versus non-tailored sexual health interventions for HIV infected MSM ($n = 675$; aged 18 and older), Rosser and colleagues (2010) noted that safer sex intentions did differ significantly for participants in the Positive Sexual Health and Man-to-Man interventions when compared to participants in the Men Speaking Out intervention. However, internalized homophobia did not differ across study arms; the authors describe this construct as high on baseline measurement and stable across time. However, earlier findings suggested that internalized homophobia might be related to other factors. In a quantitative study aimed at furthering understanding of HIV serostatus disclosure to non-primary sex partners among MLHIV in six US cities (Seattle, Washington, DC, Boston, New York, Los Angeles, Houston), Rosser and colleagues (2008) found that psychosocial variables, including internalized homophobia, had no influence on HIV serostatus disclosure to secondary sex partners among these participants. However, the degree of “outness” as gay men did: participants who were more “out” were over two times more likely to disclose their HIV serostatus to their secondary partners than were MSM reporting lesser “outness”. The authors suggest that “outness” may be related to greater social support.

Internalized homophobia may influence MSM who have sex with women also differently than MSM who have sex exclusively with men. Among a largely African American sample of MSM in a cross sectional study conducted in Los Angeles that assessed internalized homophobia, high-risk sexual behavior and HIV serostatus among marginalized MSM ($n = 722$; 48% HIV infected), internalized homophobia scores were highest for MSM/W (MSM who have sex with men and women) and for those self-identifying as straight or bisexual, and lowest for MSM and those self-identifying as gay, and lower among HIV infected MSM than HIV non-infected MSM (Shoptaw et al., 2009). Black and MSM of other ethnicities also had higher internalized homophobia scores than did Hispanic and White MSM. After controlling for race/ethnicity and sexual orientation self-identification, no relationship was found between internalized homophobia and condom use. In a grounded theory study of the determinants of mental health among bisexual individuals in Ontario, Canada ($n = 55$), Ross, Dobinson and Eady (2010) examined influential factors at the macro-, meso- and micro-levels. At the micro-level, participants described struggling with internalized biphobia or homophobia, in that they had internalized society's expectations for their sexual orientation, and as such they struggled with their own sexual identities. Some participants noted that their mental health was closely aligned with their acceptance of their bisexuality.

Internalized HIV-Related Stigma

Conceptualizing HIV-related stigma as a stressor, Wolitski and colleagues (2009) sought to examine the impact of HIV-related stigma on mental and physical health, and on HIV serostatus disclosure and high-risk sexual behavior among unstably housed PLWHA in Chicago, Baltimore, and Los Angeles ($n = 637$; 41.1% MSM; age range: 18 –

50+). HIV-related stigma (perceived external), internal HIV-related stigma, and total HIV-related stigma were all significantly associated with poorer self-reported mental health, including depression, and physical health. Increased levels of internal HIV-related stigma were significantly related to not disclosing HIV serostatus to at least one recent sex partner before the first sex with that partner.

In a cross-sectional study examining the relationship between sexual compulsivity, sexual risk behavior, HIV-related stigma and internalized HIV-related stigma, and internalized homonegativity among MLHIV ($n = 127$; age range: 18-45+), Rendina and colleagues (2011) found that internalized HIV-related stigma and a greater number of sex partners were significantly associated with sexual compulsivity. Participants with a one-unit increase in internalized HIV-related stigma were at over eight times the odds of reporting sexual compulsivity.

Stigma Summary and Conclusions

Gay related stigma has been experienced by many MSM in many different forms (Herek, 2007; 2009b), as has HIV-related stigma (Mahajan et al., 2008). These forms of stigma differ in that gay related stigma is the enacted stigma resulting from society's devaluation of those with same-sex orientation (Herek, 2007; 2009b) and HIV-related stigma is the adverse attitudes, enacted stigma, or perception of real or potential changes in how others perceive that person by individuals living with HIV (Berger et al., 2001; Herek, 2002). As shown above, both gay related stigma and HIV-related stigma have been linked to depressive symptoms and high-risk sexual behavior among MSM and MLHIV across the lifespan. Because both types of stigma may bear similar results for MLHIV, including decreased economic opportunities, legal obstacles to marriage and

adoption, difficulty accessing medical care, and diminished support from friends and family, increased understanding of the relationship between gay related stigma and HIV-related stigma, and depressive symptoms and high-risk sexual behavior is necessary in order to begin to mitigate these adverse outcomes.

Both types of stigma may be internalized over time. Internalized homophobia is one's inner feelings of shame and self-blame due to being gay or bisexual (Ramirez-Valles et al., 2010; Ross et al., 2008), and internalized HIV-related stigma is the self-blame or negative internal feelings one holds related to living with HIV (Kalichman et al., 2009). An important common component of both types of internal stigma is self-blame. Internalized homophobia is a controversial factor, as Newcomb and Mustanski's (2011) suggest that societal progress within the US in terms of sexual minority rights render this factor obsolete in sexual minority research. However, the mixed results described previously indicate that internalized homophobia may serve as an intervening variable, and thus remains an important research target. Internalized HIV-related stigma is likewise important; it has been linked to high-risk sexual behavior and non-disclosure of HIV serostatus, but little is known about its potential relationship to depressive symptoms among MLHIV. As such, investigation into this factor is necessary. Increased understanding of the role that internalized stigma plays, both internalized homophobia and internalized HIV-related stigma, is critical. Internalized stigma is the point at which intervention implementation can occur, possibly leading to improved health outcomes.

Contextual Factors

Contextual factors, such as life experiences and social support, may influence both depressive symptoms and high-risk sexual behavior among MSM and MLHIV. As

such, the influence of these factors on depressive symptoms and high-risk sexual behavior among MSM and MLHIV is of concern within the study of a stress process model (Pearlin et al., 1981).

Life Experiences

In a quantitative study, Reisner and colleagues (2009) examined the presence and influence of post-traumatic stress disorder symptoms (PTSD) on high-risk sexual behavior and other psychosocial factors, including depressive symptoms, among convenience and respondent driven samples of 189 MSM (mean age 41.54, Range = 18 - 66). In terms of stressful life events, 93% of the sample reported a worst traumatic or stressful life event, while 60% of the sample screened in for symptoms of PTSD. Among the top worst events were being diagnosed with HIV and having experienced gay bashing. Nearly half (49%) of the sample reported depressive symptoms, and in the previous 12 months before the commencement of the study, 42% of participants reported unprotected anal receptive sex, and 55% reported unprotected anal insertive sex with at least one male non-monogamous partner. Further, screening in for PTSD symptoms significantly predicted engaging in any unprotected anal sex in the previous 12 months, regardless of whether a worst traumatic or stressful life event was reported. Screening in for PTSD symptoms in the context of reporting a worst traumatic stressful life event significantly predicted depressive symptoms as well. However, not screening in for PTSD symptoms and only reporting worst traumatic or stressful life events did not predict depressive symptoms.

Among heterosexual methamphetamine users not living with HIV infection, negative life events (e.g., death of partner, relationship issues, health problems of self or

partner, child custody issues) were found to be positively associated with unprotected sex, but positive life events were not (Semple, Strathdee, Zians, & Patterson, 2010). In a grounded theory study among gay men in England ($n = 26$ recently diagnosed HIV infected MSM, $n = 22$ HIV non-infected MSM; age range at most recent HIV test: 20-66 years; most participants were between 25-44 years old) designed to follow up on quantitative findings regarding circumstances and contexts within which serodiscordant unprotected anal intercourse occurs, Elam and colleagues (2008) found that unprotected anal intercourse was reported by some participants as having occurred during periods of depression, and when negative life events occurred. For some men, these events included unemployment, illicit substance use and alcohol use, and bereavement.

In a quantitative, longitudinal study of the impact of stressful life events on high-risk sexual behavior among Canadian HIV infected MSM ($n = 115$) and HIV non-infected MSM ($n = 207$), Calzavara and colleagues (2011) found that not only did nearly half (47%) of the participants report moderate to high depressive symptom scores, 64% of the HIV infected participants and 55% of the HIV uninfected participants reported at least one stressful life event. Depressive symptoms and the number of stressful life events were positively associated, and MSM who had previously reported a stressful life event were found to be more likely to subsequently report unprotected anal intercourse.

Among HIV uninfected MSM, for each additional stressful event, the odds of engaging in unprotected sex increased by 1.15, and HIV infected MSM reporting four stressful events were found to be 1.24 times more likely to engage in unprotected sex; those reporting six events were 1.15 times more likely to engage in unprotected sex, when compared to those reporting no stressful events (Calzavara et al., 2011). Martin and

Alessi (2010) studied the relationship between stressful life events, avoidance coping, and unprotected anal intercourse among a convenience sample of self-identified gay and bisexual men obtained via the Internet ($n = 297$; mean age = 40.06; age range = 18-76). Included by the authors in the measure of common stressful life events were events thought to be more common to MSM, such as experiences of violence or discrimination related to sexual orientation. The authors found common stressful life events were not associated with unprotected anal intercourse, but experiences of victimization were significantly associated with unprotected anal intercourse. Further, victimization and HIV infected status both tripled the odds of unprotected sex with a non-primary partner.

Little is known about the impact of life events on young MSM. Wong, Kipke, Weiss, and McDavitt (2010), using baseline data from a quantitative study of young men's health, surveyed young MSM ($n = 526$; mean age = 20.1; age range = 18-24) in Los Angeles County. The researchers sought to ascertain information regarding the influence of negative life events, conceptualized as stressors, on substance use, alcohol use, and unprotected anal intercourse. With the exception of stress due to a recent death, all negative events, including family and financial stress, internalized homophobia, and health concerns, were significantly associated with depressive symptoms. Further, stress due to substance use, partner concerns, and own health concerns were found to predict unprotected anal intercourse.

Social Support

In a study exploring general and gay community belonging among gay Australian men, it was hypothesized that belonging, a human feeling of being incorporated and engaged within a system, predicted mental health, specifically, depression (McClaren,

Jude, and McLachlan, 2008). In this quantitative study ($n = 137$; age range = 19-69) of gay men, the authors found that both a higher sense of belonging to the general community and to the gay community were significantly associated with lower levels of depressive symptoms. In hierarchical regression analysis, the additive model of both a sense of belonging to the general community and the gay community significantly predicted lower depression. These results suggest that a sense of belonging may work as a protective factor against depression; belonging to communities may result in fewer experiences of discrimination.

Few studies have looked at social support and discrimination among young gay and bisexual men; retrospective cohort studies may provide insight into these issues. In a quantitative study examining the effects of family rejection of sexual orientation during adolescence on mental health, substance use, and high-risk sexual behavior among young adult Latino and White gay, lesbian, and transgender individuals ($n = 224$; mean age = 22.82; age range = 21-25), Ryan and colleagues (2009) found that individuals who reported greater experiences of family rejection were 5.9 times more likely to report depression, 3.4 times more likely to engage in high-risk sexual behavior, and 8.4 times more likely to have attempted suicide than individuals who reported lower or no experiences of family rejection. Young Latino men were found to have higher rates of depression, suicidal ideation, and high-risk sexual behavior, and reported the highest number of adverse family reactions to sexual orientation during adolescence.

Among HIV infected young people ($n = 66$), increased social support and fewer mental health problems have been reported by those youth who self-identify as heterosexual (Lam, Naar-King, & Wright, 2007). Lower social support was significantly

associated with mental health symptoms. Stigma may be a concern among different groups of young people living with HIV: HIV-serostatus disclosure to acquaintances was significantly associated with mental health symptoms, but disclosure to closer individuals, such as family and friends, and contact with health care providers, was not associated with mental health symptoms.

In an online study with self-identified gay and bisexual men ($n = 129$; mean age = 34.1; age range = 18-80), LeBeau and Jellison (2009) used grounded theory in order to better understand gay community involvement among these participants. The authors found both positive and negative attributes assigned to gay community involvement by the participants. Involvement helped some participants to heighten their own self-esteem and better understand themselves, but for others, involvement in the gay community exposed them to discrimination and ostracism by the community from which they sought acceptance.. Association with the gay community also marked participants as gay, and exposed them to discrimination and prejudice perpetrated by those outside of the gay community. However, participants described involvement as a means to halt future discrimination of other sexual minorities. Still others described involvement as a part of themselves; that is, involvement was inherent to their sexual identity, and helped shape their identities as gay men.

Linkages Between Variables

Few studies were identified that linked all of the variables of interest, but some studies were located that encompassed several of the factors under consideration. To assess the relationship between gay and HIV-related stigma from families, health care providers, and communities, on mental health factor such as self-esteem and internalized

homophobia, and on sexual sensation seeking and high-risk sexual behavior among rural MSM, Preston and colleagues (2007) surveyed 414 MSM (HIV status of the sample was unreported) living in rural Pennsylvania. The sources of stigmatization (i.e., family, health care provider, community) were measured separately but gay-related and HIV-related stigma items were measured together within the separate source surveys. On multivariate analysis, community stigma was found to be significantly associated with sexual sensation seeking, which was in turn also positively and significantly associated with family and health care provider stigma. Self-esteem and internalized homophobia were found to be significantly related to sexual sensation seeking; that is, lower self-esteem and lower internalized homophobia were related to higher sexual sensation seeking. Because stigmatization, self-esteem, and internalized homophobia were found to not be directly associated with high-risk sexual behavior, but sexual sensation seeking was, the authors suggested that gay related and HIV-related stigma and self-esteem and internalized homophobia are indirectly related to high-risk sexual behavior through sexual sensation seeking.

In a cross-sectional study exploring the relationship between social support, HIV-related stigma, social problem solving, and depressive symptoms among men and women living with HIV ($n = 30$; $n = 18$ men; mean age = 40.4; age range = 19-68), Prachakul, Grant and Keltner (2008) found that HIV-related stigma was significantly correlated with depressive symptoms, and social support was significantly and negatively associated with depression. Among homeless, stimulant-using (methamphetamine, cocaine, crack) MSM aged 18 to 46 ($n = 267$, average age 34 years; 17% of sample was HIV infected), Nyamathi and colleagues (2012) found internalized homophobia was significantly

correlated with depressive symptoms and not having social support. On multivariate analysis, individuals with no social support were at nearly 11 times greater odds of having depressive symptoms than those reporting social support ($AOR = 10.90, p = .02$).

Employing social integration and social movements theory, and the stress process in a quantitative study to examine if involvement in HIV/AIDS or gay, lesbian, bisexual or transgender (GLBT) organizations, which were theorized as providing social support, moderated the relationship between gay related and racial discrimination, sex under the influence of alcohol and illicit substances, and high-risk sexual behavior among gay, bisexual and transgender individuals ($n = 643$; age range: 18 to 73) Ramirez-Valles and colleagues (2010) found that gay related discrimination worked through internalized homophobia to influence sex under the influence, and in turn, high-risk sexual behavior for those who were not involved in HIV/AIDS or GLBT organizations. Further, the authors found that upon examination of those who reported involvement in the past 12 months versus those who did not, no difference was found on sex under the influence or high-risk sexual behavior. However, gay related discrimination, working through internalized homophobia and sex under the influence, significantly influenced high-risk sexual behavior among the uninvolved group of individuals; internalized homophobia was also significantly associated with high-risk sexual behavior among this group, through sex under the influence.

In a recent literature review of condom use among MSM, Neville and Adams (2009) found that psychosocial issues, such as social support, have been found to influence unsafe sex. Further, unsafe sex has been used as a coping mechanism for depression and other feelings. MSM who are more comfortable with their sexual

orientation have been found to use condoms, , while MSM who report experiencing gay related discrimination report unsafe sex as well.

Johnson and colleagues (2008) tested a model based in social action theory, in which internalized homophobia, conceptualized as a contextual factor as a result of environmental discrimination and negativity toward gay men, was predicted to influence high-risk sexual behavior and antiretroviral non-adherence, working through negative affect (including depression, perceived stress, anxiety, and anger) and stimulant use. Upon sampling 465 HIV infected self-identified gay men in the San Francisco area aged 18 and older, the authors found internalized homophobia was significantly associated with negative affect, which was in turn significantly associated with stimulant use and antiretroviral non-adherence. Internalized homophobia was also directly and significantly associated with antiretroviral non-adherence. Finally, stimulant use, working from the negative affect and internalized homophobia pathway, was also significantly associated with both unprotected receptive anal intercourse and antiretroviral non-adherence.

In a 12-month longitudinal study designed to examine the relationships between HIV-related stigma (perceived), depression and anxiety, and high-risk sexual behavior among MLHIV (n = 314; age range: 20-50+), Hatzenbuehler and colleagues (2011) found that concurrent associations between HIV-related stigma, unprotected receptive anal intercourse and depressive symptoms were significant. In the prospective analysis, HIV-related stigma significantly predicted both unprotected receptive and insertive anal intercourse, as well as depressive symptoms.

Gaps in the Literature

Gaps in the literature include a lack of studies examining the relationships

between discrimination, depression and high-risk sexual behavior; a lack of studies exploring perceived HIV-related stigma among MLHIV; a lack of studies examining internalized HIV-related stigma among MLHIV; a lack of studies on the impact of life events, which may be negative or positive, on depressive symptoms and high-risk sexual behavior among MLHIV; and a lack of studies conducted with MLHIV examining the effects of social support on the stressors and on the outcome variables.

Theoretical Framework: The Stress Process

The stress process model is rooted in sociology and psychology, and is composed of three domains: the sources of stress, the mediators of stress, and the expression of stress (Pearlin et al., 1981). The adverse effects of stress may be mediated by certain resources.

Stressors and Stress

The relationship between a person and the environment is dynamic and reciprocal, and demands and burdens placed upon a person may be perceived as exceeding the individual's resources, and result in adverse outcomes for that person (Glanz & Schwartz, 2008; Lazarus & Folkman, 1984). *Stressors* are conceptualized as external situations that impede or test individuals, whereas *stress*, considered to arise from discordance between stressors and the characteristics of and resources available to an individual, is concerned with internal arousal and the response to noxious conditions (Aneshensel, 1992; Pearlin et al., 1981). Cognitive appraisal and coping are two mechanisms by which individuals come to terms with stressors (Folkman, Lazarus, Gruen, & DeLongis, 1986) Cognitive appraisal involves the evaluation of the stressor and through primary and secondary appraisal; that is, the individual will assess if the stressor is a threat, and if so what

options are available for dealing with the threat. Coping options, such as problem-focused or emotion-focused coping, are employed. Both types of coping include processes that may or may not adequately achieve successful management of the stressor. Although important in understanding the outcomes of stressors, cognitive appraisal and coping are not being examined in the present study. The stressors under consideration in the present study are gay and HIV-related stigma.

Because experiences of stigma are rooted in the norms of society (Goffman, 1963), a sociological framework describing the stress process within which stigma functions as a stressor to adversely influence health outcomes among MLHIV is appropriate. Pearlin and Schooler (1978) held that stressors, or enduring life-strain or circumstances individuals find difficult to deal with, emerge from individuals' social roles and adversely affect their emotions. Stressors, in agreement with previous definitions, were described as ominous or adverse environmental conditions. In Pearlin and colleagues' seminal article, *The Stress Process* (1981), the authors further delineated the components and pathways of the stress process.

Sources of stress: stressors. According to the stress process model, stressors affecting individuals originate from two sources: preceding eventful experiences and chronic life strain (Pearlin et al., 1981). Eventful experiences are distinguished by having a recognizable time point at which they occurred (Pearlin, 1999), and these events may not always prove adverse to individuals (Pearlin et al., 1981). Additional factors, such as the quantity and features or types of eventful experiences, and the degree of adjustment or changes required of the individual as a result of these experiences, influence the impact of these events (Pearlin et al., 1981). Eventful experiences precede chronic life

strain, and may also work indirectly through chronic life strain. Chronic life strain emerges slowly and is persistent, and may involve being in a role for which the demands exceed the individual's resources (Pearlin, 1999). Together, eventful experiences and/or chronic life strain produce stress by two means: 1) eventful experiences can shed new meanings on existing difficulties, challenges or problems, and result in stress and 2) eventful experiences can result in new chronic life strain, and can work through or exacerbate existing chronic life strain, and thus also result in stress. An individual's self-concept and ability to meet the demands of eventful experiences and chronic life strain play an important part in the stress process. If eventful experiences and chronic life strain also result in a reduced sense of self or diminished ability to meet demands, stress is more likely to occur.

Mediators of stress. The level of stress experienced by individuals is not the result of eventful experiences or chronic life strain, but is also related to the resources available to individuals to defend against stress (Pearlin et al., 1981). These defenses, coping and social support, are considered mediators in the stress process. These resources can be used by individuals at various times to escape or reduce stress: before eventful experiences occur, between the eventful experiences and the resultant chronic life strain, between the chronic life strain and the resultant decrease in sense of self, or before the adverse outcome. In this study, chronic life strain (internalized stigma) is being explored as a statistical mediator and/or moderator.

The expressions of stress (outcomes). The proposed study examines two putative expressions of stress: depressive symptoms and high-risk sexual behavior. According to Pearlin and colleagues (1981) an individual's response to toxic or harmful

conditions may occur at various physiological levels, from the cellular to the systemic, and may manifest as psychological disease as well. The expression of stress can be examined as global traits and/or as situational states. Exploring the level of depressive symptoms represents a global assessment of stress, whereas high-risk sexual behavior is more representative of a situational assessment of stress.

Previous Use of The Stress Process

The stress process model has been used in multiple explorations of the effects of stress, including in research on the impact of racial discrimination on health outcomes, (Paradies, 2006; Pascoe & Smart Richman, 2009). The stress process model has also been used qualitatively. Nurses have used the stress process to qualitatively examine compassion fatigue among oncology nurses (Perry, Toffner, Merrick, & Dalton, 2011), and to quantitatively examine antenatal depression among pregnant Chinese women (Lao, 2011). Further, the stress process has been used in research linking stress to depression (Ong, Fuller- Rowell, & Burrow, 2009) and in research evaluating the negative health outcomes of stress (Ramirez-Valles et al., 2010). The stress process model has been used to assess the relationship between stress, coping, and distress among HIV infected African American women and their families (Brincks, Feaster, & Mitrani, 2010), and results demonstrated that increased stress levels were associated with increased avoidance coping and increased distress. Among HIV infected MSM who provided care for PLWHA, stressors such as HIV-related stigma (Wight, 2000), and role-captivity and financial difficulties have been found to be associated with depression (Land, Hudson, & Stiefel, 2003). In addition, the stress process model has been used to explain the impact of stressors, such as low social and sexual status, and the effects of resources, such as

self-esteem and social support, on negative health outcomes, including depression, anxiety, and high-risk sexual behavior among MSM (Green, 2008). The stress process, through use with various populations and in examining multiple relationships between stressors and outcomes, is a valuable model for use in framing the proposed variable relationships in this study.

Framework for the current study. The conceptual model for the current study is based upon the stress process framework. In this study, it is hypothesized that the stressors, gay and HIV-related stigma, predict outcome expressions of stress, depressive symptoms and high-risk sexual behavior, among MLHIV, and will be statistically mediated and/or moderated by the chronic life strain (Figure 1) of internalized homophobia and internalized HIV-related stigma. Because this study is concerned with establishing relationships between the stressors, chronic strain, and outcomes, social support is not included as mediator in this model, as this variable is often described in a classic stress process model (Pearlin et al., 1991). Rather, this variable will be explored as a contextual factor, as will life events. This is being done in order to explore the impact of the gay and HIV-related stressors on depressive symptoms and high-risk sexual behavior. Social support will be explored as a potential mediator of the impact of life events on the outcomes, and life events will be assessed as a potential moderator of the gay and HIV-related stressors on the outcome variables, and as a potential mediator of the relationship between the stressors and the chronic strain variables of internalized stigma. A substruction of this study is presented in Figure 2. A substruction is a pictorial method of evaluating the consistency of the theoretical and operational components of a study,

through identification of variables and delineation of hypothesized relationships (Dulock & Holzemer, 1991).

Summary and Conclusion

To the researchers's knowledge this study is the first to examine the influence of gay and HIV-related stigma, internalized homophobia and internalized HIV-related stigma, on depressive symptoms and high-risk sexual behavior within the context of a stress process and among MLHIV. This study will contribute to the literature through the advancement of knowledge concerning these mechanisms, and will help to inform more efficacious intervention development with this population. The present study differs from previous studies in that through the conceptual model for this study, the researcher aims to more clearly delineate the impact of stressors and chronic strain on depressive symptoms and high-risk sexual behavior. With the exception of the study conducted by Hatzenbuehler and colleagues (2011), which was a longitudinal study that used hierarchical linear analysis, did not examine the exact same variables, and did not conceptualize the relationships between the variables in the same manner as the present study, no other study could be located that included most of the present variables under consideration. This study will provide the foundation for future refinement of this stress process model. Results will guide inclusion or deletion of stressors, chronic strain, contextual variables, and outcomes in future versions of this model. In addition, future studies will explore the inclusion of mediators of stress, such as coping, that may warrant future investigation in terms of impacting the outcomes. The goal of this study is to test the following two hypotheses (Figure 1):

Hypothesis 1: Experiences of gay- and HIV-related stigma predict depressive symptoms and high-risk sexual behavior among MLHIV (Figure 1, path c).

Hypothesis 2: Internalized homophobia and internalized HIV-related stigma either moderate (Figure 1, path d, an interaction effect) or mediate (Figure 1, product of paths $a*b$) the relationship between gay related and/or HIV-related stigma and depressive symptoms and high-risk sexual behavior.

The stress process model (Pearlin et al., 1981) is an appropriate theoretical framework for this study given that the stressors are socially constructed (Goffman, 1963) and have been found to influence the outcomes of interest. The literature review supports this concept, as studies of the key constructs, gay and HIV-related stigma, internalized homophobia, internalized HIV-related stigma, life events and social support, provide evidence of the relationships between these stressors, chronic strain, contextual factors and depressive symptoms and high-risk sexual behavior.

CHAPTER 3

Methods

This cross-sectional observational study examined alternative stress process models (Pearlin, 1989; 1999; Pearlin et al., 1981) with stigma predicting depressive symptoms and high-risk sexual behavior. Gay and HIV-related stigma were conceptualized as stressors, and internalized homophobia and HIV-related stigma as intervening variables (chronic strain). Alternate models were tested to examine whether the intervening variables were statistical moderators or mediators. Life events and social support were included in the model in order to place the gay and HIV specific stressor constructs into context. The effects of life events and social support on depressive symptoms and high-risk sexual behavior were examined in order to uncover the impact of the gay and HIV specific factors, controlling for these underlying contextual factors in the individual's stress process. The possibility that the level of background life events may moderate the impact of gay and/or HIV-related stigma on internalized homophobia and/or internalized HIV-related stigma and the outcomes of depressive symptoms and high-risk sexual behavior was examined in an exploratory analysis. Demographic variables (age, ethnicity, education, and employment) were examined as control variables to ensure they did not mask the effects of interest.

Sample and Setting

The population of interest was MLHIV, i.e., HIV infected men who self-identify as MSM (reporting sex with men or with men and women, regardless of gay or bisexual identification). The original study design called for a community-based convenience sample of 200 MLHIV, aged 18-39. This age range represents the age groups at highest

risk for HIV acquisition across ethnicities (White, Black and Hispanic) among MSM, with the exception of minors (13-17) (CDC, 2012a). Recruitment of young MLHIV proved challenging. An amendment was submitted to and approved by the University of Miami Social and Behavioral Sciences Institutional Review Board to expand participant age range. Upon approval, the eligibility criteria was changed to MLHIV aged 18 and over.

Inclusion/exclusion criteria. To be eligible to participate, men must have been HIV infected, aged 18 or over, self-identified as MSM (reporting sex with men or with men and women, regardless of gay or bisexual identification), have had sex with another man in the past 12 months, spoke and read English, and resided at least part time in South Florida. Candidates who are unable to provide informed consent or read English were excluded. Eligibility was determined by self-reported information given at screening.

Study participant characteristics. A total of 102 men participated in the study. Ninety-nine participants, or 97.1%, were from Broward County, and 3 participants, or 2.9% were from Miami-Dade County. The mean participant age was 48.03 ($SD = 10.3$) years; the youngest participant was 24 years old, and the oldest was 69 years old. In terms of ethnicity or culture, 23.5% of the sample identified as African American ($n = 24$), 9.8% as Hispanic/Latino ($n = 10$), 55.9% as White ($n = 57$), and 10.8% as Other ($n = 11$). The participants were well educated, with 71.6% of the sample reporting some college education or higher (Table 2). However, only 20 participants were full time employees (19.6%); 42.2%, or 43 participants, were on disability and 16.7%, or 17 participants, were unemployed. Approximately a third of participants reported income of less than \$2,000 per month, with 35.3% ($n = 36$) making between \$1,000 and \$1,999 per month. Twenty

participants (19.6%) reported making \$500 to \$999 per month (Table 2).

The majority of the sample self identified as “gay” ($n = 88$; 86.3%). Ten participants identified as “bisexual” (9.8%) and four identified as “other” (3.9%). No participants identified as “heterosexual”. Thirty-one participants (30.4%) reported being in a current relationship, with two participants declining to answer. Of participants in relationships, 15.7% ($n = 16$) reported neither partner had sex with other people, with the remaining participants reporting only he has sex with others ($n = 1$; 1.0%); both partners have sex with others together ($n = 2$; 2.0%); both partners have sex with others separately ($n = 5$; 4.9%); the participant has sex with others but is does not know if his partner is having sex with others ($n = 5$; 4.9%); and the participant does not have sex with other people but does not know if his partner is having sex with others ($n = 2$; 2.0%).

The average time since diagnosis with HIV was 16.5 years ($SD = 8.35$). 1985 was the year in which the highest number of participants became aware of their HIV infection ($n = 7$); 1992 and 1995 followed with six participants each. Nearly half of the participants have been diagnosed with AIDS ($n = 44$; 44.1%). Two participants declined to answer this question. Nearly all of the participants have a regular HIV physician ($n = 100$; 98%), with two participants reporting they do not have a regular HIV physician. Ninety-four participants were on HIV medication (92.2%). The most common missed dose was one, with six participants reporting missing one dose in the past week. The majority of the participants knew their CD4 count ($n = 85$; 83.3%) and viral load levels ($n = 81$; 79.4%). The average CD4 count was 503 ($SD = 336.06$) and the average viral load level was 12,301,613 ($SD = 1.11$). The range of CD4+ was from 124 to 1300. The range in viral

load was from zero, or undetectable, to 996,000,000. The mode of viral load was 50, considered undetectable per CDC guidelines (CDC, 2012c).

Study sites. Study procedures were conducted at community sites in Broward County that serve HIV infected individuals and the gay community such as the Pride Center (PALS Project, Wilton Manors, Florida), and a private office in Fort Lauderdale, Florida. Two participants requested meeting at their private offices. These sites afforded privacy for screening, consenting and completion of measures and in areas convenient to the participants.

Measures. The measures were standardized instruments that were either developed for or previously used with MSM. All have established scoring procedures. Permission for use was obtained as needed from the instruments' authors. The procedures were pilot tested by the researcher. The instruments were administered as self-report questionnaires. The original design of the study included participants completing questionnaires on a laptop computer onto a web-based data entry system, Velos. However, the computer system proved too slow to use in the field, and as such only six participants completed study measures on the laptop computer and the others completed on paper forms. When using Velos, the researcher opened the first instrument, participants answered each question, and upon completion of the instrument notified the researcher. The researcher saved the completed instrument and opened the next, and continued in this manner until all instruments were complete. When using paper forms, the researcher presented the measures in a packet. Ninety-six participants completed study measures on paper. The researcher entered study measures in the laptop computer.

Stressors. *HIV-related discrimination* was measured via the Perceived Stigma subscale of the Berger Stigma Scale (Berger et al., 2001). This scale measures perceived results of others' knowledge of the respondent's HIV status, such as rejection and other acts of discrimination. The subscale has demonstrated high internal consistency ($\alpha = .93$), consists of 18 items and uses a four-point Likert type scale (ranging from 1 = "strongly disagree" to 4 = "strongly agree") (Berger et al., 2001). This measure demonstrated excellent internal consistency in this study ($\alpha = .94$). *Gay related stigma* was measured by the Experienced Homosexual Stigma Scale (Ramirez-Valles et al., 2010). This 14-item scale measures harassment, social rejection, family reaction, and childhood maltreatment related to sexual orientation, and has demonstrated good internal consistency ($\alpha = .71-.87$; Ramirez-Valles et al., 2010). This measure demonstrated good internal consistency in this study ($\alpha = .89$).

Outcome variables. *Depressive symptoms* was measured using the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). This 20-item instrument uses a four-point Likert type scale (ranging from 0 = "rarely or none of the time" to 3 = "most or all of the time") to measure depressive symptoms for research purposes, and has demonstrated good internal consistency ($\alpha = .85$) among the general population (Radloff, 1977) and with gay men ($\alpha = .87$; Frost et al., 2007). One item from the Beck Depression Inventory was added as a last question to the CES-D to assess for suicidal ideation and need for assistance with care (Beck, Steer, & Garbin, 1988). This item was not included in the reliability assessment or total score of the CES-D for analyses. The CES-D demonstrated excellent internal consistency in this study ($\alpha = .92$).

High-risk sexual behavior was measured by the 38-item Sexual Activity Questionnaire (Ramirez-Valles et al., 2010). Participants were asked to indicate the number of times they engaged in unprotected receptive or insertive anal and/or vaginal intercourse with men, transgender persons, and/or women in the previous 12 months and the number of male or transgender partners for the past 12 months for each participant. Due to extreme positive skew, this high-risk sexual behavior was coded as 0 = no/low risk, 1 = high risk for analyses.

Chronic strain (intervening variables). *Internalized homophobia* was measured using the Internalized Homosexual Stigma Scale (Ramirez-Valles et al., 2010). The 13-item scale assessing blame, endorsement of normative masculinity, desire to change sexual orientation, and shame, has demonstrated good internal consistency ($\alpha = .55-.83$). This measure had good internal consistency in this study ($\alpha = .90$). *Internalized HIV-related stigma* was measured using the Internalized AIDS-Related Stigma Scale (Kalichman et al., 2009). This six-item scale measures self-blame and concealment, and among Americans living with HIV/AIDS, the scale has shown good internal consistency ($\alpha = .75$; Kalichman et al., 2009). This measure demonstrated good internal consistency in this study ($\alpha = .85$).

Contextual variables. *Life experiences* was measured using the Life Experiences Survey (LES; Sarason et al., 1978). This instrument asks participants to rate the impact of 47 life experiences occurring within the past zero to six months and the past seven months to a year. If the participant experienced the event, he was asked to rate the impact the event had on his life on a seven-point Likert-type scale (ranging from “extremely negative” to “extremely positive”). Test-retest reliability coefficients for the total change

score were .63 and .64 for two different samples (Sarason et al., 1978). Wording of some items of the LES were adapted for use with MSM (i.e., “spouse” was replaced with “partner”; Lewis, Derlega, Griffin, & Krowinski, 2003). The total sum of events in the past year was used to score the LES; no reliability was assessed.

Social support was measured using the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988; Zimet et al., 1990). This 12-item instrument measures perceived social support from friends, family and a significant other, and has demonstrated good internal consistency among MLHIV ($\alpha = 0.91$; Dowshen et al., 2009). This measure demonstrated excellent internal consistency ($\alpha = 0.93$).

Demographic and control variables. The demographic instrument assessed county of residence, age, education, employment status, income level, sexual orientation, age since participant knew he was gay, bisexual, or interested in sex with other men, relationship status, year of HIV diagnosis, if ever diagnosed with AIDS, if currently on medication for HIV infection, if on medication, number of doses of HIV medication missed in previous week, last CD4+ count, and last viral load. Control variables in the analyses included age, ethnicity, education, employment, and income; the latter variables are considered influential on the stress process throughout the lifespan (Pearlin et al., 2005).

Procedures

Recruitment. IRB-approved flyers and business cards were used to announce the study and solicit interested persons to call the researcher. Recruitment advertising was placed in MSM oriented media, such as *Guy* magazine, and mainstream, widely circulated online media such as *New Times*, and *Craigslist*. A website was created and

posted. Study participants were recruited at MSM oriented venues, such as AIDS service organizations, HIV testing and counseling sites, clubs and restaurants in Broward County and Miami-Dade County, Florida.

Screening. An Institutional Review Board waiver of signed consent for screening was obtained in order to allow the researcher to screen interested candidates by telephone, or in person, in a space allowing for privacy. The researcher developed a screening tool to determine candidates' eligibility. MSM status was determined by asking candidates if they considered themselves gay, bisexual or as men who have sex with other men. Candidates were asked if they had sex with another man in the past 12 months, how old they were, if they were living with HIV/AIDS, if they read and spoke English, and if they resided in South Florida at least part time.

Consent and enrollment. Once eligibility was established, the researcher made an appointment to conduct consent procedures with the participant and administer the measures. If the screening was conducted in person, the consent and questionnaire administration was done at the same time as screening. The researcher explained the study to the participant, including the purpose of the study, procedures, a brief description of the measures, the estimated amount of time that the procedures required, payment, risks and benefits, the voluntary nature of the research (including a statement that refusal to participate or stopping participation would not interfere with services to which the participant is otherwise entitled), and contact information for the researcher and the University of Miami Human Subjects Research Office. The participant was asked if he understood and was encouraged to ask questions. If the participant agreed to enroll he

was asked to sign the consent form and was given a copy of the informed consent. Most participants declined to take a copy of the informed consent with them.

Questionnaire administration. The study measures were administered in a private space. Participant questions were immediately answered (e.g., instructions, words that the participant did not understand). The questionnaires took approximately one hour to complete. As stated above, because the Velos data entry system was largely unavailable in the field, most participants completed the survey using paper and pencil. Breaks were given as needed. Upon completion of questionnaires, participants received a \$20 gift card.

Data entry, security and analysis. As stated above, six questionnaires were answered via Velos, a web-based data collection system. After the researcher opened the first survey, the participant read the first question, selected an answer, and went on to the next question. Upon completion of each survey, the participant notified the researcher, who then saved the survey, after which she closed it and opened the next survey, until all surveys were complete. Ninety-six participants completed study measures on paper-based forms, as the Velos system performed slowly in the field. The researcher entered the participant's responses into the Velos system. Data was only be accessible by the researcher and other IRB approved personnel such as the researcher's advisor. All data was secured on a password-protected laptop, and was stored in a locked cabinet in the researcher's locked office. All paper-based forms were stored in a locked cabinet in the researcher's locked office and in the El Centro locked storage vault at the University of Miami School of Nursing and Health Studies. The researcher entered the data from Velos into SPSS 19.0 for analysis.

Analysis Plan

The analysis plan was as follows: Sample size was initially planned to ensure it was adequate to conduct SEM. Descriptive statistics were analyzed to describe the sample. Preliminary SEM analyses did not converge on solutions. This lack of convergence may have been due to using two indicators per latent variable. After consultation, the researcher revised the analysis plan. A regression-based approach was the alternative mode of analysis. Because regression was used, the outcomes of depressive symptoms and high-risk sexual behavior were examined separately. Multivariate linear regression (used for depression) assumptions of normal distribution of residuals, homoscedasticity, linearity, and absence of multicollinearity were tested. Logistic regression (used for high-risk sexual behavior), a method of analyzing categorical data, has fewer assumptions; these assumptions include 1) the observations are operationally independent of each other; the observations have the same distribution; and 3) the number of observations is large (Nunnally & Bernstein, 1994b). The first assumption was met. Although some participants completed study measures on Velos and others on paper, the high-risk sexual behavior questions were identical; as such, potential participant conformity and/or interviewer bias were minimized. The second assumption was violated (see *normal distribution of residuals*, below), but was rectified via dichotomizing high-risk sexual orientation. The third assumption was met, as high-risk sexual behavior was summed from responses incorporating male and female partners in the past year, thus ensuring an adequate number of observations.

Bivariate correlations between predictors and outcomes were assessed with the Pearson product-moment correlation (r), which describes the linear relationship and

magnitude of continuous variables (Nunnally & Bernstein, 1994a). Correlations range between 1.00 and -1.00, affording variance division of two or more variables into meaningful parts. In addition, r is the basis of multiple regression.

Assumptions

Sample size. The original design of the study required 200 participants as there are approximately 20 parameters to be estimated in the basic SEM model. The anticipated power resulting from a sample of this size would have been greater than 80% to uncover lack of good fit ($RMSEA > .05$) when the alternative hypothesis for fit is $RMSEA = .086$ (where $RMSEA > .08$ is generally considered inadequate fit) (Kline, 2011). Using the mediation analyses methods of Fritz and MacKinnon (2007), there would have been over 80% power for a mediation effect in which the standardized path of the predictor to the mediator is .24, and the path from the mediator to the outcome is also .24. A standardized path coefficient of .24 would have explained approximately 5.8% of the dependent measure.

At 102 participants, sample size was adequate to conduct multiple regression per Green's (1991) guideline of $N > 50 + 8m$ (m = number of independent variables; $101 > 50 + (64) = 98$). In addition, post-hoc power analyses for multiple and logistic regression was conducted using G*power (Faul, Erdfelder, Lang, & Buchner, 2007). For multiple regression with six predictor variables, 102 participants are sufficient for power of 0.80, with an alpha of 0.05 and a medium-size effect. For logistic regression with six predictor variables, 102 participants are sufficient for power of 0.80, assuming covariates accounted for 20% of the variance, an alpha of 0.05, and $OR = 2$.

Multivariate regression assumptions were tested in the following manner. The *normal distribution of residuals* was tested by examining residuals of all predictors and outcomes on a scatterplot and conducting casewise diagnostics to identify cases more than two standard deviations away from the mean. Five cases were identified as outliers in the outcome variables. High-risk sexual behavior was dichotomized to normalize the distribution. Although removing outliers to normalize the distribution of residuals in depressive symptoms was an option, the researcher chose to retain these cases in the measure total as these scores represent important information regarding the range of depressive symptoms among the sample.

Linearity and *homoscedasticity* were tested by conducting linear regressions of all predictors and outcomes and examining the resultant patterns produced in scatterplots. Outliers found during linearity examination were treated as described above. Scatterplots did not indicate irregular distributions of plot points, which is indicative of homoscedasticity, or that the variance of the residuals (error) is equal (Miles & Shevlin, 2008). These assumptions were met.

Multicollinearity occurs when two or more independent variables are highly correlated (Miles & Shevlin, 2008). Multicollinearity was tested by computing a collinearity statistic, variance inflation factor (VIF). VIF is related to tolerance, which is the measure of how much one independent variable can be predicted by another independent variable (Miles & Shevlin, 2008). VIF is related to the standard error of the variable due to multicollinearity; the accepted cut-off is four. No VIF was above four.

Covariates. Covariates included age, as well as ethnicity, education, and employment as the latter factors are theorized to be affected by discrimination and

influential on individuals' stress processes throughout the lifespan (Pearlin et al., 2005). Life experiences and social support were also included as controls. The relationships between covariates/controls and the outcomes were examined in multiple regression and logistic regression analyses, and no significant relationships were found between covariates/controls and outcomes, although the relationship between age and depressive symptoms approached significance (Tables 3 and 4). These control variables were included in all hypotheses tests, except where explicitly stated that they were not included.

Revised Hypotheses and Exploratory Analyses

The revised hypotheses and exploratory analyses are as follows:

Hypothesis 1: Perceived/Enacted stigma will predict outcomes for MLHIV.

H1a: Perceived/enacted stigma will be positively related to depressive symptoms.

H1b: Perceived/enacted stigma will be positively related to high-risk sexual behavior.

Hypothesis 2: Internalized stigma will moderate the relationship between perceived/enacted stigma and outcomes.

H2a: Internalized stigma will moderate the relationship between perceived/enacted stigma and depressive symptoms.

H2b: Internalized stigma will moderate the relationship between perceived/enacted stigma and high-risk sexual behavior.

Hypothesis 3: Internalized stigma will mediate the relationship between perceived/enacted stigma and outcomes.

H3a: Internalized stigma will mediate the relationship between perceived/enacted stigma and depressive symptoms.

H3b: Internalized stigma will mediate the relationship between perceived/enacted stigma and high-risk sexual behavior.

Exploratory Analyses 1: Life experiences will moderate the relationship between perceived/enacted stigma and internalized stigma.

Exploratory Analyses 2: Life experiences will moderate the relationship between perceived/enacted stigma and outcomes.

E2a: Life experiences will moderate the relationship between perceived/enacted stigma and depressive symptoms.

E2b: Life experiences will moderate the relationship between perceived/enacted stigma and high-risk sexual behavior.

Exploratory Analyses 3: Social support will mediate of the relationship between life events and the outcomes.

E3a: Social support will mediate the relationship between life experiences and depressive symptoms.

E3b: Social support will mediate the relationship between life experiences and high-risk sexual behavior.

Exploratory Analyses 4: Ethnicity will moderate the relationship between perceived/enacted stigma and outcomes.

E4a: Ethnicity will moderate the relationship between perceived/enacted stigma and depressive symptoms.

E4b: Ethnicity will moderate the relationship between perceived/enacted stigma and high-risk sexual behavior.

Moderation, or the affect on the strength and direction of the relationship between the predictor variable (perceived/enacted stigma) and the outcomes (depressive symptoms and high-risk sexual behavior) by the moderating variable (internalized stigma) (Baron & Kenny, 1986), was tested via hierarchical regression. First, the control variables were entered; in the next block, the predictor variable was entered. In the following block, the moderating variable was entered, and in the final block, the interaction term (perceived/enacted stigma*internalized stigma) was entered.

Mediation was tested using Baron and Kenny's (1986) method, by examining the effect of the intervening variable on the relationship between the predictor variables and outcomes. Mediation was tested through a series of regressions, examining the relationships between the predictor variable (perceived/enacted stigma) and the outcome variables (depressive symptoms; high-risk sexual behavior), then the relationship between the predictor variable (perceived/enacted stigma) and the mediating variable (internalized stigma). Next, the relationship between the mediating variable and the outcomes were examined. Finally, hierarchical regression was used to test for the effect of the predictor variable on the outcomes while controlling for the effects of the mediating variable. Life experiences, social support, ethnicity, education, employment and income were control variables in moderation and mediation analyses.

Quality assurance. *El Centro's* quality assurance team conducted a quality assurance review prior to the beginning of the study, after the first five participants were enrolled, and at the close of the study. In the initial review, the quality assurance team

assessed procedures, documentation of researcher training, and evaluation of the Regulatory Binder. Subsequent quality assurance assessments confirmed that screening, consent and storage procedures were conducted per the study protocol by reviewing 100% of consent forms and subject eligibility, and provided 100% double data entry for all forms entered on paper.

Human Subjects Protection

Human subjects protection approval was obtained from the University of Miami Social and Behavior Sciences Institutional Review Board (IRB) on May 24, 2011. A Certificate of Confidentiality was received from the National Institute of Nursing Research (NINR) on January 3, 2012. Participants in this study might have revealed sensitive information about their HIV serostatus, sexual activities, and mental health that could be potentially stigmatizing, lead to discriminatory acts against them or damage their reputations. A Certificate of Confidentiality safeguarded participants' privacy by protecting the researcher and the University from being compelled to reveal identifying information in legal proceedings at various levels, with the exception of child abuse, reportable infectious diseases, or threatened violence (e.g., suicide or violence directed at others) (NIH, 2011). The Certificate of Confidentiality expired on June 1, 2013, and recruitment ceased on that date. The protections and limitations of privacy conferred by the Certificate were clearly described in the informed consent document.

The researcher adhered to all procedures approved by the University of Miami Institutional Review Board, and no changes in the protocol were made until they were approved via amendments. The IRB determined that the study constituted no more than minimal risk to subjects. The main risks were breeches of privacy, disclosure of sexual

risk behavior that puts others at risk, emotional upset due to the questions asked, and the identification of participants with suicidality and/or severe depression.

Breach of privacy. Participants' privacy was protected by maintaining confidentiality and through a Certificate of Confidentiality from the NINR.

Disclosure of unsafe serodiscordant sex. Study measures assessed for unsafe sex, but did not assess for HIV serostatus disclosure to sexual partners. The researcher assessed for sexual risk behaviors, provided information on alternative activities and disclosure strategies, and provided flyers with information on local services for MLHIV and legal considerations to all participants. The informed consent form stated that Florida law prohibits health professionals from disclosing HIV status to third parties, however, if participants reported sexual activities with minors, this is a reportable offense that the researcher would have reported to authorities. No participants disclosed a reportable offense to the researcher.

Emotional upset. If a participant had become emotionally upset during the procedures, the questionnaires would have been stopped, the need for services would have been ascertained, and participants reporting problems would have been referred to appropriate resources for assistance. No participants became emotionally upset during study procedures.

Depression/suicidality. MLHIV may be at increased risk for depression and suicidality. The researcher interviewed participants whose scores on the depressive symptoms measure indicated probable depressive symptoms, and assessed if further intervention and accession of services was indicated. Any actively suicidal participant with an immediate plan would have been admitted into care without delay, and those not

actively suicidal were to be counseled by the researcher to follow up with mental health services. The applicant assisted two participants in contacting resources immediately. Dr. Mitrani, PhD and Dr. Doris Ugarriza, PhD, ARNP, PMHCNS-BC were available to consult with and guide the researcher.

CHAPTER 4

Results

The purpose of this dissertation was to test a stress process model predicting depression and high-risk sexual behavior (*outcomes*) among MLHIV (Figure 1). The hypotheses tested were: experiences of gay- and HIV-related stigma (*stressors*) predict depressive symptoms and high-risk sexual behavior among MLHIV (H1), and internalized HIV-related stigma and internalized homophobia (*chronic strain*) either moderate or mediate the relationship between gay-related and/or HIV-related stigma and depressive symptoms and high-risk sexual behavior (H2). The results are organized into four sections: 1) descriptive statistics of the predictor variables, intervening variables, outcomes, and control variables; 2) preliminary analyses; 3) hypotheses tests; and 4) exploratory analyses.

Descriptive Statistics of the Predictor Variables, Intervening Variables, Outcomes, and Control Variables

Descriptive statistics of the predictor variables, the Experienced Homosexual Stigma Scale and the Perceived HIV-related Stigma Subscale of the Berger HIV Stigma Scale (*stressors*), the Internalized Homosexual Stigma Scale and the Internalized AIDS-Related Stigma Scale (*intervening variables*), and the outcomes of depressive symptoms and high-risk sexual behavior are presented in Table 6. Additional information is presented below.

The mean HIV-related stigma score was 41.67 ($SD = 11.78$). The midpoint score for the scale is 36 and 77 participants (77.5% of the sample) scored above the midpoint, indicating that a majority of participants in this sample experienced moderate to high levels of levels of HIV-related stigma. The mean gay related stigma score was 29.9 (SD

=8.83). The midpoint score for the scale is 28 and 58 participants (56.9% of the sample) scored above the midpoint, indicating that a majority of participants in this sample experienced moderate to high levels of levels of gay-related stigma. The mean internalized homophobia score for this sample was 20.11 ($SD = 6.19$), and the midpoint score for the internalized homophobia scale is 26. Eighty-four (82.4%) participants scored above the midpoint score, indicating that the majority of participants experienced low levels of internalized homophobia. The mean score of internalized HIV-related stigma for this sample was 1.88 ($SD = 2.03$) and the midpoint score for the scale is two. Seventy participants (68.6%) scored above the midpoint, indicating that the majority of participants experienced low levels of internalized HIV-related stigma.

The mean score on the CES-D was 15.47 ($SD = 11.30$). Forty-two (41.2%) participants scored 16 or higher on the CES-D, the established cutoff indicative of depressive symptoms (Radloff, 1977). The mean number of instances of unprotected sex in the past year was 13.61 ($SD = 50.64$). Only 17 (16.7%) participants engaged in more than 14 (rounded mean) instances of unprotected sex in the past year, however, these 17 participants engaged in 1,196 occasions of unprotected sex, as compared to 85 (83.3%) participants who engaged in fewer than 14 instances of unprotected sex, and accounted for a total of 190 occasions of unprotected sex.

Descriptive statistics of the demographic control variables are described in Chapter 3 and in Table 2. Additional descriptive statistics of life experiences and social support are found in Table 6. The mean number of life experiences in the past year was 6.32 ($SD = 6.44$), out of 47 experiences listed on the instrument. The mean social support

score was 60.34 ($SD = 15.75$). The midpoint score for the scale is 42 and 88 participants (87.3% of the sample) scored above the midpoint. This indicates that the majority of participants experienced moderate to high levels of social support.

Preliminary Analyses

Correlations. Pearson product-moment correlation coefficients (r) were conducted with all variables; Table 5 includes both significant and non-significant correlations. HIV-related stigma and internalized HIV-related stigma were moderately positively correlated ($r = .538, p < .001$), as were HIV-related stigma and internalized homophobia ($r = .302, p < 0.01$). Gay related stigma was moderately and positively correlated with internalized homophobia ($r = .248, p < 0.05$) and internalized HIV-related stigma ($r = .358, p < 0.01$). Stigma variables were also significantly correlated with social support and life experiences variables. Social support was moderately and negatively correlated with HIV-related stigma ($r = -.355, p < 0.01$), gay related stigma ($r = -.212, p < 0.05$), internalized homophobia ($r = -.279, p < 0.0$) and internalized HIV-related stigma; ($r = -.350, p < 0.01$). Life experiences was moderately and positively correlated with HIV-related stigma ($r = .364, p < 0.01$).

As described in Chapter 4, preliminary SEM analyses did not converge on solutions and the analysis plan was revised to a regression-based approach. In order to facilitate regression analysis in a similar manner as to the planned SEM, HIV-related stigma and gay related stigma were combined to create one variable (henceforth referred to as perceived/enacted stigma). Internalized HIV-related stigma and internalized homophobia were also combined into a single variable (henceforth referred to as internalized stigma). These variables are theoretically similar and shared significant

amounts of variance (HIV-related stigma and gay related stigma: $R^2 = 0.29, p < .001$); internalized HIV-related stigma and internalized homophobia: $R^2 = 0.22, p < .001$).

Hypothesis Tests

Hypothesis 1: Perceived/Enacted stigma will predict outcomes (Figure 3).

H1a: Perceived/enacted stigma will be positively related to depressive symptoms.

Perceived/enacted stigma was not significantly related to depressive symptoms, $B = 1.42, SE = 1.40, \beta = .11, p = .312, R^2 = 0.08, 95\% CI [-4.20, 1.35]$.

H1b: Perceived/enacted stigma will be positively related to high-risk sexual behavior.

Perceived/enacted stigma was not significantly related to high-risk sexual behavior, $B = -.16, SE = 0.27, Wald = .35, p = .553, OR = 0.85, 95\% CI [.505, 1.44]$.

Hypothesis 2: Internalized stigma will moderate the relationship between perceived/enacted stigma and outcomes.

H2a: Internalized stigma will moderate the relationship between perceived/enacted stigma and depressive symptoms (Figure 4).

Perceived/enacted stigma was not significantly related to depressive symptoms, $B = -2.07, SE = 1.93, \beta = -.16, p = .289, R^2 = .26, 95\% CI [-5.97, 1.83]$. Internalized stigma was not significantly related to depressive symptoms, $B = -1.76, SE = 2.59, \beta = -0.13, p = .500, R^2 = .27, 95\% CI [-6.99, 3.47]$. The perceived/enacted stigma x internalized stigma interaction term did not significantly moderate the relationship between perceived/enacted stigma and

depressive symptoms, $B = 1.99$, $SE = 1.69$, $\beta = .17$, $p = .296$, $R^2 = 0.29$, 95% CI [1.43, 5.41].

H2b: Internalized stigma will moderate the relationship between perceived/enacted stigma and high-risk sexual behavior (Figure 5).

Perceived/enacted stigma was not significantly related to high-risk sexual behavior, $B = 0.39$, $SE = 0.48$, $Wald = 0.65$, $p = .420$, $OR = 1.48$, 95% CI [.57, 3.82]. Internalized stigma was not significantly related to high-risk sexual behavior, $B = -0.25$, $SE = 0.73$, $Wald = 0.12$, $p = .729$, $OR = 0.78$, 95% CI [.19, 3.24]. The perceived/enacted stigma x internalized stigma interaction term did not moderate the relationship between perceived/enacted stigma and high-risk sexual behavior, $B = 0.56$, $SE = 0.56$, $Wald = 1.00$, $p = .318$, $OR = 1.74$, 95% CI [.59, 5.18].

Hypothesis 3: Internalized stigma will mediate the relationship between perceived/enacted stigma and outcomes.

H3a: Internalized stigma will mediate the relationship between perceived/enacted stigma and depressive symptoms (Figure 6).

No significant relationship was found between perceived/enacted stigma and depressive symptoms, which is a requirement for mediation. However, the researcher tested other pathways of mediation, i.e., the relationships between internalized stigma and perceived/enacted stigma and depressive symptoms. Perceived/enacted stigma was significantly related to internalized stigma, $B = 0.63$, $SE = 0.11$, $\beta = .65$, $p < .001$, $R^2 = 0.56$, 95% CI [.40, .87]. Internalized stigma was not significantly related to depressive symptoms, but approached

significance, $B = -2.39$, $SE = 1.96$, $\beta = -1.82$, $p = .074$, $R^2 = 0.27$, 95% CI [-6.34, 1.56].

H3b: Internalized stigma will mediate the relationship between perceived/enacted stigma and high-risk sexual behavior (Figure 7).

Again, the researcher tested the remaining pathway of mediation; internalized stigma was not significantly related to high-risk sexual behavior, $B = 0.16$, $SE = 0.50$, $Wald = 0.11$, $p = .741$, $OR = 1.18$, 95% CI [.45, 3.12].

Exploratory analyses. Exploratory analyses were conducted to further examine potential effects of covariates/control variables.

Exploratory Analyses 1: Life experiences will moderate the relationship between perceived/enacted stigma and internalized stigma (Figure 8).

In step one of the moderation test, perceived/enacted stigma and internalized stigma were significantly related, $B = 0.67$, $SE = 0.09$, $\beta = .71$, $p < .001$, $R^2 = .50$, 95% CI [0.48, 0.86]. In the next step, life experiences were not significantly related to internalized stigma, $B = 0.04$, $SE = 0.08$, $\beta = .04$, $p = .678$, $R^2 = .50$, 95% CI [-0.13, 0.20]. Last, the perceived/enacted stigma x life experiences interaction term did not significantly moderate internalized stigma, $B = -.05$, $SE = 0.09$, $\beta = -.05$, $p = .597$, $R^2 = 0.50$, 95% CI [-0.22, .13].

Exploratory Analyses 2: Life experiences will moderate the relationship between perceived/enacted stigma and outcomes (Figure 9).

E2a: Life experiences will moderate the relationship between perceived/enacted stigma and depressive symptoms.

The relationship between perceived/enacted stigma and depression, and life experiences and depression, is shown above in the preliminary analysis section. The perceived/enacted stigma x life experiences interaction term did not significantly moderate depressive symptoms, $B = 2.19$, $SE = 1.52$, $\beta = .20$, $p = .155$, $R^2 = .09$, 95% CI [-0.86, 5.23].

E2b: Life experiences will moderate the relationship between perceived/enacted stigma and high-risk sexual behavior.

The relationship between perceived/enacted stigma and high-risk sexual behavior, and life experiences and high-risk sexual behavior is shown above in the preliminary analysis section. Life experiences did not moderate the relationship between perceived/enacted stigma and high-risk sexual behavior, $B = 0.69$, $SE = 0.31$, $Wald = 0.35$, $p = .555$, $OR = 1.25$, 95% CI [0.60, 2.58].

Exploratory Analyses 3: Social support will mediate of the relationship between life events and the outcomes (Figure 10).

E3a: Social support will mediate the relationship between life experiences and depressive symptoms.

No significant relationship was found between life experiences and depressive symptoms, or between social support and depressive symptoms, which are requirements for mediation (Table 3). However, the researcher tested a pathway of mediation, i.e., the relationship between social support and life experiences. Life events was not significantly related to social support, $B = -0.36$, $SE = 0.24$, $\beta = -0.15$, $p = .147$, $R^2 = 0.02$, 95% CI [-0.84, 0.02].

E3b: Social support will mediate the relationship between life experiences and high-risk sexual behavior.

Again, no significant relationship was found between life experiences and high-risk sexual behavior, or between social support and high-risk sexual behavior, which are requirements for mediation (Table 4). The relationship between social support and life experiences is described above in E3a.

Exploratory Analyses 4: Ethnicity will moderate the relationship between perceived/enacted stigma and outcomes (Figure 11).

E4a: Ethnicity will moderate the relationship between perceived/enacted stigma and depressive symptoms.

The relationship between perceived/enacted stigma and depressive symptoms is shown above in the preliminary analysis section, and the relationship between ethnicity and depressive symptoms is shown in Table 3. The perceived/enacted stigma x ethnicity (i.e., ethnicities) interaction term did not significantly moderate the relationship between perceived/enacted stigma and depressive symptoms; for African American ethnicity, $B = -2.73$, $SE = 3.31$, $\beta = -0.10$, $p = .410$, $R^2 = 0.06$, 95% CI [-9.30, 3.83], and for Hispanic/Other ethnicity, $B = -1.46$, $SE = 3.27$, $\beta = -0.05$, $p = .656$, $R^2 = .06$, 95% CI [-7.95, 5.03].

E4b: Ethnicity will moderate the relationship between perceived/enacted stigma and high-risk sexual behavior.

The relationship between perceived/enacted stigma and high-risk sexual behavior is shown above in the preliminary analysis section, and the relationship between ethnicity and high-risk sexual behavior is shown in Table 4. The perceived/enacted stigma x

ethnicity interaction term for any ethnicity did not significantly moderate the relationship between perceived/enacted stigma and high-risk sexual behavior; for African American ethnicity, $B = 0.38$, $SE = 0.62$, $Wald = 0.37$, $p = .544$, $OR = 1.46$, 95% CI [0.43, 4.96], for Hispanic/Other ethnicity, $B = 0.64$, $SE = 0.68$, $Wald = 0.89$, $p = .347$, $OR = 1.90$, 95% CI [0.50, 7.17],

Additional exploratory analyses were computed to test Hypotheses 1, 2, and 3 without controlling for life experiences and social support, (age, ethnicity, education, and employment remained covariates). Additional exploratory analyses testing the relationship between participants' age and the outcomes using multiple and logistic regression without covariates were also conducted.

Exploratory Analyses 5: Perceived/Enacted stigma will predict depressive symptoms and outcomes.

E5a: Perceived/enacted stigma will be positively related to depressive symptoms.

Perceived/enacted stigma was not significantly related to depressive symptoms, $B = -1.78$, $SE = 1.30$, $\beta = -.14$, $p = .176$, $R^2 = 0.08$, 95% CI [-4.36, 0.81].

E5b: Perceived/enacted stigma will be positively related to high-risk sexual behavior.

Perceived/enacted stigma was not significantly related to high-risk sexual behavior, $B = -0.01$, $SE = 0.25$, $Wald = 0.00$, $p = .964$, $OR = 0.99$, 95% CI [0.61, 1.61].

Exploratory Analyses 6: Internalized stigma will moderate the relationship between perceived/enacted stigma and outcomes.

E6a: Internalized stigma will moderate the relationship between perceived/enacted stigma and depressive symptoms.

Perceived/enacted stigma was not significantly related to depressive symptoms, $B = -1.95$, $SE = 1.30$, $\beta = -0.15$, $p = .14$, $R^2 = 0.09$, 95% CI [-4.54, 0.64]. Internalized stigma was not significantly related to depressive symptoms, $B = -0.46$, $SE = 2.21$, $\beta = -0.03$, $p = .836$, $R^2 = 0.10$, 95% CI [-4.85, 3.93]. The perceived/enacted stigma x internalized stigma interaction term did not significantly moderate the relationship between perceived/enacted stigma and depressive symptoms, $B = 0.80$, $SE = 1.51$, $\beta = 0.06$, $p = .598$, $R^2 = 0.10$, 95% CI [-2.19, 3.77].

E6b: Internalized stigma will moderate the relationship between perceived/enacted stigma and high-risk sexual behavior.

Perceived/enacted stigma was not significantly related to high-risk sexual behavior, $B = 2.53$, $SE = 1.52$, $Wald = 0.01$, $p = .910$, $OR = 1.03$, 95% CI [0.63, 1.70]. Internalized stigma was not significantly related to high-risk sexual behavior, $B = -2.40$, $SE = 0.44$, $Wald = 0.35$, $p = .553$, $OR = 0.771$, 95% CI [0.33, 1.82]. The perceived/enacted stigma x internalized stigma interaction term did not moderate the relationship between perceived/enacted stigma and high-risk sexual behavior, $B = 0.50$, $SE = 1.55$, $Wald = 2.08$, $p = .149$, $OR = 1.65$, 95% CI [0.84, 3.27].

Exploratory Analysis 7: Internalized stigma will mediate the relationship between perceived/enacted stigma and outcomes.

E7a: Internalized stigma will mediate the relationship between perceived/enacted stigma and depressive symptoms.

Perceived/enacted stigma and depressive symptoms were not significantly related, $B = -1.78$, $SE = 1.30$, $\beta = -0.14$, $p = .176$, $R^2 = 0.08$, 95% CI [-4.36, 0.81], which is a requirement for mediation. Nevertheless, the researcher tested the other mediation pathways, the relationships between internalized stigma and perceived/enacted stigma and depressive symptoms. Perceived/enacted stigma was significantly related to internalized stigma, $B = .69$, $SE = 0.06$, $\beta = .75$, $p < .001$, $R^2 = .75$, 95% CI [0.57, 0.81]. Internalized stigma was not significantly related to depressive symptoms, $B = -0.11$, $SE = 0.10$, $\beta = -0.12$, $p = .263$, $R^2 = 0.56$, 95% CI [-0.30, 0.08].

E7b: Internalized stigma will mediate the relationship between perceived/enacted stigma and high-risk sexual behavior.

As above, the researcher tested the remaining pathway of mediation; internalized stigma was not significantly related to high-risk sexual behavior, $B = -0.08$, $SE = 0.28$, $Wald = 0.09$, $p = .767$, $OR = 0.92$, 95% CI [0.53, 1.60].

Exploratory Analyses 8: The average outcome scores will differ by younger or older age group membership.

EA8: The average depressive symptom score will differ by younger age or older age.

An independent sample t-test was conducted to test mean differences in outcomes by age group (younger age versus older age). The median age of 49 was used as the cut point ($n = 54$ under age 49, $n = 47$ over age 49). No mean difference was found in depressive symptoms between the younger age group

($M = 13.83$, $SD = 10.73$) and the older age group ($M = 17.13$, $SD = 11.80$), ($M = 17.13$, $SD = 11.80$), $t(99) = 1.469$, $p = .145$, $\alpha = .05$.

EA8: Age will be significantly related to high-risk sexual behavior.

A logistic regression was conducted to test the effect of age on high-risk sexual behavior (younger and older age; groups were split at the median age, 49 years). Age was not significantly related to high-risk sexual behavior, $B = -0.40$, $SE = 0.42$, $Wald = 0.01$, $p = .928$, $OR = 0.96$, 95% CI [0.42, 2.19].

CHAPTER 5

Discussion

The purpose of this cross-sectional dissertation study was to test a stress process model predicting depression and high-risk sexual behavior among MLHIV (Figure 1). Structural equation modeling, the planned data analysis, failed to converge on solutions, and as reported in Results (Chapter 4), an alternative analysis plan was implemented; however, multiple and logistic regression analyses failed to confirm any of the study hypotheses. As discussed below, multiple factors may have contributed to a lack of significance in the hypothesized relationships. Preliminary analyses, study hypotheses, and exploratory analyses determined that the stigma variables were moderately positively correlated, shared significant variance, and were significantly related. The relationship between internalized stigma and depressive symptoms was not significant, but did approach significance. The implications of these findings will also be discussed below. This chapter is organized into four sections: 1) Potential explanations for non-significant results of main hypotheses, exploratory analyses, correlations, and implications 2) study limitations; 3) directions for future nursing research; 4) implications for intervention development and implementation.

Potential Explanations for Non-Significant Results of Main Hypotheses and Exploratory Analyses

Hypothesis 1: Perceived/Enacted stigma will predict depressive symptoms and outcomes (Figure 3).

Exploratory Analyses 5: Perceived/Enacted stigma will predict depressive symptoms and outcomes.

The data did not support perceived/enacted stigma as a predictor of depressive symptoms or high-risk sexual behavior among this sample of MLHIV, despite over half of the sample reporting higher than average HIV-related stigmatization, and nearly half of the sample reporting higher than average gay related stigmatization, and over 40% of the sample experiencing depressive symptoms above the clinical cutoff. The lack of significant findings may be due to the influence of unmeasured mediating variables of the stress process, and to the development of resilience over time among MLHIV.

The average age of the sample was 48 years, and the average time since diagnosis with HIV was 16.5 years. Although no significant age effects on the outcomes were found, it is nevertheless possible that many individuals in this sample may have experienced gay related and HIV-related stigma for years. Over their life courses, these participants may have developed strategies or characteristics, not measured in this study, that served as a defense against the negative effect of stigma (Pearlin, 1989; 1999; Pearlin et al., 1981). Coping is one such mediator. Carrico and colleagues (2006) employed cognitive behavioral stress management with medication adherence training intervention with a group of MLHIV in order to reduce stress, and found that this approach reduced denial coping and depressed mood. Kurtz and colleagues (2012) found that coping self-efficacy significantly predicted engaging in serosorting on among MLHIV. In addition, a recent study found problem-focused coping significantly predicted higher quality of life, while HIV-related stigma also significantly predicted lower quality of life among older MLHIV (Slater et al., 2013). Among this sample of MLHIV, useful coping strategies, developed over many years since coming out or since HIV diagnosis, may deflect some of the effects of gay and HIV-related stigma. Future research should

include coping as a mediator of the stress process model presented in this study in order to measure the potential effect of this construct. (An additional mediator of the stress process, social support, is discussed in the exploratory analyses section below.)

Although not a mediator in a classic stress process model (Pearlin, 1989; 1999; Pearlin et al., 1981), resilience has emerged as an important component of healthy adaptation and wellness within the context of HIV infection (De Santis, 2008; De Santis & Deleon, 2013). This may be particularly true for older MLHIV. Brennan and colleagues (2013) assessed the socio-demographic differences among heterosexual women, heterosexual men, gay men and bisexual men living with HIV, and found that gay and bisexual men had significantly higher mean mental health quality of life scores compared to heterosexual women and men; gay and bisexual men also had the lowest HIV-related stigma and depression scores compared to heterosexual women and men. The authors suggest that MSM may have been living with HIV infection longer than the heterosexual women and men, and MSM may have had more time to adjust to life with a chronic illness and to develop successful strategies by which to handle living with HIV infection. Older African Americans living with HIV have described acceptance of HIV infection, taking care of their health, living life and enjoying themselves, as ways to combat HIV-related stigma (Foster & Gaskins, 2009). As Herrick and colleagues write (2011), resilience may be an unexploited resource for intervention development with MLHIV. The authors write that the resilience that allowed the MSM community to engage in a long, but effective civil-rights campaign while the effects of HIV were devastating the community demonstrates the strength of gay and bisexual men. It would

not be surprising if this resilience, although unmeasured in the present study, affected the outcomes. Future studies should include this construct as a mediator.

Hypothesis 2: Internalized stigma will moderate the relationship between perceived/enacted stigma and outcomes (Figures 4 and 5).

Exploratory Analyses 6: Internalized stigma will moderate the relationship between perceived/enacted stigma and outcomes.

Internalized stigma did not moderate the relationship between perceived/enacted stigma and depressive symptoms and high-risk sexual behavior. The mean internalized homophobia score among this sample was approximately six points below the midpoint for the scale; nearly half of the sample scored in this range. The internalized HIV-related stigma average score was below two on a zero to six point scale; over half of the sample scored two or less on this measure. The lack of influence of internalized stigma on either outcome lends credence to Newcomb and Mustanski's (2011) contention that internalized homophobia is not as relevant a construct as it once was, given the advances made in sexual minority rights in the US (Human Rights Campaign, 2013a; US Supreme Court, 2013).

However, caution should be taken in dismissing internalized stigma out of hand. Although not significant in the present study, Herrick and colleagues (2013) recently assessed a life course predictor of a syndemic among MSM. The authors found that internalized homophobia was significantly associated with depressive symptoms, sexual compulsivity, and other factors, such as intimate partner violence. It is likely that internalized homophobia remains a relevant factor, but its negative impact may be most

potent earlier in the life course; the authors conceptualized internalized homophobia as occurring during the “coming out” period, after early life events and before adulthood.

Likewise, internalized HIV-related stigma may remain an important construct of interest as individuals living with HIV get older. Emler (2006a) found that 50% of HIV infected individuals aged 50 or older reported feeling ashamed of their HIV infection “sometimes” or “often”. Further, Emler (2007) has found that among HIV infected older individuals, 32% felt set apart from the rest of society due to HIV infection. Future studies investigating internalized homophobia and internalized HIV-related stigma should carefully assess the political, social and economic climate as it pertains to the rights of sexual minorities, as well as the population of interest’s experience with significant milestones such as “coming out” and age at diagnosis, and measurement of the internalization of this stigmatization accordingly. Qualitative research may need to be conducted in order to further understand the lived experience of internalized homophobia and internalized HIV-related stigma among MLHIV.

Hypothesis 3: Internalized stigma will mediate the relationship between perceived/enacted stigma and outcomes (Figures 6 and 7).

Exploratory Analysis 7: Internalized stigma will mediate the relationship between perceived/enacted stigma and outcomes.

The only significant relationship found when testing these hypotheses was the relationship between perceived/enacted stigma and internalized stigma. This relationship is expected given the similar theoretical underpinnings of the constructs, such as experiences of discrimination in multiple areas of life, self-blame, negative self-concept, and internalization of others’ negative beliefs and

perceptions (Berger et al., 2001; Herek, 2002; 2007; 2009b; Kalichman et al., 2009; Ramirez-Valles et al., 2010; Ross et al., 2008). Internalized stigma was not significantly related to depressive symptoms, however, this relationship approached significance. A recent cross-sectional study found 12% of MLHIV reported depressive symptoms (Safren et al., 2010); however, over 40% of participants in this study reported depressive symptoms. As stated above, internalized homophobia may be driving this result (Herrick et al., 2013). This result is also in congruence with recent findings by Nyamanthi and colleagues' (2012) that among young, homeless MSM who use stimulant drugs, internalized homophobia was significantly correlated with depressive symptoms.

Internalized stigma was not significantly related to high-risk sexual behavior. However, as stated above, internalized stigma may merit future investigation, particularly in respect to its relationship with sexual behavior. Molina & Ramirez-Valles (2013) recently found that internalized HIV-related stigma was significantly correlated with safe sex self-efficacy in a study with Latino gay and bisexual men and transgender women. Further, the authors found that internalized HIV-related stigma mediated the relationship between enacted HIV-related stigma and safe sex self-efficacy. Although safe sex self-efficacy differs from high-risk sexual behavior conceptually, the argument can be made that the enhanced perception of the ability to engage in safe sex is a necessary component for completing safer sex behavior. If HIV-related stigma affects the perception that leads to the act, it follows that it remains a viable variable to study among MLHIV. Expanding the definition of high-risk sexual behavior, in addition

to measuring the antecedents to safe sex, may shed additional light on the relationship between HIV-related stigma and high-risk sexual behavior in future studies.

Exploratory Analyses 1: Life experiences will moderate the relationship between perceived/enacted stigma and internalized stigma (Figure 8).

Exploratory Analyses 2: The level of life experiences will moderate the relationship between perceived/enacted stigma and outcomes (Figure 9).

As stated above, perceived/enacted stigma and internalized stigma were significantly related, however, life experiences did not moderate the relationship between perceived/enacted stigma and internalized stigma, or the relationship between perceived/enacted stigma and the outcomes. These results may be due to influences associated with the life course. As stated above, many participants in this study were middle-aged. As Pearlin and colleagues (2005) maintain, when considering the stress process in the context of the life course, status related to stressful events/circumstances that precede health outcomes later in life are influential over time. In the substruction for this study, life experiences were also conceptualized as a stressor (i.e., as potentially stigmatizing), and thus this influence was tested in exploratory analyses. However, if what Pearlin and colleagues (2005) suggest holds true for this sample, their overall high status, good health, and limited impactful life experiences in the past year have served to mitigate the effect of life events. This sample was well educated (Table 2), had access to HIV care, and only 54 participants reported impactful life experiences in the past year; not all of these events were negative. As Pearlin and colleagues (2005) write, despite early adversity, this sample may have tapped into resources allowing them to deflect the

negative effects of perceived/enacted stigma and internalized stigma. Future research into the impact of life experiences on the stress process is warranted, as is qualitative and quantitative analysis of the influence of life experiences on adverse health outcomes among individuals living with HIV.

Exploratory Analyses 3: Social support will mediate of the relationship between life events and the outcomes (Figure 10).

No significant relationships were found when testing these exploratory analyses. Over half of the sample scored well over the midpoint on the social support measure, indicating a large amount of available social support among this sample. This finding may be expected, given the possibility that among this sample, coping, resilience, and older age may have contributed to constructing strong social support networks. Social support is a mediator of the stress process itself (Pearlin et al., 1981), and it is an important construct as it is an entryway for intervention with MLHIV (Aneshensel, 1992). Shippy and Karpiak (2005) found that a majority (57%) of aging individuals with HIV infection reported not having their emotional support needs met. The importance of social support is further underscored in a recent study. Although no significant relationship was found between age and social support among this sample, among older MLHIV, social support has been found to be a significant protective factor for mental health related quality of life (Emlet, Fredriksen-Goldsen, & Kim, 2013). The role of social support as a mediating variable in the stress process model should be examined in future studies, given its malleability in terms of intervention implementation and its mitigating effect on adverse mental health outcomes.

Exploratory Analyses 4: Ethnicity will moderate the relationship between perceived/enacted stigma and outcomes (Figure 11).

Although unexpected given the disparities in HIV infection rates among Black, Hispanic and White MSM (CDC, 2012a), the lack of significant findings in these exploratory analyses may be related to other components of the stress process. Among Black and Hispanic MSM, higher levels of social support has been found to be significantly associated with lower odds of condomless anal intercourse with a non-main partner in the previous three months (Lauby et al., 2012). Nevertheless, a recent study conducted with Black and Hispanic MLHIV found that HIV stigma (i.e., HIV-related stigma) was positively correlated with depression, as was MSM stigma (i.e., gay related stigma) (Wohl et al., 2013). These findings demonstrate that the unique character of South Florida may have played a role in ethnicity's lack of significance. South Florida is known as a gay-friendly area, moreover, most of the participants hailed from a particularly well-known and gay-hospitable section of Broward County. It is possible that in this enclave, where sexual minorities are the majority, ethnicity may play a lesser role in societal acceptance, and thus have less impact on the stress process across the life span. Another interpretation of this lack of significance may be found when considering a potential mediator of the stress process, acculturation. Akin and colleagues (2008) found that among Hispanic MSM, greater US acculturation was significantly associated with condomless anal intercourse in the previous six months. This finding suggests that, in opposition to possible protective effects of an accepting enclave, increased risk behavior may occur as the norms and values

of the culture of origin diminish. Future studies should further explore the role of ethnicity and culture in the stress process, while also examining the potentially protective role of a diverse, unique metropolitan area.

Exploratory Analyses 8: The average outcome scores will differ by younger or older age group membership.

Age group membership, i.e., younger group versus older group, made no significant difference in outcome scores among this sample of MLHIV. Most of the participants were over 40 years old; as such, these findings are in concert with the depression literature, but are at odds with the high-risk sexual behavior literature. Among older persons living with HIV infection, Emlert (2007) found over a third of his sample reported depressive symptoms on the CES-D. In this study, slightly more than 40% of the participants reported depressive symptoms. In a sample of MSM aged 40 to 94 years, Jacobs and colleagues (2010), however, found younger age to be significantly associated with condomless anal intercourse. Younger age did not predict high-risk sexual behavior in this study.

Conclusions

A recent study projected future HIV prevalence, incidence and potential averted infections in the US (Hall et al., 2010). Without intensified HIV prevention efforts, by 2020 the authors projected over 55,000 new infections per year, with a yearly transmission rate of 5.0 per 100 individuals living with HIV infection. Because MSM continue to be the risk group most adversely affected by HIV, HIV prevention interventions must consider factors driving transmission. Stigma, depression and sexual risk behaviors have been linked among MLHIV, however, the present study's results

lacked significance, with the exception of the relationship between perceived/enacted stigma, and the relationship between internalized stigma and depressive symptoms, which approached significance. These findings suggest that examining gay and HIV-related stigma, and the internalization of these stressors and their effects on depressive symptoms over the life course, requires future research. As stated above, the lack of significant findings may have been due to multiple causes; these causes should be included in future versions of this stress process model. Future research will need to consider these and other important issues discussed above in order to discern the influence of multiple, intertwined stressors, such as stigma and discrimination, in addition to potentially mediating factors, such as social support, coping, and perhaps, resilience. The effects of mediating constructs will also need to be evaluated carefully in order to ensure that the choice of mediators reflects the lived experience of the population of interest. Further refinement of this model may clarify relationships between factors that affect the health and well being of MLHIV.

Implications of Correlation

In light of the above findings, the correlation of the stigma variables with social support and life experiences merits discussion. As stated above, the theoretical frameworks of the stigma variables are similar (Berger et al., 2001; Herek, 2002; 2007; 2009b; Kalichman et al., 2009; Ramirez-Valles et al., 2010; Ross et al., 2008). It is an expected finding that the correlations among some of the stigma variables were significant and in the direction expected. HIV-related stigma was moderately and positively correlated with both internalized HIV-related stigma and internalized homophobia. Gay related stigma was moderately and positively correlated with

internalized homophobia and with internalized HIV-related stigma. The stigma variables were also significantly correlated with the social support and life experiences variables. HIV-related stigma, gay related stigma, internalized homophobia and internalized HIV-related stigma and social support scale were all moderately and negatively correlated, as expected. Internalized HIV-related stigma was moderately and positively correlated with life experiences.

Given the above findings, disentangling the influence of multiple, related stressors in the form of stigma and discrimination, in addition to the influence of social support and life experiences, may require the use of instruments that are more closely tailored to the experiences and circumstances of the target population, and are more temporally related to the target population's disease process and life span. Many participants indicated that their answers would have been different when they were younger, and earlier in their infection. It is possible that the stigma measures did not capture stigmatization and/or discrimination related to sexual orientation or HIV infection as currently experienced. It is also possible that the life experiences and social support measures did not ask the right questions. Future qualitative inquiry might address these questions, and perhaps integrate the findings into new stigma, life experiences, and social support measures designed for older MLHIV.

Study Limitations

Cross-Sectional Design

Study limitations include the cross-sectional design of the study, which preclude any attempts to assign causality or directionality from the results. Although significant

relationships were found among some of the study variables, additional research is needed to further clarify the causality and directionality of these relationships.

Generalizability

The study sample was drawn from a convenience sample recruited primarily in Broward County, in South Florida. As such, the study results cannot be generalized to other populations of MSM. Further, many of the participants of the study were recruited from MSM-serving community agencies and MSM-serving establishments, or by word of mouth, in a large gay enclave in Broward County. A sense of altruism and a desire to give back to their community may have motivated some participants to engage in the study. It is possible these participants share certain characteristics, attitudes, and experiences that may make them unique among gay populations in the US.

Participant Bias

An additional study limitation is participant bias. Many of the participants stated to the researcher that they have participated in studies and are familiar with study procedures; others were graduates of HIV prevention and health promotion programs, and others were currently in substance abuse rehabilitation. As such, the results from participants who experienced any of these situations may be biased. Study procedures ensured confidentiality and the researcher explained all human subjects protection procedures to participants to ensure understanding. Although unlikely, it is possible that participants did not provide accurate answers to uncomfortable questions, such as the number of sexual partners or engaging in unprotected sex.

Recruitment

The most significant challenge of the study was recruitment of the target sample. While there are sufficient numbers of MLHIV in South Florida, the sensitive and stigmatized nature of HIV infection and sexual minority status may have been barriers to recruitment. The researcher reached out and forged relationships with community agencies serving MSM, and sought out the advice and guidance of researchers experienced with recruiting MSM. Doing so resulted in advantageous partnerships that led to recruitment of a large portion of the sample.

Study Design

This study was designed with young MSM in mind. Due to challenges encountered in recruiting this population, the age range was expanded to include MSM aged 18 and over living with HIV infection. As such, it is possible that the study model, conceptualized to consider constructs pertaining to younger MSM more recently infected with HIV, may not be salient to older HIV-infected MSM. Future research, including both qualitative and quantitative work, should seek to uncover stressful antecedents, impactful life events, and positive resources developed by older MSM living with HIV infection that influence and mitigate depressive symptoms and other mental health conditions, as well as sexual health.

Missing Items

Another potential limitation of the study is missing items. For Human Subjects Protection purposes, participants were given the option to skip any questions that they did not wish to answer. A missing value analysis was conducted and no scales were missing more than 1%. All analyses in SPSS used listwise deletion. Analyses that included social

support and internalized HIV-related stigma were missing one case that did not answer those items.

Influence of Ethnicity on Outcomes

Ethnicity may impact the mechanisms at work between stigma and depressive symptoms and high-risk sexual behavior, and the researcher made every effort to enroll an ethnically diverse sample. However, due to the small proportions of each ethnic group in this study, power to test the influence of ethnicity in the models may have been limited. This lack of power is potentially problematic, because mechanism differences related to culture may cloud effects upon examination of the overall sample. Exploratory analyses were conducted on ethnicity as moderators of each outcome, and although not significant, the role of ethnicity will be included in future studies as a component of the stress process model.

Directions for Future Nursing Research

Implications for future nursing research were briefly discussed in the context of the results and lack of significant findings in the present study. Future nursing research suggested by the findings is reiterated here, with a focus on using the present data. The goal of future research is to further conceptualize stressors, mediators, and outcomes in the refinement of the stress process model presented in this study.

Future studies refining the stress process model should include coping as a mediator. In addition, resilience should be tested as a potential mediator.

Future studies will require research into the political, social and economic climate regarding the rights of sexual minorities. These factors have been found to impact the

health of sexual minorities (Hatzenbuehler et al., 2009; 2011), and it is necessary to include these factors a future stress process model.

How stigma is perceived and experienced by older MLHIV may need to be assessed qualitatively prior to quantitative research in order to ensure the dimensions of stigma are captured. In addition, the role of social support and life experiences as intervening variables requires further inquiry. Qualitative research could also be conducted to integrate these findings into stigma, life experiences, and social support measures designed for older MLHIV.

Future research into the influence of ethnicity, culture and the environment (e.g., neighborhood, city) on the stress process is needed. Living in a sexual minority enclave may provide protective factors against adverse health outcomes, and perhaps mitigate health disparities experienced by Black, Hispanic, and other MSM and MLHIV of color. However, acculturation to American culture may serve to place MSM of color at increased risk for adverse health outcomes.

In addition to the suggested future studies above, additional studies from this dataset may uncover other important relationships among these variables. Pearlin and colleagues (2005) wrote that early and repeated misfortune and hardship might result in enhanced vulnerability to stress throughout the life span. In addition to the present stress process model, with social support included as a mediator, investigating the relationship between the age participant knew he was first interested in sex with men, age of sexual debut, reason for first sex, age at time of HIV-infection, sexual risk behaviors and illicit substance abuse may provide insight into risk behavior among these participants. Reason

for first sex may be a critical factor: Martin and Alessi (2010) found that experiences of victimization were significantly associated with unprotected anal intercourse; victimization may have begun at sexual debut. This line of investigation is in concert with Herrick and colleagues (2013) findings, in which they found that life course predictors were significant predictors of stress, depressive symptoms, and sexual compulsivity.

MSM in South Florida have been found to use illicit substances (Darrow et al., 2005), and are more likely to engage in high-risk sexual behavior if under the influence. A future study using this dataset will look at the amount, type, frequency (e.g., how much use in past two months versus past 12 months), and relationship to high-risk sexual behavior, such as engaging in condomless anal or vaginal intercourse, engaging in sex with HIV-negative or unknown serostatus partners, or engaging in high-risk sex activities such as attending sex parties or engaging services of escorts. This study will re-conceptualize the high-risk sexual behavior outcome to include all of the above sexual risk behavior; substance abuse will be conceptualized as mediating variable. Social support will be included in this model as a mediating variable as well.

Implications for Future Intervention Development and Implementation

Upon future refinement of this stress process model, the knowledge necessary to develop and implement an effective intervention targeting depressive symptoms and high-risk sexual behavior among MLHIV will be gained. The content of this future intervention is as of yet unknown, but three approaches may serve the population of interest well. The intervention will need to be cost effective, tailored to individual needs, and completed in a short amount of time (CDC, 2011b). This intervention must also be

innovative, may involve technology, and may need to be delivered by various means (Grossman et al., 2011). For example, an intervention designed to enhance coping might be delivered via an application on a smart phone (Swendeman & Rotheram-Borus, 2010), or tablet. To increase knowledge, however, a website might be created and disseminated in tandem with the smart phone application (e.g., www.hivstigma.com; Adam et al., 2011). Some individuals prefer receiving information face-to-face; as such, a last approach would be a short-term program, developed and implemented in partnership with the community agencies the researcher worked with while recruiting for this study.

Nurses can and must become knowledgeable about gay stigma, HIV-related stigma, and the internalization of these forms of stigma, in order to work towards their prevention. Familiarity with Healthy People 2020 is an excellent starting point. As discussed in Chapter 1, a goal of Healthy People 2020 is to eliminate health disparities; by including the health of sexual minorities through a social determinants of health approach throughout the life span, Healthy People may serve as a very potent set of guidelines by which this goal can be accomplished (US DHHS, 2010). As Green and Fielding (2011) suggest, in order to accomplish the objectives of Healthy People 2020, the involvement of key stakeholders is required. Nurses are well positioned to undertake this role; nurse scientists can design, test, and implement interventions with MLHIV that target HIV and other leading health indicators (US DHHS, 2013c). However, in order to accomplish this, nurses' own biases must be acknowledged and dismissed. In a recent review of the nursing lesbian, gay, bisexual and transgender literature, Eliason and colleagues (2010) found that of the top 10 nursing journals, only eight (0.16%) articles were about lesbian, gay, bisexual or transgender issues. Clearly, additional nursing

studies related to sexual minority health are needed; for the knowledge gained, and to combat stigmatization of MLHIV and others by individuals within the nursing profession.

The most critical intervention a nurse can conduct, however, is the interaction with a client. By gaining knowledge of HIV and its related conditions, and treating every client living with HIV with respect, nurses cannot only provide exceptional care for their clients, nurses can make great progress in eliminating gay and HIV-related stigmatization and discrimination, and the internalization of these stressors.

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Table 1

Adult HIV/AIDS Rates in Miami-Dade (May 2013), Broward (December 2012), and Monroe Counties (December 2012)

County	Total Infections	Female Cases	Male Cases	MSM Cases
Miami-Dade	47,530 ^a	12,697 ^a	34,833 ^a	20,096 ^{a,c}
Broward	16,676 ^b	4,825 ^b	11,851 ^b	7,229 ^{b,c}
Monroe	1,552 ^b	121 ^b	1,431 ^b	1,034 ^{b,c}

^{a,b} Rates include documented individuals only.

^c MSM case rates are included in the male case rate totals.

Table does not include Department of Corrections cases (Broward County Health Department, 2012; Miami-Dade County Health Department, 2013, 2012).

Table 2
Participant Education, Employment and Income

	<i>n</i>	Percentage
Education		
Less than High School	5	4.9%
High School/GED	20	19.6%
Technical or Vocational School	4	3.9%
Some College	32	31.4%
College Degree	29	28.4%
Graduate Degree	12	11.8%
Employment		
Full-time Employee	20	19.6
Part-time Employee	10	9.8
Unemployed	17	16.7
On Disability	43	42.2
Retired	5	4.9
Self-employed	3	2.9
Seasonal Worker	-	-
Employed by Temp Agency	1	1.0
Student	-	-
Other	3	2.9
Income		
Not Applicable, Not Employed	16	15.7%
Less than \$500	-	-
\$500 - \$999	20	19.6%
\$1,000 - \$1,999	36	35.3%
\$2,000 - \$2,999	13	12.7%
\$3,000 - \$3,999	4	3.9%
\$4,000 - \$4,999	5	4.9%
\$5,000 - \$5,999	2	2.0%
\$6,000 or more	3	2.9%

Table 3
Multiple Regression Summaries: Covariates and Dependent Variable

Depressive Symptoms						
	<i>B</i>	<i>SE</i>	β	<i>p</i>	<i>R</i> ²	95% CI
Age	-.22	.12	-.18	.069	.03	[-.47, .02]
African American	-.29	2.65	-.011	.914	.000	[-5.55, 4.97]
Hispanic/Other	4.33	2.75	.16	.119	.024	[-1.13, 9.77]
White	-2.66	2.25	-.12	.240	.001	[-7.12, 1.80]
Education	-.90	2.83	-.032	.752	.001	[-6.51, 4.72]
Employment	4.44	3.24	.136	.174	.018	[-1.99, 10.86]
Social Support	.11	.07	.15	.135	.02	[-.03, .25]
Life Experiences	-.04	.18	-.03	.805	.00	[-.39, .31]

Table 4
Logistic Regression Summaries: Covariates and Dependent Variable
 High-Risk Sexual Behavior

	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>p</i>	<i>OR</i>	95% CI
Age	-.04	.02	2.13	.145	.97	[.92, 1.01]
African American	.06	.49	.01	.908	1.06	[.40, 2.79]
Hispanic/Other	.33	.54	.39	.535	1.39	[.49, 3.99]
White	-.26	.42	.37	.545	.77	[.34, 1.77]
Education	.55	.57	.94	.332	1.73	[.57, 5.24]
Employment	-.31	.63	.24	.627	.74	[.21, 2.54]
Social Support	-.01	.01	.92	.339	.99	[.96, 1.01]
Life Experiences	-.01	.03	.06	.803	.99	[.93, 1.06]

Table 5
Pearson Product–Moment Correlations Among Study Variables

	HIV Stigma	EHS	IHS	IAS	Social Support	LES	CES-D	Unprotected Sex
HIV-Related Stigma (HIV Stigma)	-	.540**	.302**	.538**	-.355**	.135	-.035	-.117
Experienced Homosexual Stigma (EHS)		-	.248*	.358**	-.212*	.162	.098	.113
Internalized Homosexual Stigma (IHS)			-	.471**	-.279**	.105	-.076	.056
Internalized AIDS-Related Stigma (IAS)				-	-.350**	.364**	-.071	-.075
Multidimensional Scale of Perceived Social Support (Social Support)					-	-.167	.175	.132
Life Experiences Survey (LES)						-	-.051	-.064
Center for Epidemiologic Studies Depression Scale (CES-D)							-	-.057
High-Risk Sexual Behavior (Unprotected Sex)								-

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 6
Descriptive Statistics of Stressors, Chronic Strain and Outcomes
 Predictor Variables

	<i>N</i>	<i>M</i>	<i>SD</i>	Range
HIV Stigma	102	41.67	11.78	55.00
EHS	102	29.94	8.83	42.00
Intervening Variables				
IHS	101	20.11	6.19	29.00
IAS	102	1.88	2.03	6.00
Outcomes				
CES-D	102	15.47	11.30	42.00
Unprotected Sex	102	13.61	50.64	460.00
Control Variables				
LES	102	6.32	6.44	21.00
Social Support	101	60.34	15.75	71.00

Figure 1. Stress process model of proposed relationships among study variables.

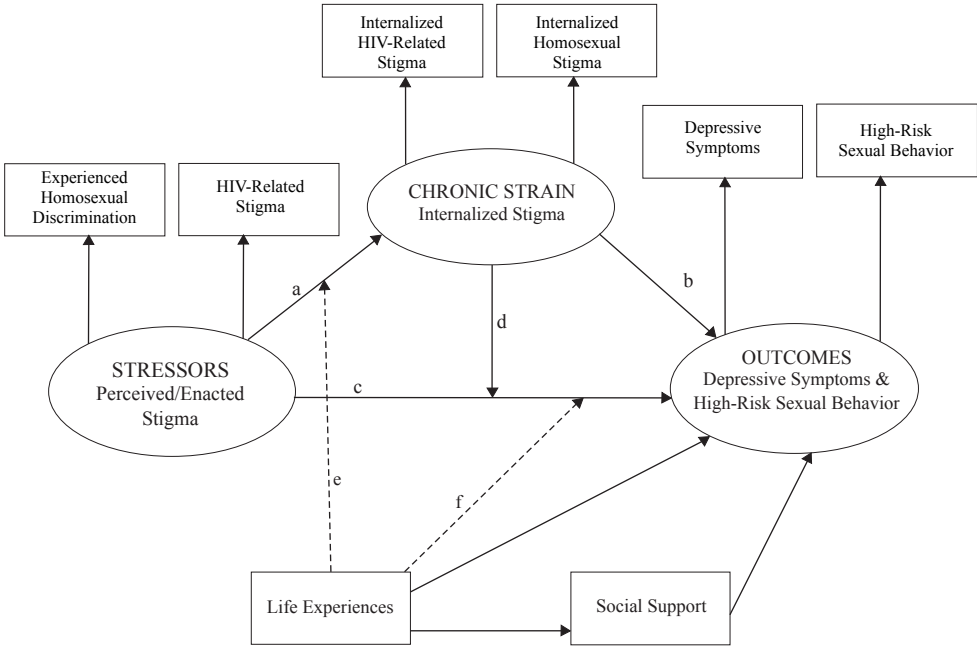


Figure 2. Substruction of the study theoretical and operational systems.

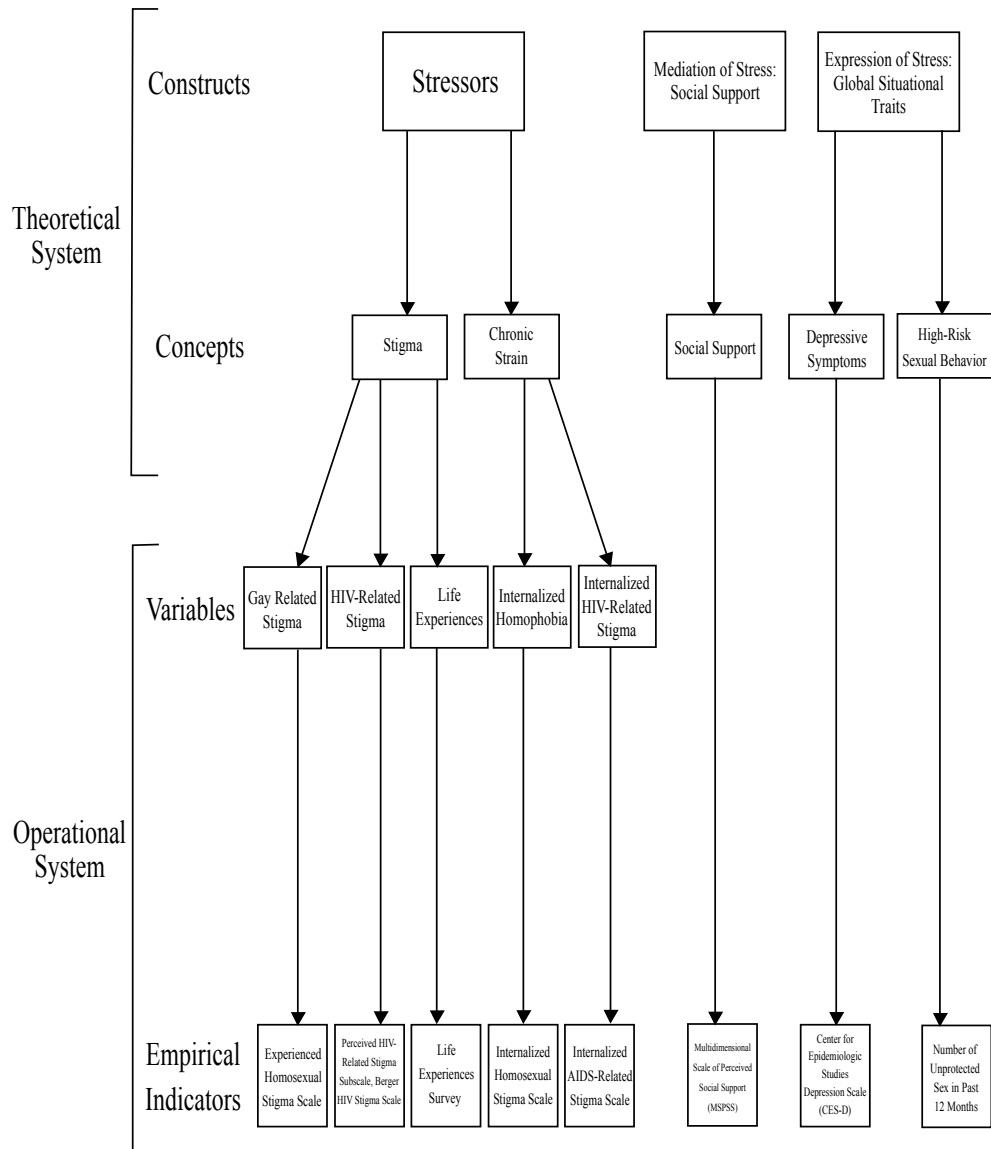


Figure 3. Revised hypotheses 1a and 1b.

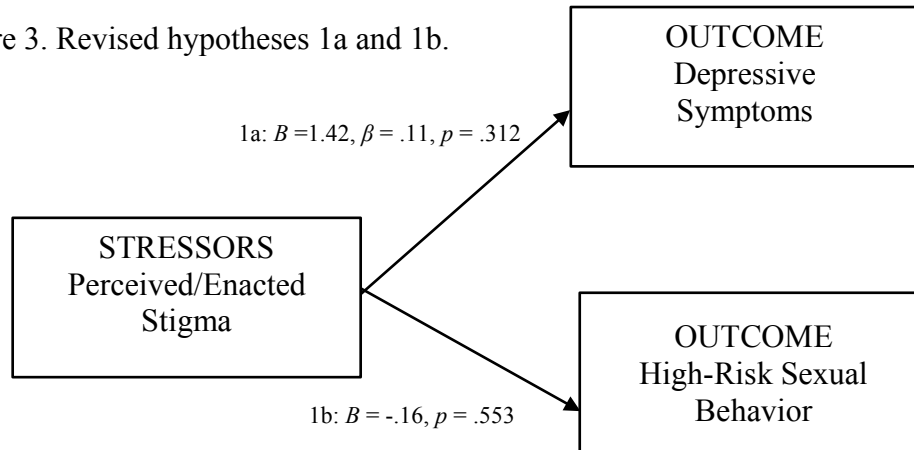


Figure 4. Revised hypothesis 2a.

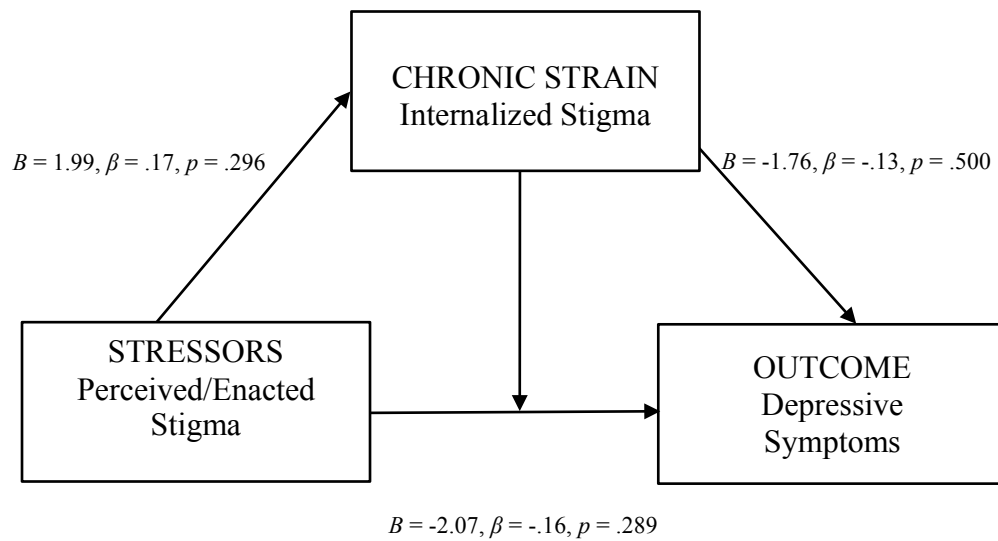


Figure 5. Revised hypothesis 2b.

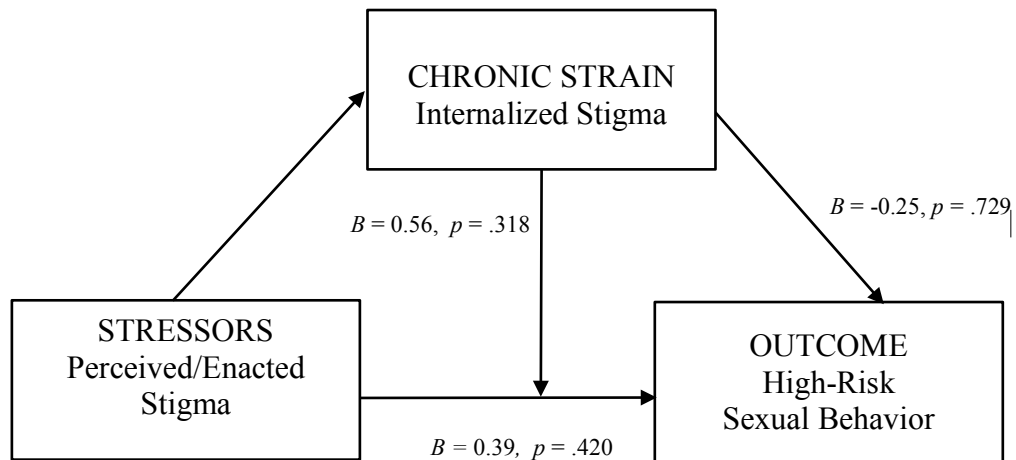


Figure 6. Revised hypothesis 3a.

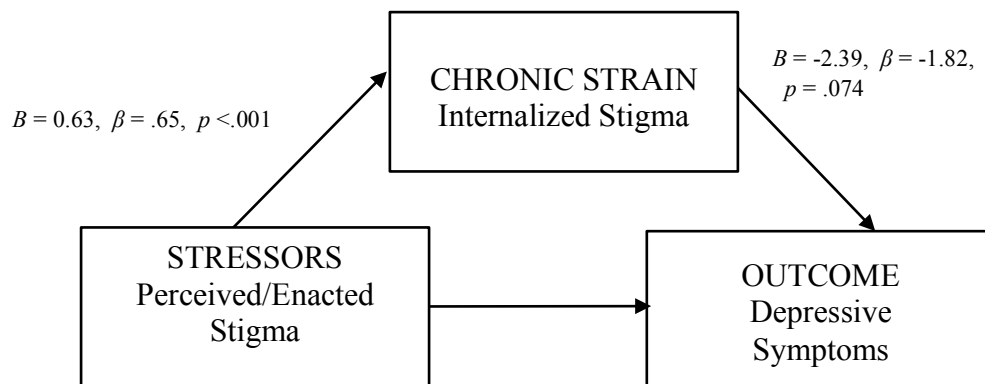


Figure 7. Revised hypothesis 3b.

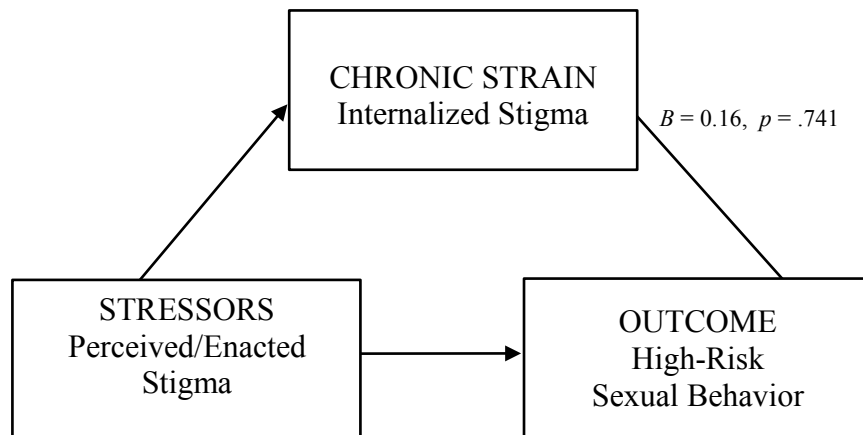


Figure 8. Exploratory analysis 1.

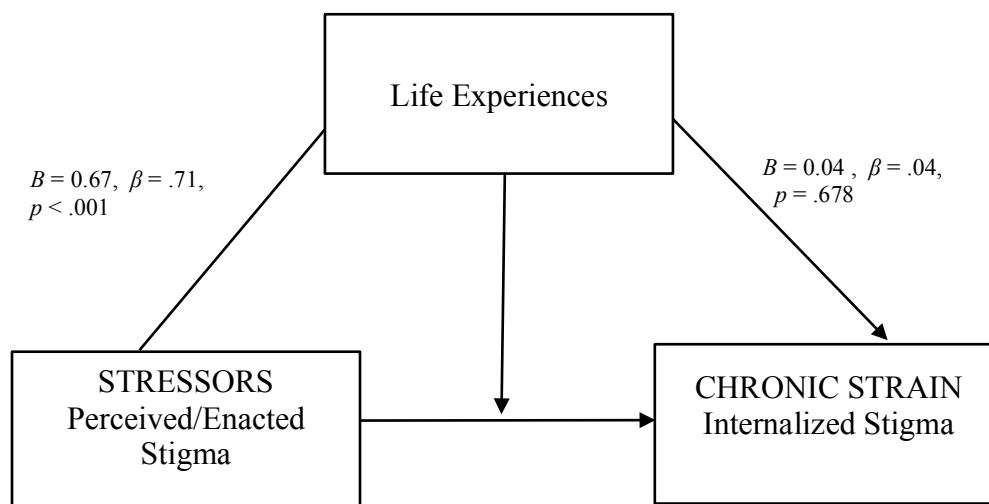


Figure 9. Exploratory analyses 2a and 2b (outcomes tested separately).

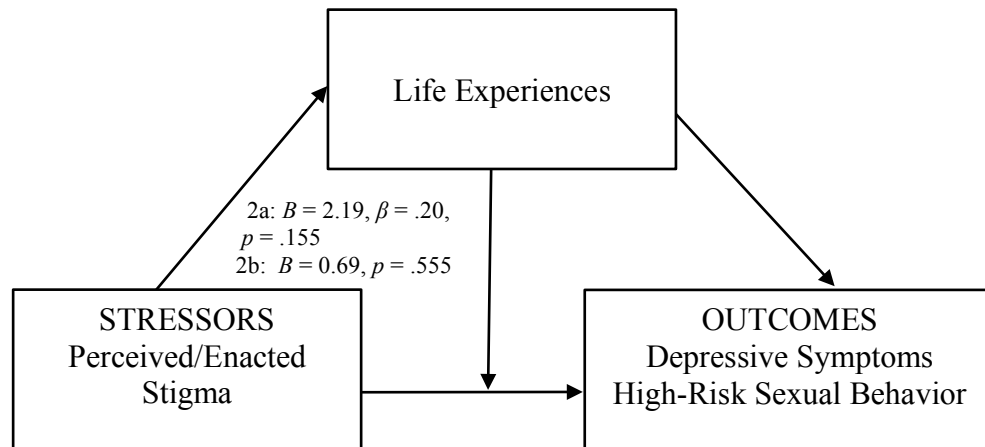


Figure 10. Exploratory analyses 3a and 3b (outcomes tested separately).

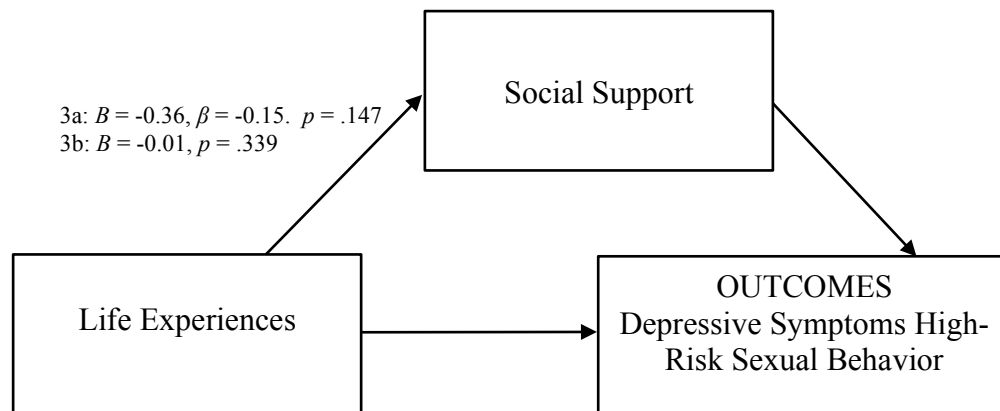


Figure 11. Exploratory analyses 4a and 4b (outcomes tested separately).

