THESIS

DEVELOPING THE LGBT MINORITY STRESS MEASURE

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ABSTRACT

DEVELOPING THE LGBT MINORITY STRESS MEASURE

Lesbian, gay, bisexual, and transgender individuals face significant mental and physical health disparities compared to their heterosexual peers. Such differential outcomes are often attributed to minority stress, chronic stress that is specific to one's marginalized status and which is distinct from normal every day life stress. Current research, which attempts to assess the relationship between minority stress and health, is stifled by lack of a uniform measurement tool to operationalize the construct. The purpose of this study was to develop a comprehensive tool that encapsulates all of the major dimensions of minority stress, as defined by Meyer's (2003) LGB minority stress model. The final LGBT Minority Stress Measure is a 25-item self-report scale, with seven subscales: identity concealment, everyday discrimination/ microaggressions, rejection anticipation, discrimination events, internalized stigma, victimization events, and community connectedness. Results from 640 participants, including 119 of which identified as gender non-conforming, supported the psychometric properties of the scale. Additionally, consistent with existing literature, greater minority stress was associated with increased psychological distress.

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Introduction

Lesbian, gay, bisexual, and transgender (LGBT) individuals face significant mental and physical health disparities compared to their heterosexual counterparts. One population-based study found that LGB persons report more acute mental health issues, and score more poorly overall on general measures of mental health than do heterosexual people (Sandfort, Bakker, Schellevis, & Vanwesenbeeck, 2006). The transgender population fares even worse. Clements-Nolle, Marx, Guzman, and Katz (2001) surveyed transgender participants and found that more than half met the criteria for depression, one third had attempted suicide, and another one-fifth had ever been hospitalized for mental health. Physical, in addition to the mental health disparities, also plague the LGBT population. For example, lesbian and bisexual women tend to more frequently have a body mass index greater than 30, and have higher rates of breast cancer than their heterosexual peers (Case & Austin, 2004). Men who have sex with men are overburdened with not only greater rates of sexually transmitted infections such as HIV and human papilloma virus, but also with greater risk of chronic conditions such as hypertension and heart disease (Cochran & Mays, 2007). The sources of such disparities are numerous and complex.

Myriad social determinants, as well as individual level health-risk behaviors, contribute to poor health outcomes for the LGBT population. For example, LGBT persons are confronted with systemic barriers to health-protective privileges such as adequate health insurance and coverage for same-sex partners, protection from discrimination, anti-bullying policies, and access to healthcare providers who are knowledgeable and culturally competent in LGBT issues (Department of Health and Human Services, 2008). Further, according to a nationally

representative survey released by researchers at the Center for Disease Control, LGBT persons frequently fail to obtain necessary medical care due to cost, and are more likely than heterosexual persons to engage in maladaptive health behaviors such as smoking cigarettes and binge drinking (Ward, Dahlhamer, Galinsky, & Joestl, 2014). Substantial rates of homelessness, substance abuse, and incidences of victimization also trouble the LGBT community (Institute of Medicine, 2011; American Psychological Association, 2013). Given the complex nature of the issue, spanning many different areas, it is critical to understand the underlying process that gives rise to such discrepant health outcomes for LGBT people.

One tool that has been instrumental in beginning to explain that process is Meyer's (2003) LGBT minority stress model, which describes how social stressors operate at the individual level to drive mental health disparities. The landmark paper has since been widely cited by researchers to explain their findings of poor health outcomes for LGBT persons, both mental and physical (Kuyper & Fokkema, 2011; Hamilton & Mahalik, 2009). The problem is that each researcher who has sought to apply Meyer's (2003) theoretical model to his/her experimental work has operationalized the construct of "LGBT minority stress" in a different way, often creating different measures. I will next identify intergroup relations theory as a foundation for minority stress concepts, summarize Meyer's (2003) LGBT minority stress model, and then discuss different approaches taken to operationalize and measure "LGBT minority stress." I will then outline the present study, which aims to develop a comprehensive measure of LGBT minority stress, and demonstrate its reliability and validity.

Theoretical Framework

The concept of minority stress is rooted in intergroup relations theory. One underlying assumption of the theory is that the social environment itself can serve as a source of stress, not

just the subjective personal events that an individual experiences. Allport (1979) first proposed that prejudice creates a very hostile social environment for minority persons, and it has a lasting adverse impact on their characters. He suggested that when minorities are victims of oppression, they will do things to compensate, taking on persecution-produced traits. Such traits include obsessively worrying about the self (similar to what a clinician today might describe as rumination), denial that one is actually a member of the minority group, self-hatred, aggression toward one's own group and other minorities, and engaging in the self-fulfilling prophecy such that one internalizes the stereotypes associated with his group (Allport, 1979). Many of the components of Meyer's (2003) model closely mirror those victimization traits described by Allport (1979).

Before Meyer's (2003) work though, Allport's (1979) ideas were initially applied to racial prejudice. One of the first minority stress models was Clark, Anderson, Clark, and Williams's (1999) biopsychosocial model. Their work served as an important foundation for describing how prejudice can lead to specific health outcomes. They posited that African Americans are more frequently exposed to environmental stimuli which might be perceived as racist. Repeatedly encountering such events triggers both psychological and physiological stress responses repeatedly, which leads to negative health outcomes. Conversely, racist incidents could also sometimes trigger a coping response, which would not lead to a poor health outcome. Their model emphasized that the stimuli must be perceived by the victim as racist in order to invoke a response. This distinction is important because members of the dominant group may often say things or engage in behaviors that they do not understand to be racist (Clark et al., 1999). The LGBT minority stress model is merely an extension of this work, applied to sexual minority prejudice instead of racial prejudice.

Intersectionality

Further building on the work of race theorists, I will also consider LGBT minority stress within the context of intersectionality theory. The core tenet of intersectionality theory is that all of a person's social statuses (e.g. race, sexual orientation, gender, class, ability, etc.) interact with one another and have a synergistic effect on his/her lived experiences. The foundation of intersectionality theory was laid with the concept of triple jeopardy- that a person's differing social statuses overlap to place him/her in a position of unique (dis)advantage (Green, 1997). The actual term intersectionality was coined by Crenshaw (1995) in her criticism of how the legal system treats issues of discrimination as isolated phenomena without consideration for how other –isms might be involved, and how such cases favor persons who are otherwise privileged (e.g. sexism cases favoring white women). Intersectionality theory was developed in contrast to the additive perspective, which has been criticized for treating each social status as a distinct isolated entity, entirely independent from other identity markers (Bowleg, 2008). In other words, the additive perspective views a person as the sum of their social statuses parts, whereas intersectionality theory sees a larger whole. While specifically building models to test different hypotheses of these theories is beyond the scope of the present study, it must be acknowledged that LGBT individuals may certainly be affected by additional minority statuses that cannot necessarily be easily compartmentalized. With this in mind, I will briefly review the few existing studies that have examined the role of multiple minority identities.

These studies have represented the LGBT African American (Wong et al., 2013), Latino (Holloway et al., 2014), and Asian American (Szymanski & Sung, 2010) populations, but the extremely small number requires expansion. One of the major unanswered questions that remains is whether the additive or interactionist perspective is a better theoretical framework for

understanding dual racial and LGBT minority stress. Testing an interactionist hypothesis poses a challenge to researchers, because results can vary based on whether it is addressed in the design or in statistical modeling. For example, Wong et al. (2013) combined issues of race and sexual minority status within the same individual test items, and ultimately found a significant relationship between minority stress and depression. Velez et al. (2014) on the other hand, used separate questionnaires to ask about racism and heterosexism, but tested their interaction terms in a regression model, and found they did not significantly predict psychological distress.

Balsam et al. (2011) developed a tool specifically for use with LGBT people of color that assesses the everyday discrimination dimension of minority stress. The LGBT People of Color Microaggressions Scale is an 18 item scale. It is composed of three factors, racism in the LGBT community, heterosexism in racial/ ethnic minority communities, and problems with relationships and dating. Because the items ask about issues of race and sexuality within each individual question such as, "Having to educate white LGBT people about race issues," this scale reflects the interactionist perspective. The researchers went through a rigorous testing procedure to develop the scale, including a series of focus groups and pilot studies to refine items before administering it to the final sample of 297 participants, who were all LGBT persons of color.

Another significant question worthy of additional research is that, while although all minority groups clearly experience stigma, do the particular pathways in which they experience minority stress differ? For example, Holloway et al. (2014) reported that cultural norms surrounding masculinity were important to Latino populations. Szymanski and Sung (2010) found that only some of the minority stress indicators that others have been reported to be significant predictors of mental health in predominately white samples, actually significantly predicted psychological distress in their sample of Asian-Americans. While the present study

will not be able to address these questions, once a reliable and valid scale is established just for the LGBT minority stress construct, a logical next step would be to use the measure to test some of these other questions.

The LGBT Minority Stress Model

Meyer (2003) describes a full conceptual framework for understanding the process of minority stress in LGB individuals. It is important to note that in his original paper, Meyer only applies the model to lesbian, gay, and bisexual individuals, but for the present study, the concepts have been expanded to include transgender persons as well. In the model, there are two broad pathways through which minority stress affects LGBT persons.

In one pathway, a person's classification as having minority status leads them to be exposed to distal stressors, which Meyer (2003) refers to as prejudice events. Distal stressors are external objective events. That is, they are not events that occurred only within the individual's mind. They can be chronic or acute. Examples of prejudice events include being a victim of discrimination or violence because of one's minority status. A person can experience such distal stressors, regardless of how he/she actually identifies, if others ascribe minority status to him/her (Meyer, 2003).

The other pathway involves proximal stressors. In this pathway, LGBT persons are both assigned minority status and actually identify as a member of a minority group. Identifying as a minority leads individuals to experience proximal stressors, which contrary to distal stressors, are internal and subjective. Meyer (2003) describes three key types of proximal stressors for LGBT persons. One type is heightened vigilance that a person continually feels because they expect to face further rejection. Another form is concealing one's identity and true self in order to protect

oneself. A third and final example of proximal stress is feelings of contempt for oneself due to internalized stigma (Meyer, 2003).

Identification with the LGBT minority group can moderate the effects of those stressors in both positive and negative ways. If a person's minority identity is the most salient aspect of his/her self-concept, he/she evaluates that identity highly negatively, or if he/she has failed to integrate it with the other parts of his/her identity, then it is likely that he/she will experience worse health outcomes in response to minority stress. Conversely, a person's minority identity can lead him/her to gain access to community-level coping resources, social support, and enhanced in-group identity, all of which can aid in ameliorating the negative impact of minority stress on mental and physical health outcomes. Furthermore, an individual's environmental circumstances and general life stressors, as well as any other minority statuses he/she holds, can also contribute to negative health outcomes.

Gap in the Literature

Meyer's (2003) model has been widely cited as a theoretical explanation for numerous empirical findings pertaining to the health of LGBT individuals, but as of yet, no uniform comprehensive way of measuring minority stress exists. Indeed, the author of the model, himself, has identified the need for the development of a rigorous quantitative measure of LGBT minority stress as the next major step in advancing the literature (Meyer & Frost, 2013). Many studies that purport to be measuring minority stress are, in fact, only measuring one aspect of it. Typically, such studies focus only on distal stressors like discrimination events (Huebner & Davis, 2007) or just proximal stressors like internalized stigma (Balsam & Mohr, 2007). Furthermore, the issue of microaggressions and everyday discrimination, that is, the minor frustrations and annoyances that are not life-altering events but do contribute to feelings of rejection and otherness, are

overlooked almost entirely in the literature (Meyer & Frost, 2013). Following is a dissection of the presently published measures of "LGBT minority stress." The work is divided by each dimension of the LGBT minority stress model. For each dimension, a summary of the different measures that have been used in the literature is provided, along with a discussion of potential threats to reliability and validity. Table 1 also summarizes this information for the reader's convenience. Finally, after discussing measurement issues, a description is given of the different outcomes associated with minority stress, particularly mental and physical/ sexual health issues.

Discrimination Events

The first dimension, discrimination events, is a distal stressor. Acts of discrimination happen outside of the individual, and can be objectively identified (Meyer, 2003). A variety of approaches have been used to measure this dimension. One emerging measure, used in four of the presently reviewed studies, is the Heterosexist, Harassment, Rejection, and Discrimination Scale (Lehavot & Simoni, 2011; Feinstein, Goldfried, & Davila, 2012; Velez, Moradi, & De Blaere, 2015; Szymanski & Sung, 2010). Huebner and Davis (2007) also used a very similar scale to this. The HHRD Scale, developed by Szymanski (2006), contains 14 items that ask about harassment, workplace/ school discrimination, and other discrimination. Participants respond to the items by using a 6-point Likert scale, ranging from *happens never*, to *happens almost all of the time*. It was developed for use with lesbian women, but has since been applied to sexual minority men as well. The scale has good reliability, with Cronbach's alphas ranging from 0.79 to 0.9 across the different studies. Because of this, items were adapted from the HHRD Scale for the present measure.

Another approach that has been used to measure this dimension is to utilize objective indicators of discrimination events. Hatzenbuehler, McLaughlin, Keyes, and Hasin (2010)

operationalized discrimination by distinguishing people who lived in states that had an amendment to ban gay marriage on the ballot between 2004-2005, and in states that did not have such a ban. The study used a prospective design, assessing mental health of the subjects before the introduction of any ballot measures, and again after the introduction of the amendments. The frequency of psychiatric disorders significantly increased from 53.9% at wave 1 to 60.9% at wave 2 in LGB individuals living in states with marriage bans. No such increase was seen in LGB persons living in states without a ban, or in heterosexual persons from either group. Substance abuse rates increased from wave 1 to wave 2 for all LGB participants, regardless of the state they lived in (Hatzenbuehler et al., 2010).

Pachankis, Hatzenbuehler, and Starks (2014) also utilized an objective measure of discrimination events. They assessed men's experiences with stigma from both their high school years, and their current college years. To do this, the researchers examined how many, out of up to five policies that are stigmatizing to LGBT people, that the states participants lived in had on the books, for both their high school state and college state. The researchers also examined public attitudes for both states for all participants, which were derived by aggregating responses from 41 national polls. The policy scores and public attitudes scores were combined to create a composite variable that the researchers deemed structural stigma.

Frost, Lehavot, and Meyer (2013) assessed the discrimination dimension by conducting in-person interviews where participants were asked if they experienced any of 47 different life events. If they did, participants gave a narrative describing the event. Based on the description, the researchers rated each event as being related to prejudice or not. These interviews were conducted at baseline, and again one year later. For the analyses, participants were given a score of zero if they had not experienced any prejudice events in the last year, or one if they had

experienced one or more events. The interviews are a unique way to assess discrimination experiences, because they are more objective than typical self-report ratings, but may be more sensitive to individual differences than other objective measures that are based on state policy.

The remaining measures of the discrimination dimension are quite varied. There were several studies that used only a single survey item to assess this, asking if participants ever received a negative reaction to their sexual minority identity, or if they had ever been harassed/ discriminated against (Kuyper & Fokkema, 2011; Kuyper & Vanwesenbeeck, 2011; Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008). Another study used an open-ended interview question to assess this, asking what the consequences would be if others knew about participants' same sex sexual behavior (Holloway, Padilla, Willner, & Guilamo-Ramos, 2014). Testa, Harbarth, Peta, Balsam, and Bockting (2014) developed a measure specifically for the transgender population. Their measure included two subscales related to discrimination, gender-related discrimination and non-affirmation of gender identity. Clearly there is vast variability in how the dimension of discrimination is quantified, but for the present study, I will be developing items based on the HHRD Scale.

Victimization Events

There are fewer existing measures of the victimization dimension, and it is often combined with discrimination. Victimization events are also distal stressors. Several studies have used only a single item to measure victimization, asking participants if they have ever been abused/ attacked due to their sexual minority status (Lea, de Wit, & Reynolds, 2014; Hatzenbuehler et al., 2008; Hamilton & Mahalik, 2009). More deatailedd measures of this dimension include, Lehavot & Simoni's (2011) Prejudice Events scale, and Wong, Schrager, Holloway, Meyer, and Kipke's (2013) questionnaire which asked participants about experiences

of harassment and attacks related to their sexuality. Both Frost et al. (2013) and Holloway et al. (2014) used semi-structured interviews to ask participants about victimization events. Finally, Testa et al.'s (2014) transgender measure included a subscale for gender-related victimization. The scale (Cronbach's alpha = .77) contains six items that ask about verbal, physical, and sexual attacks, as well as property damage. Because this was one of the more comprehensive measures used to assess the victimization dimension, and it had acceptable reliability, its items were adapted for use in the present measure.

Rejection Anticipation

The majority of published studies that assess LGBT minority stress do not include any measure of the rejection anticipation dimension. The few studies that have included such a measure are of questionable validity. The primary problem with existing measures is that they conflate rejection anticipation with actual events of rejection. Meyer (2003) describes the construct of rejection anticipation as being in a state of hypervigilance- remaining on guard to protect oneself from the possibility that one will be put in a rejecting situation. In other words, rejection anticipation represents the anxiety associated with worrying that one might be rejected, while rejection is simply the external act that an offending person commits. The former state of mind can persist, independent of whether or not a rejecting act is actually ever committed against the individual.

One measure that has been used to assess this dimension, included in two of the reviewed studies, is the Rejection Sensitivity Scale (Pachankis et al., 2014; Feinstein et al., 2012). The Rejection Sensitivity Scale was initially developed by Pachankis, Goldfried, and Ramrattan (2008). The scale contains 14 items such as, "You go to a party and you and your partner are the only gay people there. No one seems interested in talking to you" and "You've been dating

someone for a few years now, and you receive a wedding invitation to a straight friend's wedding. The invite was addressed only to you, not you and a guest." Participants rate how concerned they are that each item occurred because of their sexual orientation, and how likely they think it is the situation occurred because of their sexual orientation. This measure has some face validity, in that the items are assessing feelings of concern/ anxiety surrounding the event, not just the occurrence of the event itself. The limitation is that they refer to very specific and discrete events, and thus examine the anticipation of rejection at a single snapshot in time. The measure does not assess how much fear of rejection people experience on a daily basis, across numerous different situations and points in time. Put another way, they have treated the construct more as a state issue rather than an enduring or chronic problem.

Others have taken a different approach to measuring rejection anticipation. Frost et al. (2013) adapted items from a scale that was originally used to measure rejection sensitivity in individuals with mental illness. Their measure included 6 items such as, "Most people would willingly accept someone like me as a close friend." Respondents use a 4-point Likert scale to indicate how much they agree/ disagree. Hamilton and Mahalik (2009) also used a very similar scale. The items included statements such as, "Once they know a person is gay, most people will take his opinion less seriously." Balsam et al. (2011) also used a measure that also follow this format. They utilized the Stigma Sensitivity subscale of the LGB Identity Scale. The scale contains items such as, "I think a lot about how my sexual orientation affects the way people see me." The items in these types of measures are not as specific as the ones in the above-described Rejection Sensitivity Scale, and are thus probably better able to capture how a person feels across many different situations over time, and thus may have more validity. Therefore, this is the format that was used for the rejection anticipation dimension in the present study.

Identity Concealment

The standard measure presently used to assess the dimension of identity concealment is the Outness Inventory. Almost every study reviewed here that included some indicator of identity concealment used the Outness Inventory, or a modification of it (Balsam & Mohr, 2007; Kuyper & Fokkema, 2011; Dyar et al., 2015; Frost et al., 2013; Kuyper & Vanwesenbeeck, 2011; Balsam et al., 2011; Szymanski & Sung, 2010). The Outness Inventory was developed by Mohr and Fassinger (2000). It asks people to rate how out they are to a variety of different people in their lives. Specifically, it contains a list of 11 items: mother, father, siblings, extended family/ relatives, old heterosexual friends, new heterosexual friends, strangers, work peers, work supervisors, members of one's religious community, and leaders of one's religious community. For each item, participants rate how out they are to the people using a 7-point scale that ranges from 1= *person definitely does not know about your sexual orientation status*, to 7= *person definitely knows about your sexual orientation status and it is openly talked about*. A strength of the scale is that it does not treat outness as a dichotomous concept. However, despite its widespread use, the scale does have several limitations.

One limitation of the scale is that not all items will be applicable to most people. Someone who's parents are deceased, is an only child, or is unemployed would not be able to respond to some of the items. An even more important limitation of this scale though is that it looks at identity concealment as an external process, rather than an internal one. That is, the scale ultimately measures an external construct- some other individual's knowledge of your sexual minority status. It neglects to measure the internal processes you go through in order to transmit that knowledge. The scale does not capture the decision making process one goes through when deciding what to disclose about the self, or the behavior monitoring one engages in to control

what is revealed. In the context of stress and health, the proximal/ internal processes may have more relevance due to the importance of the appraisal mechanism (Meyer, 2003). Outness is a relatively static concept, in that once someone knows your sexual minority status, that knowledge does not generally change. The internal process of deciding what, how much, to whom, and when to make details about one's sexual identity salient is much more dynamic though. It is for these reasons that I determined the Outness Inventory would not be the best measure of identity concealment to use in the present study, despite its widespread popularity.

One alternative measure of identity concealment to consider is Testa et al.'s (2014) subscale of nondisclosure. Their scale addresses many of the above-raised criticisms. The items focus on the respondents' intentions and behaviors, rather than a third party's knowledge. One example item reads, "Because I don't want others to know my gender identity/ history, I don't talk about certain experiences from my past or change parts of what I will tell people." Response choices range from strongly disagree to strongly agree. Items such as this appear to have more face validity than those of the Outness Inventory. For example, one's parents may undoubtedly know that they are LGBT (yielding a high score of outness), but they may still avoid sharing certain experiences with them, such as that they visited a gay nightclub, or that they canvassed for support of gay marriage. While the measure is intended for use with the transgender population, the general format of items will be expanded to LGB participants for use in the present study.

Internalized Stigma

There are two primary measures that have been used to assess the dimension of internalized stigma. One is the Internalized Homophobia scale, and the other is the Internalized Homonegativity subscale of the LGB Identity scale. Martin and Dean (1992) created the

Internalized Homophobia scale, which has been utilized in a handful of studies (Lehavot & Simoni, 2011; Frost et al., 2013; Hamilton & Mahalik, 2009). Note that Wong et al. (2013) refer to a scale with the same name, but it is actually an entirely different measure. The Internalized Homophobia Scale contains nine items which ask about the extent to which respondents reject their sexual orientation, as well as their attraction to members of the same sex. Participants use a 4-point Likert scale to indicate how often they experience those feelings, ranging from often to never. Two sample items read, "I feel alienated from myself because of being gay" and "I wish that I could develop more erotic feelings about women." Note that the scale was developed for use with gay men. Items such as the latter may not generalize well to bisexual or transgender individuals. For example, a bisexual man would already have erotic feelings for women. Likewise, transgender persons may identify as heterosexual and be attracted to people of the opposite gender.

Herek, Gillis, and Cogan (2009) published a revised form of the original Internalized Homophobia scale. They posit that their revised form is better for use with women. The IHP-Revised contains only five items. Several items referring to sexual attraction were removed, making it potentially better for use with the bisexual population. Although they did keep one item referring to attraction, "I have tried to stop being attracted to women in general." The response format is changed in the revised version as well. A 5-point Likert scale ranging from *disagree strongly* to *agree strongly* is used instead. Reliability remained relatively unchanged, with a Cronbach's alpha = .85 for the original version (Martin & Dean, 1992), to Cronbach's alpha = .82 for the revised form (Herek et al., 2009). The IHP-R seems to be used somewhat more frequently than the original format, as several studies have utilized it (Szymanski & Kashubeck-West, 2008; Lea et al., 2014; Velez et al., 2015; Szymanski & Sung, 2010).

Additionally, while not identical items, Testa et al. (2014) used a very similar format for their internalized transphobia measure. For example, one item reads, "I resent my gender identity or expression."

Beyond the IHP and its revised version, there is one other, entirely separate, measure of internalized stigma, the Internalized Homonegativity subscale of the LGB Identity Scale. Mohr and Fassinger (2000) independently developed the scale, which contains five items that ask solely about participants' distaste with their sexual orientation. It does not contain any items that refer to romantic attraction. Some items are similar to those in the IHP scale though, such as, "I would rather be straight if I could." This Internalized Homonegativity scale has good reliability (Cronbach's alpha = 0.79). Like the IHP, it is also used frequently (Balsam & Mohr, 2007; Feinstein et al., 2012; Balsam et al., 2011). Due to the similarity of the above-described measures, items for the present study's assessment of internalized stigma will be drawn from all of them. No items referring to attraction will be included though, in order to maximize generalizability to bisexual and transgender individuals.

Everyday Discrimination/ Microaggressions

The issue of microaggressions is not something Meyer (2003) thoroughly discussed in his original introduction of the LGB minority stress model. In a later book chapter summarizing the minority stress model, it is something he has acknowledged as being a significant contributor (Meyer & Frost, 2013). Given the relatively new introduction of this construct, it is not surprising that everyday discrimination is the least studied dimension. There is no accepted measure of LGBT-specific everyday discrimination as of yet. Only four of the 21 presently reviewed studies even attempted to assess this dimension. In Frost et al. (2013), the researchers simply recycled an older measure of everyday racism, that was developed by Williams, Yu,

Jackson, and Anderson (1997), and was intended for use with black populations. While the items do not contain any language that would necessarily prevent the scale from being used with other groups, it remains unclear whether it can be used with other populations. Racial minority status and sexual minority statuses are quite different, in that race cannot often be concealed, or chosen, while sexual orientation is an identity that can be concealed, and indeed many argue it is a "choice" or "lifestyle." The stereotypes associated with each minority group are also different. Because of these things, the scale may not be the most valid for use with an LGBT population.

The only other quantitative measure of this dimension that has been put forth thus far is Balsam et al.'s (2011) LGBT People of Color Microaggressions Scale. As the name suggests, the scale measures the interaction of everyday racism and heterosexism. While certainly a valuable tool for the right research questions, it would not be appropriate for use with a general sample of the LGBT population that includes white individuals. The scale is discussed in more detail later on, in the section on intersecting racial stress.

Swim, Johnston, and Pearson (2009) used a unique methodological approach to assess the everyday discrimination dimension: daily diary studies. For seven days, the participants completed diary entries where they listed all stressful events they experienced, including both everyday hassles and major life events. They were asked to further describe each event on an incident form. The participants then gave each event a rating, -2 for *definitely not heterosexist* to +2 for *definitely heterosexist*. The researchers gave the participants scores by summing the total number of events with ratings of +1 or +2 they reported. They found that more heterosexist hassles were associated with greater feelings of anxiety and anger. Non-heterosexist stressors on the other hand, were associated more with depressed mood. Surprisingly, frequency of heterosexist hassles was not related to state self-esteem (Swim et al., 2009). While I will be using

Likert scale response options instead of a diary format, this study does serve to provide evidence that everyday discrimination, alone, is a significant contributor to poor mental health outcomes for LGB persons, and is a component of the LGBT minority stress model that deserves more attention.

Community Connectedness

Community connectedness is another dimension that does not have any established measure. One significant problem is that there appears to be confusion within the literature regarding what is actually meant by community connectedness. Meyer & Frost (2013) define two important aspects of community connectedness. The first is the emotional support and positive feelings one experiences from being in a social environment of people who are similar to you and do not stigmatize you. The second, and more overlooked aspect, is the community-level resources one gains from the group, such as a gay-affirmative church or an HIV testing center. Despite the clear operationalization though, the literature has failed to adequately measure this dimension. Many have conflated it with general social support. Others have interpreted it as a sense of belonging within the LGBT community. No one has yet acknowledged the issue of tangible community resources.

To expand these points, several studies have included general measures of social support that are unrelated to one's sexual minority status (Lehavot & Simoni, 2011; Szymanski & Kashubeck-West, 2008; Balsam & Mohr, 2007). Lehavot and Simoni (2011) tested a mediation model and found that higher scores on the other indicators of minority stress predicted less social-psychological resources (a composite variable of social support and spirituality), which in turn predicted higher rates of substance abuse, depression, and anxiety. Szymanski and Kashubeck-West (2008) also tested potential mediation pathways, and found that general social

support was a significant mediator of the relationship between the dimension of internalized homophobia and psychological distress. Balsam and Mohr (2007) also included a measure of general social support, yet curiously, they treated it as an outcome variable. They found that the low scores of internalized homonegativity and high scores of outness were associated with higher scores of social support. In addition to this, Balsam and Mohr (2007) also tested a single item that asked, "How well connected do you feel to the LGB community?" Response options ranged from 1- *not at all*, to 5- *extremely*. They found that there was no association between this item and psychological well-being, or social support. The lack of significant findings is most likely due to the fact that only item was used. Overall, these studies suggest that social connections is a relevant variable to consider in the context of minority stress. However, to draw any substantial conclusions we need a valid measure that actually assesses support from the LGBT community.

There were two studies that did actually narrow this dimension to be LGBT-specific. In the first, Swim et al. (2009) administered the Collective Self-Esteem Scale. One subscale assesses membership collective self-esteem, which asks participants to rate how much they believe they are a liked/ valued member of their group. For example, "I felt like a worthy member of the LGB community." The scale was not significantly associated with any of the outcome measures in their study (Swim et al., 2009). The second study that utilized an LGBT-specific assessment was Testa et al. (2014). The community connectedness subscale of their larger gender minority stress measure, again, only examined sense of belonging to the community. It contains five items such as, "I feel connected to other people who share my gender identity." While these tools are more precise than generic measures of social support, they still are not truly valid assessments of LGBT community connectedness. This is because

they are only addressing the sense of belonging aspect, and not the aspect of community-level resources gained from the group.

Only one study, of all those reviewed here, actually considers the issues of both social support and resources. The study, conducted by Wong et al. (2013), is very unique. This is because it was conducted with black men who have sex with men that are members of House and Ball communities, which are relatively underground social networks, structured like a mock family to protect and support the members. Balls are major social events that offer members an opportunity to perform and compete. Several indicators of the community connectedness dimension were used in this study. First, they assessed social network connections within the House and Ball communities by asking participants how many House members they interacted with at least weekly, attended Balls with, and how much influence those individuals have in their lives. Two separate items of emotional support and instrumental support asked participants to name how many members they could talk to about personal things, or ask for resources such as money/ shelter, respectively. While asking about instrumental support is the closest any study has gotten to considering the resources component, it is important to note that the question asked about resources obtained from individuals, not community-level resources, which is a limitation. The only significant finding Wong et al. (2013) detected with these variables was an interaction between distal minority stress indicators and and instrumental support. For participants with low levels of instrumental support, distal minority stress was associated with even worse depressive symptoms. This finding may suggest that the community resources aspect of this dimension may be even more important than the emotional support aspect for ameliorating the effects of minority stress. Alternatively, it may be that Wong et al.'s (2013) sample (55% of whom reported recent financial hardship) was experiencing overwhelming stress from poverty, which

overshadowed the other minority stressors, and therefore was most effected by instrumental support. While this study demonstrates the importance of properly framing valid questions of community connectedness, it is unclear how the findings might generalize to the larger LGBT population, because participants' support was derived from a very niche subgroup.

Group Differences by Gender/ Sexual Orientation

There is an ongoing question within the literature regarding whether there are substantial differences between men versus women, and between lesbian, gay, and bisexual individuals, in how they experience minority stress, and how that, in turn, affects their mental health outcomes. The evidence thus far unanimously suggests that there are group differences in how minority stress is experienced, particularly for bisexuals. Bisexual individuals seem to be less connected to the LGB community, are less "out" to others about their identity, and experience more identity uncertainty (Kuyper & Fokkema, 2011; Balsam & Mohr, 2007; Dyar et al., 2015). Despite those differences though, none of the studies listed found any between-group differences on the psychological outcome measures. More studies like these that directly test between-group differences are needed to expand the body of evidence.

Regarding gender differences, the literature is much less clear. Szymanski and Kashubeck-West (2008) established that sexual minority women do experience internalized sexism, in addition to LGB minority stresses, but it is still unclear whether that ultimately drives differential health outcomes. All of the studies here that have directly compared sexual minority men to women, or even butch vs femme women, have reported differences in which individual LGB minority stress indicators the sexes are more likely to endorse, yet no differences for mental health outcome measures (Lehavot & Simoni, 2011; Kuyper & Fokkema, 2011; Balsam & Mohr, 2007). Furthermore, other research that has simply looked at prevalence of mental health

disorders in the LGB community (outside of the context of minority stress, or any other particular causes) has failed to definitively answer the sex difference question. Some have reported that lesbian and bisexual women have a higher frequency of mental health disorders than gay or bisexual men (Cochran, Sullivan, & Mays, 2003; Gilman, Cohcran, Mays, Hughes, Ostrow, & Kessler, 2001), while others have found no difference (Sandfort, de Graaf, Bijl, & Scnhabel, 2001). The lack of comparisons to transgender individuals is another issue that is in need of significant research attention. It should be noted that only four studies, so far, even included transgender participants.

Mental Health Outcomes

Unequivocally, the literature shows that there is a relationship between LGBT minority stress and mental health. All of the studies reviewed here that addressed mental health found a significant association, regardless of which measures were used. To highlight the major findings, the most frequently used outcome measures were the Hopkins Symptom Checklist, the Center for Epidemiologic Studies Depression Scale, the Global Severity Index of the Brief Symptoms Inventory, and the Kessler Psychological Distress Scale. Seven studies found that greater minority stress indicators significantly predicted increased psychological distress (Szymanski & Kashubeck-West, 2008; Balsam & Mohr, 2007; Lea et al., 2014; Hatzenbuehler et al., 2010; Kuyper & Fokkema, 2011; Velez et al., 2015; Szymanski & Sung, 2010). Five studies that specifically broke out depression found a positive association (Lehavot & Simoni, 2011; Feinstein et al., 2012; Testa et al., 2014; Wong et al., 2013; Balsam et al., 2011). Furthermore, three studies that included measures of anxiety also found that it was positively related to minority stress (Lehavot & Simoni, 2011; Feinstein et al., 2012; Testa et al., 2014). Holloway et al. (2014), using a qualitative methodology, reported similar findings, in that when participants

were asked what the consequence would be if their same sex relationships were discovered, the men stated they would turn to drugs to cope, have a nervous breakdown, or even commit suicide.

Self-esteem is another psychosocial variable that has been examined, with mixed results. Balsam and Mohr (2007) included self-esteem as part of a composite variable (which also included psychological distress and life satisfaction) and found it was not significantly associated with minority stress indicators. To contrast, Swim et al. (2009) assessed state self-esteem and found it not to be significantly related to minority stress. Velez et al. (2015) also included a measure of state of self-esteem, and found that it was significantly predicted by minority stress (both racial and LGBT stress). They also found a significant interaction between race and LGBT stressors in relation to self-esteem. Given the mixed findings and the relatively small number of studies looking at self-esteem, it is not yet possible to draw any conclusions about a possible relationship.

Finally, findings regarding the association between minority stress and substance abuse are also quite varied. Lehavot and Simoni (2011) found that alcohol abuse, drug abuse, and smoking were all independently positively related to minority stress. Similarly, Hatzenbuehler et al. (2010) found a positive relationship with LGBT minority stress when assessing for any psychiatric disorder, and substance abuse was included in that. Contrarily, others have found that alcohol use, club drug use, and smoking were not significantly related to minority stress (Lea et al., 2014; Pachankis et al., 2014). The differential findings may be due to the fact that the former studies used diagnostic tools (e.g. the DSM) to formally diagnose substance disorders, while the latter studies only looked at the presence of recent substance usage (e.g. drinking at all in a 9-day period, using club drugs in last month). Additional research is needed to definitively determine what the linkage is between minority stress and substance use/ abuse.

Physical/ Sexual Health Outcomes

Our understanding of the relationship between LGBT minority stress and physical/ sexual health is in its infancy. Several markers of physical health such as having experienced a significant illness in the last year, the number of days of work missed due to being sick, and the frequency of using over the counter medications have been positively related to LGBT minority stress (Frost et al., 2013; Hamilton et al., 2009). More specifically, Frost et al. (2013) found that their externally rated indicator of discrimination experiences was associated with a three times increased likelihood of experiencing any externally rated physical health problems. However, those same studies found other markers of physical health, including self-ratings of health, and the number of times having seen a doctor in the last year, to not be related to LGBT minority stress. The latter findings could possibly be explained by the inherent reliability issues associated with self-reporting.

The issue of sexual health is just as unclear, complicated by the question of whether one is examining sexual health status or sexual health risk taking. Kuyper and Vanwesenbeeck (2011) for example, assessed outcomes of sexual health status across four areas, including professional sexual health care need, sexual dysfunction, experiences with sexual coercion, and sexual satisfaction. They found that for sexual minority women, higher levels of the internalized homonegativity dimension significantly predicted greater professional sexual health care need, more sexual dysfunction, and decreased sexual satisfaction. Increased frequency of receiving a negative reaction to one's sexual orientation significantly predicted greater sexual health care need, more experiences of coercion, and decreased satisfaction. For sexual minority men, internalized homonegativity significantly predicted more sexual dysfunction and decreased satisfaction. Negative reactions were also positively associated with coercion. The identity

concealment dimension was not a significant predictor of any of the outcomes, for either men or women (Kuyper & Vanwesenbeeck, 2011).

Hatzenbuehler, Nolen-Hoeksema, and Erickson (2008) also examined the impact of LGBT minority stress on sexual health, particularly in the form of HIV risk behaviors. The participants in this study were a unique group, as they were gay males who were the caregivers of a loved one that passed away from AIDS. Additionally, 40.5% of the participants were themselves HIV+. Therefore, they were likely experiencing LGBT minority stress, HIV-related stigma, and stress from the loss. The researchers found that internalized homophobia was the only minority stress indicator that significantly predicted greater HIV risk behaviors (both number of unprotected acts, and number of partners) over an 18-month period.

Hamilton and Mahalik (2009) also assessed the effect of minority stress on sexual risk behaviors. They defined sexual risk taking as the number of partners with which a person had receptive, unprotected anal intercourse in the last six months. They combined this number with several other measures of substance abuse, and created a composite health risk behavior index score. Surprisingly, the researchers found that the main effect for minority stress did not significantly predict health risk behavior (Hamilton & Mahalik, 2009).

With such a small body of evidence, it is difficult to draw any substantial conclusions about the relationship between minority stress and physical/ sexual health outcomes. Further, there are numerous limitations to consider with such studies. One issue is that visiting a doctor may not be a valid marker of health for LGBT people, who have reported avoiding seeking healthcare due to fears of being mistreated (Department of Health and Human Services, 2008). An additional problem is the potentially confounding nature of HIV serostatus. HIV status could be treated as a health outcome, but it could also be another minority stress indicator, given the

stigma that is associated with being HIV+. Huebner & Davis (2007) did test HIV serostatus as a predictor variable, and found that it was significantly associated with more physician visits and greater medication usage, but not number of sick days. Thus, it is a variable that future researchers should at least consider controlling for in their analyses. A final limitation of this small body of literature is that a majority of studies used gay male participants, and thus the findings may not generalize to the rest of the LBT population.

Purpose Statement

To conclude, the purpose of this study is to develop a reliable and valid scale that measures the construct "LGBT minority stress". LGBT minority stress is operationalized as the pervasive stress experienced by LGBT individuals, above and beyond typical life stress that is experienced by all persons, and is comprised of six domains: Discrimination events, victimization events, rejection anticipation, identity concealment, internalized stigma, and everyday discrimination (microaggressions). This definition is derived from the theoretical model described by Meyer (2003). Given that the study of LGBT-specific minority stress is relatively new, the literature is severely fractured. There is no consistency in how the construct is operationalized and measured. To give an analogy, the present state of the literature would look much like a group of scholars all proclaiming to be describing depression- except one is only measuring neurotransmitters, another is measuring only affect, and the other only behavioral symptoms. The present thesis aims to resolve this issue by developing a single, comprehensive scale to reliably and validly measure all dimensions of LGBT minority stress.

Method

Participants

Participants (*n* = 640) were recruited to take part in a web-based survey. Of those who completed the entire LGBT minority stress scale, 57 were excluded from further analyses due to incomplete data. This number was considered more than adequate because 200 is typically considered a satisfactory sample size for conducting factor analysis (Guadagnoli & Velicer, 1988). The sample was unique in that transgender and gender non-conforming individuals were over-represented relative to their proportion of the overall U.S. population, which is estimated to be about 0.5% (Conron, Scott, Stowell, & Landers, 2012). Two hundred fifty-nine (43.75%) participants described their gender as male, 214 (36.15%) as female, 40 (6.76%) as transgender male-to-female, 27 (4.56%) as transgender female-to-male, and 52 (8.78%) as other. The most frequent responses to the other category were "non-binary" and "genderqueer." Given that very few studies in the literature included any transgender participants, let alone a large enough sample to draw any meaningful conclusions from, this is a substantial strength of the present study. Regarding sexual orientation, 202 (34.12%) participants described themselves as gay, 99 (16.72%) as lesbian, 182 (30.74%) as bisexual, and 109 (18.41%) as other. The most frequent other response was, overwhelmingly, "pansexual."

Racially, the sample was less diverse, with 484 (81.62%) participants describing themselves as White (non-Hispanic), 14 (2.36%) as African American, 36 (6.07%) as Latino/ Latina, 13 (2.19%) as Asian, 6 (1.01%) as Native American, and 38 (6.41%) as mixed race/ other. The age of the participants ranged from 18 to 55+ years old, with the average falling in the 18-24 category. Most participants reported that they began openly telling others about their

sexual orientation/ gender identity within the last five years. Finally, participants were on the lower end of the income spectrum, with the average falling in the $13,000 - $35,000 category.

Participants were recruited using convenience sampling by sharing a link to the Qualtrics website. The recruitment statement was posted on private listservs, online forums, social media pages, blogs, campus groups, and community organizations. Such websites included pages for the Matthew Shepard Foundation, PFLAG, Lambda Legal, The Trevor Project, Transgender Human Rights Institute, It Gets Better Project, etc. Individuals were invited to share the link with anyone who they think may be interested in the study, thus employing some snowball sampling as well. Participants were instructed that the survey would take approximately 30 minutes to complete. To be included in the study, participants had to to either identify their sexual orientation as something other than heterosexual, or their gender identity as different from the sex they were assigned at birth. Participants were limited to be age 18 years or older. Children and teens were excluded from this study because they face unique stressors compared to LGBT adults that would be best be served by a separate measure, such as high rates of homelessness, even greater risk of suicide, bullying in schools, and rejection from parents/ caregivers (Vanden Berghe, Dewaele, Cox, & Vincke, 2010).

After clicking the survey link, respondents were taken to the Qualtrics site, where they were shown a cover letter with consent procedures. Participants were instructed that clicking the next button to continue into the survey constituted giving consent. Once in the survey, respondents were first asked to provide demographic information, including age, gender identity, sexual orientation, race, and annual income. Second, participants completed the LGBT minority stress measure. Next, they completed all remaining measures including the Heterosexist, Harassment, Rejection, and Discrimination Scale, Social Readjustment Rating Scale, Kessler

Psychological Distress Scale, and Medical Outcomes Study Short Form-36. Afterwards, participants were shown a debriefing page. Finally, they were offered the opportunity to provide their email address to be entered into a drawing to win a $50 Visa gift card. Email addresses were not connected to survey responses in any way. The IRB has approved these procedures, and assigned the study exempt status (Protocol ID 15-6242H).

Measures and Procedure

       LGBT Minority Stress Measure. Items for the measure were developed based on the seven components in the Meyer (2003) model, prejudice events, victimization events, anticipation of rejection, identity concealment, and internalized anti-LGBT stigma, everyday discrimination, and community support. Following the item generation, items were reviewed by a panel of three "experts" for clarity and inclusivity. The three experts were individuals who have knowledge of psychometrics, and who self-identify as LGBT. The panel was asked to give feedback on how well the items represent the lived experiences of LGBT individuals. They were asked to identify any items that are unclear, or that may be exclusive to some identities within the LGBT spectrum. Lastly, the experts were also asked to identify any items that do not fit with their respective categories. Based on that feedback, items were deleted or modified as necessary.

       The initial scale was comprised of seven factors and a total of 50 items. The scale was later shortened to 25 items. Participants respond to items using a 5-point Likert scale that reads either (1=*never*, 2=*rarely*, 3=*occasionally*, 4=*often*, 5=*all of the time*) or (1=*strongly disagree*, 2=*disagree*, 3=*neither disagree nor agree*, 4=*agree*, 5=*strongly agree*) depending on the subscale. The instrument is scored by reversing the community connectedness items, and then averaging the items. Higher scores indicate greater minority stress. Note that the subscales are presented in the order shown because beginning with a potentially distressing topic, such as

victimization events, may deter participants from wanting to complete the survey. Furthermore, community connectedness, which is a more positive topic, is presented last so as to hopefully leave participants feeling positive affect when they have finished the survey. The full list of the initial items, as well as the shortened list, is presented in the Appendix.

Factor 1 Identity Concealment- 6 items. The subscale asks about the behaviors people engage in to avoid making their LGBT identity apparent to others. Formatting of the items was modeled on the nondisclosure subscale ($\alpha = .80$) of Testa et al.'s (2014) transgender measure.

Factor 2 Everyday Discrimination/ Microaggressions- 13 items. This subscale asks about minor daily hassles that LGBT persons deal with, as well as situations that may be perceived as prejudicial, but may not have been intended to be so by the wrongdoer. Because there is currently no accepted quantitative measure of this dimension, entirely novel items were generated. One sample item reads, "I have difficulty finding people like me represented in TV, movies, books, music, etc." Additionally, because this domain is the least studied one in the model, the greatest number of items was created for it. I wanted to ensure that no important variables related to this factor were missed.

Factor 3 Rejection Anticipation- 6 items. This subscale asks about the extent to which individuals feel a sense of hypervigilance and persistent worry that they will be stigmatized because they are LGBT. Items were generated based on the types of items in the Acceptance Concerns subscale of LGB Identity Sale, which demonstrated a high reliability of 0.83 (Mohr & Kendra, 2011).

Factor 4 Discrimination Events- 6 items. This subscale asks about discrimination and unfair treatment in different settings, such as at work or in regard to housing. Items were

generated by modifying existing items in the Heterosexist, Harassment, Rejection and Discrimination Scale, which had strong reliability of 0.90 (Szymanski, 2006).

Factor 5 Internalized Stigma- 7 items. This subscale asks about the negative attitudes people hold towards themselves because they are LGBT. Items were derived from both the Internalized Homophobia, and the Internalized Homonegativity scales, with the exclusion of any items that referenced sexual attraction. Both scales have demonstrated high reliability, $\alpha = .85$ for the former, and .79 for the latter (Martin & Dean, 1992; Mohr & Fassinger, 2000).

Factor 6 Victimization Events- 7 items. This subscale refers to physical, sexual, and emotional abuse, and violence that an individual is targeted for because he/she is LGBT. Items were adapted from the Gender-related Victimization subscale of Testa et al.'s (2014) transgender measure ($\alpha = .77$).

Factor 7 Community Connectedness- 5 items. This subscale asks how connected individuals feel to the LGBT community, and its resources, such as supportive spaces or informational materials. Because no measure currently exists that assesses access to community resources, entirely new items had to be created. For example, "I feel that I could find legal advice about LGBT issues if I needed to."

Heterosexist Harassment, Rejection, and Discrimination Scale (HHRDS). The HHRDS is the closest tool to measuring LGBT minority stress that has had its psychometric properties evaluated (Cronbach's alpha = .90). The scale contains 14 items which would fall under the domains of discrimination events and victimization events, as defined here. Respondents use a 6-point scale to indicate how often each item happened to them in the last year, ranging from never to almost all of the time (Szymanski, 2006). This is the measure that was used to establish convergent validity.

Social Readjustment Rating Scale (Modified). The scale is a rank-ordered list of 43 life events, beginning with those that require the most readjustment (e.g. death of a loved one) to the least (e.g. minor violation of the law). The original measure demonstrated acceptable reliability, ranging from .82 to .97 (Holmes & Rahe, 1967). For the present study, the scale was shortened to 10 items and scored by summing the total number of items endorsed. This scale was selected because it refers to discrete life events that all people experience, and which are thus presumably unrelated to a person's identity markers. The purpose of this is to clearly demonstrate that LGBT minority stress is a distinct entity above and beyond normal life stress, and that it is unique to one's sexual minority status. This measure was used to establish discriminant validity.

Kessler Psychological Distress Scale (K10). The K10 is a highly reliable measure (α=.92) that was developed for use in the National Health Interview Survey. The inventory contains 10 items that are rated using a 5-point scale. It describes how often in the last 30 days individuals have felt general distress symptoms, such as feeling sad or restless. It has been tested with a wide range of special populations, and therefore should be appropriate for use with an LGBT population (Kessler, Andrews, Colpe, Hiripi, Mroczek, Normand, Walters, & Zaslavsky, 2002). This measure assesses the outcome of psychological distress, and was used to demonstrate criterion validity.

Medical Outcomes Study- Short Form 36. The Short Form 36 is the most widely used self-report health status indicator according to some accounts (Busija, Pausenberger, Haines, Haymes, Buchbinder, & Osborne, 2011). The scale demonstrates good reliability for being a self-report measure, with alphas ranging from .78 to .93. The measure contains 8 subscales examining physical functioning, physical role limitations, fatigue, general health perceptions,

personal role limitations, social functioning, and emotional wellbeing. One standalone item also asks about change in health (Ware, 1976).

Data Analysis

Power Analysis. A power analysis was conducted a priori in order to estimate how many participants would be needed. The procedure suggested by MacCallum, Browne, and Sugawara (1996) was followed. They recommend using a test of not close fit which is based on the the root mean square error approximation. This approach is considered superior to using a traditional test of exact fit based on a normal chi-square distribution, which has been criticized for leaving no room for model misspecification, and overreliance on sample size (Maxwell, Kelley, & Rausch, 2008). According to the MacCallum et al. (1996) approach, the null hypothesis states that model has not close fit, with the confidence interval of the RMSEA exceeding 0.05. Conversely, the alternative hypothesis states that the model does have close fit, and the RMSEA is below 0.05.

The present power analysis was conducted in R software, using code provided by Preacher and Coffman's (2006) web generator. The alpha value was set to 0.05, desired power to 0.95, degrees of freedom 1,212, the null RMSEA to 0.05, and the alternative RMSEA to 0.01. Given these constraints, the minimum number of participants needed was found to be 61. Despite the power analysis suggesting I needed as few as 61 participants, many more were recruited because most theoretical work suggests that 200 is the ideal minimum number for factor analysis (Guadagnoli & Velicer, 1988). Large numbers of items increase power in a factor analysis, which is likely what led to the yielding of such a small number of required participants.

Model Fit. Confirmatory factor analysis was used to test the overall model fit. In this case, confirmatory, rather than exploratory, was the analysis of choice because there was sufficient theoretical evidence to form a priori hypotheses about the structure of the model

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(Gorsuch, 1983). Data were analyzed using Mplus and R software. A seven factor model was specified where items 1-6 load on to factor 1, items 7-19 load on to factor 2, items 20-25 load on to factor 3, items 26-31 load on to factor 4, items 32-38 load on to factor 5, items 39-45 load on to factor 6, and items 46-50 load on to factor 7. The factor variance for each factor was constrained to 1, with the factor loadings free to be estimated by the model. According to Thompson (2004), this is the preferable method for identifying model parameters, as opposed to the "marker item" method, because it has the effect of standardizing the variances, thus allowing for interpretation across variables. Because there is no hard standard for which goodness of fit test to use, the preferred method is to report several statistics and look for convergence (Matsunaga, 2010). Chi-square, Comparative Fit Index, and standardized root mean square residual measure values were reported and used to evaluate model fit. For the Chi-Square test, a cutoff value of $p<.05$ was used. The CFI was expected to exceed .90 (Bentler, 1990), and the SRMR to be below .10 (Kline, 1998).

Convergent Validity. It was hypothesized that the current measure will correlate positively with the HHRDS, an existing scale that measures LGBT discrimination and victimization events. Because no other measure currently exists that precisely measures the given operationalization of the construct LGBT minority stress, it was expected that the two tests may not be perfectly correlated, and therefore, a smaller magnitude may be acceptable.

Internal Consistency. To demonstrate internal consistency, Cronbach's alphas were calculated for the measure as a whole, and for each individual subscale. The recommended cutoff value for Cronbach's alpha of 0.7 or greater was used (Cronbach, 1951).

Criterion Validity. It was predicted that higher scores on the present measure will be associated with higher scores on the Kessler Psychological Distress Scale.

Discriminant Validity. It was hypothesized that the present measure will not exceed a moderate positive correlation (r will be $< .6$) with the Social Readjustment Rating Scale.

Additional Outcome Measures. It was predicted that higher scores on the present measure will be associated with lower scores on the Short Form 36.

Group Differences. Finally, linear regression was used to determine if there are any group differences by sexual orientation, gender, or race for how individuals responded to the LGBT minority stress scale. A sexual orientation by race, and gender by race, interaction was also tested. Testing such an interaction term is a limited way to examine the potential influence of multiple identities. While testing questions of intersectionality is beyond the scope of this study, it is an important consideration for future research on the topic.

Measurement Invariance. In order to test measurement variance, or how well the model fits uniquely to lesbians versus gays versus bisexuals versus transgender persons, a multi-group confirmatory factor analysis would need to be conducted. In such an analysis, one model would be ran where factor loadings are constrained to be equal across all groups, and a second model where they are allowed to vary. If the goodness of fit for the second model is significantly worse than the first, then there is measurement invariance across the groups (Kline, 1998). The problem with such studies is that very large sample sizes of about 400 per group are needed to achieve good power (Meade & Bauer, 2007). Due to time constraints, obtaining such a large sample was not feasible for the present study.

Results

Confirmatory Factor Analysis

A confirmatory factor analysis of the 50 items demonstrated moderately acceptable fit for the seven factor model. The Chi-Square test was statistically significant, however that is to be expected given how sensitive it is to sample size, $\chi^2 (1154) = 4548.82$, $p < .001$. Both the SRMR (.08) and the RMSEA (.07) were below the desired cutoff value of <.10. The CFI (.8) did not quite exceed the desired value of .90.

Factor loadings for each of the subscales are presented in Table 2. Typically, a factor loading is considered acceptable at .40 and above, or good at .60 and above (Kline, 1998; Guadagnoli & Velicer, 1988). The Everyday Discrimination/ Microaggressions subscale had three items that with loadings below .40: Item 11 "In school, I was not taught about the history and important contributions of people who are LGBT", Item 13 "People assume my sexual orientation or gender is something different from what it really is", and Item 15 "I have been introduced to a potential date/ friend and expected to like them solely because the person is also LGBT." The Community Connectedness subscale had one item with a loading below .40: Item 46 "I feel connected to other LGBT people." All other item loadings exceeded .40.

The scale as a whole demonstrated high internal consistency ($\alpha = .91$). Each of the subscales also had good internal consistency, with Cronbach's alphas ranging from .73 to .88. These values are also presented in Table 2.

Alternate Model

Next, an alternate model was tested to see if the scale could be shortened and still maintain acceptable model fit and reliability. The residual discrepancy matrix was examined, and

items that consistently exceeded an absolute value of .10 were considered for deletion. Items with loadings of less than .6 on their respective factors were also considered for deletion. After removing poorly performing items, the new revised scale was left with a total of 25 items. Each subscale retained a minimum of 3 items. Table 3 lists the items that were retained for the shortened form of the scale.

Another trend that stood out when examining the quality of the items occurred with the Community Connectedness subscale. It was found that Items 48, 49, and 50, all of which refer to access to community level resources, had quite high loadings. Conversely, Items 46 and 47, both of which refer to social support within the community, had relatively low loadings. In the operationalization of this construct, Meyer (2003) stated that both resources and support are parts of the larger dimension, community connectedness, but the loadings observed here suggest those may in fact be two discrete constructs. Unfortunately, it was not possible to test that hypothesis with the present data, because social support only has two items, and at at least three are generally needed to make a stable factor. Therefore, the resource items, 48-50, were kept and the two social support ones were dropped.

A new confirmatory factor analysis was conducted with the shortened set of 25 items. A new Chi-Square test was computed for this model, $\chi^2 (254) = 904.913$, $p < .001$. Comparing the change in model fit between the two scale versions, it was found that the model for the shortened scale improved model fit significantly over the original model, $\Delta\chi^2 (900) = 3643.91$, $p < .001$. Both the SRMR (.06) and the RMSEA (.06) indicators decreased with the new model. Additionally, with the new model, the CFI (.911) did exceed the desired value of .90. Collectively, all of these indicators suggest that the shortened version of the scale actually fits the seven factor model better than did the original.

Factor loadings also improved with the shortened scale. All loadings for the retained

items were .6 or greater. The new loadings are presented in Table 3. Also in Table 3 are

Cronbach's alphas for the shortened scale. The overall scale continued to demonstrate good

internal consistency despite having half as many items ($\alpha = .87$). All of the individual subscales

also maintained good internal consistency, with Cronbach's alphas ranging from .73 to .88.

Therefore, it appears that the shortened form of the scale is just as good the long version.

Validity

A correlation matrix was computed comparing the shortened LGBT minority stress scale

to related variables, and is presented in Table 4. In support of convergent validity, the LGBT

scale was found to be strongly positively correlated with the Heterosexist, Harassment,

Rejection, and Discrimination Scale ($r = .69$, $p < .001$). Likewise, in support of criterion validity,

the LGBT scale was found to be moderately positively correlated with the Kessler Psychological

Distress Scale ($r = .54$, $p < .001$). The Medical Outcomes Short Form-36 was also included as

another potential outcome measure, and as hypothesized, was found to be negatively correlated

with the LGBT scale, although the relationship was weak ($r = -.38$, $p < .001$). Finally, the Social

Readjustment Rating Scale was found to have almost no relationship with the LGBT minority

stress scale, thus supporting discriminant validity ($r = .15$, $p < .001$). Intercorrelations amongst

the seven LGBT subscales tended to be weak or moderate, indicating that each dimension is a

unique construct ($r's$ ranged from .01 to .65). Descriptive statistics for the total scale scores are

also presented in Table 4.

Group Differences

Multiple linear regression was used to test group differences by gender, sexual

orientation, and race on the shortened LGBT minority stress scale. Table 5 lists the means and

standard deviation for the total minority stress scores broken down by each group. Analyses were conducted in R software. For these analyses, participants who responded to the "other" response option for gender were included with the transgender category, given that the most frequent response was "genderqueer." Participants who responded to the "other" response option for sexual orientation were included with the bisexual category, given that the most frequent response was "pansexual." Additionally, participants who identified their race/ ethnicity as Native American were excluded from these analyses due to the small sample size ($n = 6$). Because these are all categorical variables, dummy codes were created in R for each, with male, gay, and White as the respective reference groups.

For gender, it was found that transgender individuals scored 0.51 points higher on the LGBT minority stress scale than did cisgender male participants ($\beta = 0.51$, $p < .001$). No significant differences were found between male and female individuals. Gender explained 13% of the variance in LGBT minority stress scores, $R^2 = .13$, $F(2, 580) = 43.02$, $p < .001$.

With the sexual orientation comparisons, it was found that bisexual individuals had significantly higher minority stress scores than did gay individuals ($\beta = 0.16$, $p = .003$). No significant differences were found between the gay and lesbian groups. Sexual orientation explained a significant proportion of the variance in minority stress scores, $R^2 = .02$, $F(2, 580) = 4.85$, $p = .008$.

When looking at differences by race, it was found that race did not explain a significant proportion of the variance in minority stress scores. The only significant comparison was that Asian individuals were found to score significantly higher on the minority stress scale than White individuals ($\beta = 0.35$, $p = .04$).

Lastly, a race by sexual orientation interaction was tested, as well as a race by gender interaction. None of the interaction terms were statistically significant.

Discussion

This study developed a new questionnaire to assess to the unique minority stress experienced by the LGBT population. Development of this new measure was guided by the theoretical Meyer (2003) LGB minority stress model. This study was the first to assess all seven dimensions of the Meyer (2003) model, aside from Testa et al.'s (2014) work with transgender individuals. This new measure addresses limitations of several existing scales that are frequently used to assess individual dimensions of the minority stress model. For example, the identity concealment subscale improves upon Mohr and Fassinger's (2000) Outness Inventory by shifting focus from others' knowledge of the participant's identity, to instead focus on the internal processes the participant experiences when deciding whether to disclose information about his/ her identity. The rejection anticipation subscale addressed a significant limitation of Pachankis et al.'s (2008) existing Rejection Sensitivity Scale, which asks about individual's reactions to static events of rejection that have occurred, to instead assess the extent of hypervigilance an individual feels worrying about the potential of being rejected. Lastly, the current community connectedness subscale expands upon previous research, which tends to conflate the construct with social support, by also assessing access to community level resources.

Data from 640 sexually diverse adults supported the psychometric properties of the final 25-item LGBT minority stress measure. A confirmatory factor analysis displayed good model fit, lending support for the seven subscale structure hypothesized. Cronbach's alphas remained in the high range, indicating that internal consistency of the scale was not adversely affected by shortening the scale.

One surprising trend that emerged when examining the structure of the original 50 items, was that it appeared as though the community connectedness dimension could be breaking out into two separate factors. The residuals of the two community belonging items were positively correlated higher than expected, and they were correlated negatively with those of the three resource items. The factor loadings of the two belonging items were quite low in the original model, while the three resource items were rather high. Unfortunately, this hypothesis could not be tested with the revised model, because the belonging items would not form a stable factor with just two. Future researcher is needed to determine if those two entities should be treated as distinct constructs. Evidence from the present study also supports the reliability and validity of the scale.

Relationships among the seven subscales did not generally exceed a moderate strength, suggesting they are each unique dimensions. Identity concealment, internalized stigma, and community connectedness showed little relation to the other subscales. Everyday discrimination, discrimination events, and victimization were positively intercorrelated.

Convergent validity was evidenced by a strong positive correlation between the LGBT minority stress scale and the Heterosexist, Harassment, Rejection and Discrimination Scale, the most similar available pre-existing measure. Among the subscales, correlations with the HHRD were weakest for identity concealment and internalized stigma, which is logical considering those are dimensions not included in the HHRD. Additionally, discriminant validity was supported by the finding that there was no relationship between the LGBT minority stress scale and a revised form of the Social Readjustment Rating Scale.

Criterion validity was supported by a moderate positive correlation between the present measure and the Kessler Psychological Distress scale. The correlation between minority stress

and the Medical Outcomes Short Form-36 was negative as hypothesized, but was weak. This finding is consistent with previous research, which has found that the relationship is insignificant when health was self-reported, but is significant when health is externally rated (Frost et al., 2013). Very few studies have examined this question, so much more research is needed to determine if minority stress can indeed predict physical health outcomes. Likewise, the present study did not attempt to assess the relationship between minority stress and sexual health, or substance abuse, both of which are areas also in need of more research (Kuyper & Vanwesenbeeck, 2011; Lehavot & Simoni, 2011).

Group differences by gender, sexual orientation, and race were also assessed in the present study. Consistent with previous research, transgender and bisexual individuals reported the highest rates of minority stress (Balsam & Mohr, 2007; Clements-Nolle et al., 2001). Regarding race, the only statistically significant finding was that Asian individuals reported more minority stress than did White individuals, which is in line with other work that has reported on the unique experiences of Asian sexual minority individuals (Szymanski & Sung, 2010). Race by sexual orientation and race by gender interactions were not significant. However, it should be acknowledged that it is possible a Type 2 error was committed when making the multiple comparisons for race, given how small the samples were for some of the groups. More research is needed to test these differences with a more racially diverse sample. Ideally, in addition to just testing statistical interactions, future research would be conducted that attempts to the assess unique intersection of sexual orientation and race within the design, as part of the item writing process.

One marked strength of this study was the inclusion of a relatively large sample of transgender and gender nonconforming individuals. Very few studies even include transgender

individuals in their samples, and those that do are often forced to exclude them from analyses due to too small sample sizes. The present study addressed this limitation by oversampling transgender and gender nonconforming individuals, who represented approximately 20% of the survey respondents ($n = 119$). Furthermore, during the development stage, items were purposefully written to be inclusive of transgender individuals. Testa et al. (2014) developed a measure that is specific to the transgender population, but for instances where it would not be feasible to administer a separate measure, the present scale appears to be a good alternative that is still valid for use with transgender individuals.

Despite all of the above positive findings, there are a few limitations to the present study that should be considered. One issue to note is that the current study can only provide preliminary evidence to support claims of reliability and validity. Ideally, in scale development independent researchers should attempt to replicate the findings with new samples, and possibly other validity indicators. Another limitation of the present study is that measurement invariance was not tested to determine if the model fits equally well for gay individuals versus lesbians versus bisexual individuals. An additional limitation is that the sample was very young (average age was in the 18-24 years old category), and likely a consequence of that, was on the low end of the income spectrum ($13,000 - $35,000 per year average). It is very possible that an older generation would have responded quite differently to the measure, as societal attitudes towards LGBT individuals become more accepting over time. Finally, the current study was limited by the use of self-report measures. In addition to the usual issues with self-reports (e.g. social desirability, fatigue) previous research has also shown conflicting findings depending on whether self-report assessments of minority stress were used, or objective measures such as pro-LGBT legislation (Pachankis et al., 2010; Frost et al., 2013).

Collectively, this evidence posits that the LGBT minority stress scale is indeed a reliable and valid measure. The present study has demonstrated that LGBT individuals are a marginalized group who faces chronic stress due to their social status, which is above and beyond the normal life stress that all people experience. These finding offer another piece of support to Meyer's (2003) LGB minority stress model, and the surrounding body of research on minority stress theory. This scale is recommended for use for not only research purposes, but for clinical settings as well. The tool could aid clinicians in identifying which aspects of one's identity a client is struggling to adjust to, and thus which services might be most appropriate. For example, a client scoring very high on the victimization subscale may benefit from trauma-focused care, while someone else scoring very low on community connectedness might benefit most from support groups.

Table 1

Summary of Measures Used in Review Studies

	Discrimination Events	Victimization Events	Rejection Anticipation	Identity Concealment	Internalized Stigma	Everyday Discrimination	Community Connectedness
Mental Health Outcomes							
Lehavot & Simoni (2011)	Heterosexist, Harassment, Rejection, and Discrimination Scale	Prejudice Events Scale		5 items rating how "out" to different people	Internalized Homophobia Scale		Multidimensional Scale of Perceived Social Support
Szymanski & Kashubeck-West (2008)					Lesbian Internalized Homophobia Scale-SF; Internalized Homophobia Scale-Revised		Social Support Questionnaire-Short Form
Balsam & Mohr (2007)				Outness Inventory	LGB Identity Scale-Internalized Homonegativity subscale		"How connected do you feel to the LGB community?" Social Support Questionnaire-6
Lea et al. (2014)		"Has anyone verbally/ physically abused you because of your sexuality ever/ in the past 12 months?"			Internalized Homophobia Scale-Revised		
Swim et al. (2009)					Collective Self-Esteem Scale-Private Evaluation of the LGB Group subscale	7-day diary recording day-to-day heterosexist hassles	Collective Self-Esteem Scale-Membership Self-esteem subscale

Hatzenbuehler et al. (2010)	Presence of gay marriage ban on ballot						
Pachankis et al. (2014)	Structural stigma (5 state level anti-gay policies and public attitudes about LGBT people in state)		Rejection Sensitivity Scale				
Feinstein et al. (2012)	Harassment, Rejection, and Discrimination Scale		Rejection Sensitivity Scale		LGB Identity Scale-Internalized Homonegativity subscale		
Kuyper & Fokkema (2011)	"Have ever received a negative reaction to your sexual orientation?"			Outness Inventory	Two items "rather be straight" and "homosexual feelings not a problem"		
Dyar et al. (2015)				Outness Inventory			
Testa et al. (2014)	Gender-related discrimination; Non-affirmation of gender identity	Gender-related victimization	Negative expectations for future events	Nondisclosure	Internalized transphobia		Five items of feeling connected to those who share gender identity
Physical/ Sexual Health Outcomes							
Frost et al. (2013)	Externally rated prejudice events interview	Externally rated prejudice events	Anticipation of rejection statements	Outness Inventory	Internalized Homophobia Scale	Everyday Racism Scale (modified)	
Huebner & Davis (2007)	Anti-gay discrimination						

Kuyper & Vanwesenbeeck (2011)	How often experience negative reactions			Out to mother and father	Two items "rather be straight" and "homosexual feelings not a problem"	
Hatzenbuehler et al. (2008)	Ever harassed/ discriminated	Ever attacked	Two items "world is dangerous" and "rise in homophobia"		1-10 rating scale of comfort about being gay	
Hamilton & Mahalik (2009)		Ever been physically attacked	Stigma Scale		Internalized Homophobia Scale	
Intersecting Racial Stress						
Wong et al. (2013)		Questionnaire of harassment/ attacks due to sexuality			Ross & Rosser Internalized Homophobia Scale	Social network connectedness to House and Ball communities; Emotional support from members; Instrumental support from members
Velez et al. (2015)	Heterosexist Harassment, Rejection, and Discrimination Scale				Internalized Homophobia Scale-Revised	
Holloway et al. (2014)	Semi-structured interview: Consequences if others knew about same-sex behavior	Semi-structured interview: Consequences if others knew about same-sex behavior	Semi-structured interview: Consequences if others knew about same-sex behavior	Semi-structured interview: Attempts to conceal same-sex behavior	Semi-structured interview: Conceptualization of masculinity	

Balsam et al. (2011)		LGB Identity Scale- Stigma Sensitivity subscale	Outness Inventory	LGB Identity Scale-Internalized Homonegativity subscale	LGBT People of Color Microaggressions Scale
Szymanski & Sung (2010)	Heterosexist, Harassment, Rejection, and Discrimination Scale		Outness Inventory	Internalized Homophobia Scale-Revised	LGBT People of Color Microaggressions Scale

Table 2

LGBT Minority Stress Measure Items and Factor Loadings

Scale	Alpha
Overall	.91
Identity Concealment	.83
Item number	Factor loading (SE)
1	.804 (.02)
2	.810 (.02)
3	.585 (.03)
4	.647 (.03)
5	.522 (.03)
6	.643 (.03)
Everyday Discrimination/ Microaggressions	.81
Item number	Factor loading (SE)
7	.473 (.03)
8	.571 (.03)
9	.612 (.03)
10	.505 (.03)
11	.213 (.04)
12	.436 (.04)
13	.298 (.04)
14	.624 (.03)
15	.335 (.04)
16	.516 (.03)
17	.577 (.03)
18	.604 (.03)
19	.686 (.03)
Rejection Anticipation	.86
Item number	Factor loading (SE)
20	.712 (.02)
21	.564 (.03)
22	.741 (.02)
23	.841 (.02)
24	.788 (.02)
25	.634 (.03)
Discrimination Events	.73
Item number	Factor loading (SE)
26	.600 (.03)
27	.602 (.03)
28	.573 (.03)
29	.714 (.02)
30	.354 (.04)
31	.755 (.02)
Internalized Stigma	.88
Item number	Factor loading (SE)
32	.833 (.02)

33	.913 (.01)
34	.653 (.03)
35	.660 (.03)
36	.668 (.03)
37	.764 (.02)
38	.498 (.03)
Victimization Events	.84
Item number	Factor loading (SE)
39	.788 (.02)
40	.607 (.03)
41	.661 (.03)
42	.644 (.03)
43	.509 (.03)
44	.750 (.02)
45	.789 (.02)
Community Connectedness	.77
Item number	Factor loading (SE)
46	.338 (.04)
47	.408 (.04)
48	.751 (.02)
49	.841 (.02)
50	.720 (.02)

Table 3

Shortened LGBT Minority Stress Scale Items and Factor Loadings

Scale	Alpha
Overall	.87
Identity Concealment	.81
Item number	Factor loading (SE)
1	.830 (.02)
2	.828 (.02)
4	.615 (.03)
6	.630 (.03)
Everyday Discrimination/ Microaggressions	.73
Item number	Factor loading (SE)
9	.617 (.03)
14	.629 (.03)
18	.627 (.03)
19	.674 (.03)
Rejection Anticipation	.84
Item number	Factor loading (SE)
20	.699 (.02)
23	.774 (.02)
24	.845 (.02)
25	.717 (.02)
Discrimination Events	.75
Item number	Factor loading (SE)
26	.590 (.03)
27	.570 (.03)
29	.680 (.03)
31	.788 (.02)
Internalized Stigma	.88
Item number	Factor loading (SE)
32	.854 (.01)
33	.974 (.01)
37	.711 (.02)
Victimization Events	.82
Item number	Factor loading (SE)
39	.809 (.02)
44	.711 (.02)
45	.826 (.02)
Community Connectedness	.82
Item number	Factor loading (SE)
48	.726 (.03)
49	.878 (.02)
50	.724 (.03)

Table 4

Correlations Among Shortened LGBT Minority Stress Measure and Other Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. LGBT-Total	-											
2. LGBT-Identity	0.53***	-										
3. LGBT-Everyday	0.63***	0.01	-									
4. LGBT-Rejection	0.82***	0.49***	0.44***	-								
5. LGBT-Discrimination	0.61***	-0.01	0.48***	0.39***	-							
6. LGBT-Stigma	0.55***	0.35***	0.1*	0.36***	0.11**	-						
7. LGBT-Victimization	0.64***	0.05	0.49***	0.42***	0.65***	0.12**	-					
8. LGBT-Community	0.46***	0.19***	0.09*	0.23***	0.19***	0.19***	0.2***	-				
9. HHRD	0.69***	0.09	0.53***	0.49***	0.75***	0.2***	0.77***	0.26***	-			
10. Social Readjustment	0.15***	0.02	0.13**	0.11**	0.15***	0.04	0.15***	0.04	0.17***	-		
11. Kessler	0.54***	0.2***	0.43***	0.49***	0.28***	0.23***	0.38***	0.26***	0.44***	0.07	-	
12. SFORM	-0.38***	-0.06	-0.34***	-0.34***	-0.3***	-0.11**	-0.32***	-0.18***	-0.39***	-0.09*	-0.68***	-
Mean (*SD*)	2.21 (0.58)	2.33 (0.95)	2.41 (1.02)	2.75 (1.03)	1.55 (0.71)	2.17 (1.18)	1.94 (0.85)	2.28 (0.99)	1.83 (0.68)	3.80 (1.99)	27.03 (9.56)	63.06 (18.25)

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

Table 5

Descriptive Statistics as a Function of Gender, Sexual Orientation, and Race

Group	n	M	SD
Gender			
Male	253	2.13	0.55
Female	213	2.09	0.50
Transgender	117	2.63	0.61
Sexual Orientation			
Gay	201	2.13	0.57
Lesbian	99	2.17	0.58
Bisexual	283	2.29	0.59
Race			
White	481	2.21	0.59
African American	14	2.24	0.49
Latino/a	36	2.08	0.55
Asian	12	2.56	0.44
Mixed Race/ Other	40	2.28	0.59

References

Allport, G. (1979). *The Nature of Prejudice* (25th Anniv). Cambridge: Perseus Books.

American Psychological Association Public Interest Government Relations Office. (2013). LGBT health disparities. Retrieved from http://www.apa.org/about/gr/issues/ lgbt/disparities-brief.pdf

Balsam, K. F., & Mohr, J. J. (2007). Adaptation to sexual orientation stigma: A comparison of bisexual and lesbian/ gay adults. *Journal of Counseling Psychology*, *54*(3), 306–319. http://doi.org/10.1037/0022-0167.54.3.306

Balsam, K. F., Molina, Y., Beadnell, B., Simoni, J., & Walters, K. (2011). Measuring multiple minority stress: The LGBT People of Color Microaggressions Scale. *Cultural Diversity & Ethnic Minority Psychology*, *17*(2), 163–174. http://doi.org/10.1037/a0023244

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238–246.

Bohn, M. J., Babor, T. F., & Kranzler, H. R. (1995). The alcohol use disorders identification test (AUDIT): Validation of a screening instrument for use in medical settings. *Journal of Studies on Alcohol*, *56*(4), 423– 432.

Bowleg, L. (2008). When Black + lesbian + woman does not equal Black lesbian woman: The methodological challenges of qualitative and quantitative intersectionality research. *Sex Roles*, *59*, 312–325. http://doi.org/10.1007/s11199-008-9400-z

Busija, L., Pausenberger, E., Haines, T. P., Haymes, S., Buchbinder, R., & Osborne, R. H. (2011). Adult measures of general health and health-related quality of life. *Arthritis Care & Research*, *63*(11), 383–412. http://doi.org/10.1002/acr.20541

Case, P., & Austin, S. B. (2004). Sexual orientation, health risk factors, and physical functioning

in the Nurses' Health Study II. *Journal of Women's Health*, *13*(9), 1033–47.

http://doi.org/10.1089/jwh.2004.13.1033

Clark, R., Anderson, N. B., Clark, V. R., & Williams, D. R. (1999). Racism as a stressor for

African Americans: A biopsychosocial model. *The American Psychologist*, *54*(10), 805–

816. http://doi.org/10.1037/0003-066X.54.10.805

Clements-Nolle, K., Marx, R., Guzman, R., & Katz, M. (2001). HIV prevalence, risk behaviors,

health care use, and mental health status of transgender persons: implications for public

health intervention. *American Journal of Public Health*, *91*(6), 915–921.

http://doi.org/10.2105/AJPH.91.6.915

Cochran, S. D. (2001). Emerging issues in research on lesbians' and gay men's mental health:

Does sexual orientation really matter? *The American Psychologist*, *56*(11), 931–947.

http://doi.org/10.1037/0003-066X.56.11.931

Cochran, S. D., & Mays, V. M. (2007). Physical health complaints among lesbians, gay men, and

bisexual and homosexually experienced heterosexual individuals: Results from the

California quality of life survey. *American Journal of Public Health*, *97*(11), 2048–2055.

http://doi.org/10.2105/AJPH.2006.087254

Cochran, S. D., Mays, V. M., & Sullivan, J. G. (2003). Prevalence of mental disorders,

psychological distress, and mental health services use among lesbian, gay, and bisexual

adults in the United States. *Journal of Consulting and Clinical Psychology*, *71*(1), 53–61.

http://doi.org/10.1037/0022-006X.71.1.53

Conron, K. J., Scott, G., Stowell, G. S., & Landers, S. J. (2012). Transgender health in

    Massachusetts: Results from a household probability sample of adults. *American Journal of*

    Public Health, *102*(1), 118–122. http://doi.org/10.2105/AJPH.2011.300315

Cooper, M. L. (1994). Motivations for alcohol use among adolescents: Development and

    validation of a four-factor model. *Psychological Assessment*, *6*(2), 117–128.

    http://doi.org/10.1037/1040-3590.6.2.117

Crenshaw, K. W. (1989). Demarginalizing the intersection of race and sex: A Black feminist

    critique of antidiscrimination doctrine, feminist theory, and antiracist politics. *University of*

    Chicago Legal Forum, *139*, 139–167.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*,

    16(3), 297–334. http://doi.org/http://dx.doi.org.ezproxy2.library.colostate.edu:2048/

    10.1007/BF02310555

Department of Health and Human Services (2008). Lesbian, gay, bisexual, and transgender

    health. Retrieved from http://www.healthypeople.gov/2020/data-search/Search-the-

    Data?&f[0]=field_topic_area

Dyar, C., Feinstein, B. A., & London, B. (2015). Mediators of differences between lesbians and

    bisexual women in sexual identity and minority stress. *Psychology of Sexual Orientation*

    and Gender Diversity. Advance online publication. http://doi.org/10.1037/sgd0000090

Feinstein, B. a., Goldfried, M. R., & Davila, J. (2012). The relationship between experiences of

    discrimination and mental health among lesbians and gay men: An examination of

    internalized homonegativity and rejection sensitivity as potential mechanisms. *Journal of*

    Consulting and Clinical Psychology, *80*(5), 917–927. http://doi.org/10.1037/a0029425

Frost, D. M., Lehavot, K., & Meyer, I. H. (2013). Minority stress and physical health among

    sexual minority individuals. *Journal of Behavioral Medicine*, 1–8. http://doi.org/10.1007/

    s10865-013-9523-8

Gilman, S. E., Cochran, S. D., Mays, V. M., Hughes, M., Ostrow, D., & Kessler, R. C. (2001).

    Prevalences of DSM III disorders among individuals reporting same-gender sexual partners

    in the National Comorbidity Survey. *American Journal of Public Health*, *91*(6), 933–939.

    http://doi.org/10.2105/AJPH.91.6.933

Gorsuch, R. L. (1983). *Factor Analysis*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Greene, B. (1997). Lesbian women of color: Triple jeopardy. *Journal of Lesbian Studies*, *1*, 109–

    147.

    http://doi.org/http://dx.doi.org.ezproxy2.library.colostate.edu:2048/10.1300/J155v01n01_09

Guadagnoli, E., & Velicer, W. F. (1988). Relation of sample size to the stability of component

    patterns. *Psychological Bulletin*, *103*(2), 265–275. http://doi.org/10.1037/0033-

    2909.103.2.265

Hamilton, C. J., & Mahalik, J. R. (2009). Minority stress, masculinity, and social norms

    predicting gay men's health risk behaviors. *Journal of Counseling Psychology*, *56*(1), 132–

    141. http://doi.org/10.1037/a0014440

Hatzenbuehler, M. L., McLaughlin, K. a., Keyes, K. M., & Hasin, D. S. (2010). The impact of

    institutional discrimination on psychiatric disorders in lesbian, gay, and bisexual

    populations: A prospective study. *American Journal of Public Health*, *100*(3), 452–459.

    http://doi.org/10.2105/AJPH.2009.168815

Hatzenbuehler, M. L., Nolen-Hoeksema, S., & Erickson, S. J. (2008). Minority stress predictors

    of HIV risk behavior, substance use, and depressive symptoms: results from a prospective

study of bereaved gay men. *Health Psychology : Official Journal of the Division of Health Psychology, American Psychological Association*, *27*(4), 455–462. http://doi.org/10.1037/0278-6133.27.4.455

Holloway, I. W., Padilla, M. B., Willner, L., & Guilamo-Ramos, V. (2014). Effects of minority stress processes on the mental health of Latino men who have sex with men and women: A qualitative study. *Archives of Sexual Behavior*. http://doi.org/10.1007/s10508-014-0424-x

Holmes, T. H., & Rahe, R. H. (1967). The Social Readjustment Rating Scale. *Journal of Psychosomatic Research*, *11*, 213–218. http://doi.org/http://dx.doi.org/10.1016/j.mhpa.2010.02.001

Huebner, D. M., & Davis, M. C. (2007). Perceived antigay discrimination and physical health outcomes. *Health Psychology*, *26*(5), 627–634. http://doi.org/10.1037/0278-6133.26.5.627

Institute of Medicine. (2011). *The health of lesbian, gay, bisexual, and transgender people: Building a foundation for better understanding*. Washington, DC: National Academies Press.

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L. T., … Zaslavsky, a M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, *32*(6), 959–976. http://doi.org/10.1017/S0033291702006074

Kline, R. B. (1998). *Structural Equation Modeling*. New York: The Guilford Press.

Kuyper, L., & Fokkema, T. (2011). Minority stress and mental health among Dutch LGBs: Examination of differences between sex and sexual orientation. *Journal of Counseling Psychology*, *58*(2), 222–233. http://doi.org/10.1037/a0022688

Kuyper, L., & Vanwesenbeeck, I. (2011). Examining sexual health differences between lesbian, gay, bisexual, and heterosexual adults: The role of sociodemographics, sexual behavior characteristics, and minority stress. *Journal of Sex Research*, *48*(2-3), 263–274. http://doi.org/10.1080/00224491003654473

Lea, T., de Wit, J., & Reynolds, R. (2014). Minority stress in lesbian, gay, and bisexual young adults in Australia: Associations with psychological distress, suicidality, and substance use. *Archives of Sexual Behavior*, 1–8. http://doi.org/10.1007/s10508-014-0266-6

Lehavot, K., & Simoni, J. M. (2011). The impact of minority stress on mental health and substance use among sexual minority women. *Journal of Consulting and Clinical Psychology*, *79*(2), 159–170. http://doi.org/10.1037/a0022839

MacCallum, R., Browne, M., & Sugawara, H. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, *1*(2), 130–149. http://doi.org/http://dx.doi.org.ezproxy2.library.colostate.edu:2048/10.1037/1082-989X.1.2.130

Martin, J. L., & Dean, L. (1992). Summary of measures: Mental health effects of AIDS on at-risk homosexual men. Columbia University, Mailman School of Public Health. Unpublished manuscript.

Matsunaga, M. (2010). How to factor-analyze your data right: Do's, don'ts, and how-to's. *International Journal of Psychological Research*, *3*(1), 2011–2079.

Maxwell, S. E., Kelley, K., & Rausch, J. R. (2008). Sample size planning for statistical power and accuracy in parameter estimation. *Annual Review of Psychology*, *59*(1), 537–563. http://doi.org/10.1146/annurev.psych.59.103006.093735

Meade, A. W., & Bauer, D. J. (2007). Power and precision in confirmatory factor analytic tests of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(4), 611–635. http://doi.org/10.1080/10705510701575461

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological Bulletin*, *129*(5), 674–697. http://doi.org/10.1037/0033-2909.129.5.674

Meyer, I. H., & Frost, D. M. (2013). Minority Stress and the Health of Sexual Minorities. In C. J. Patterson & A. R. D'Augelli (Eds.), *Handbook of Psychology and Sexual Orientation* (pp. 252–266). New York: Oxford University Press.

Mohr, J., & Fassinger, R. (2000). Measuring dimensions of lesbian and gay male experience. *Measurement and Evaluation in Counseling and Development*. *33*(2), 66-90.

Mohr, J. J., & Kendra, M. S. (2011). Revision and extension of a multidimensional measure of sexual minority identity: The Lesbian, Gay, and Bisexual Identity Scale. *Journal of Counseling Psychology*, *58*(2), 234–45. http://doi.org/10.1037/a0022858

Pachankis, J. E., Goldfried, M. R., & Ramrattan, M. E. (2008). Extension of the rejection sensitivity construct to the interpersonal functioning of gay men. *Journal of Consulting and Clinical Psychology*, *76*(2), 306–317. http://doi.org/10.1037/0022-006X.76.2.306

Pachankis, J. E., Hatzenbuehler, M. L., & Starks, T. J. (2014). The influence of structural stigma and rejection sensitivity on young sexual minority men's daily tobacco and alcohol use. *Social Science and Medicine*, *103*, 67–75. http://doi.org/10.1016/j.socscimed.2013.10.005

Preacher, K. J., & Coffman, D. L. (2006). Computing power and minimum sample size for RMSEA. [Computer Software] Retrieved from http://www.quantpsy.org/rmsea/rmsea.htm

Sandfort, T. G. M., Bakker, F., Schellevis, F. G., & Vanwesenbeeck, I. (2006). Sexual

orientation and mental and physical health status: Findings from a Dutch population survey.

American Journal of Public Health, *96*(6), 1119–1125.

http://doi.org/10.2105/AJPH.2004.058891

Sandfort, T. G. M., de Graaf, R., Bijl, R. V., & Schnabel, P. (2001). Same-sex sexual behavior

and psychiatric disorders: Findings from the Netherlands Mental Health Survey and

Incidence Study (NEMESIS). *Archives of General Psychiatry*, *58*, 85–91.

http://dx.doi.org.ezproxy2.library.colostate.edu:2048/10.1001/archpsyc.58.1.85

Skinner, H. A. (1982). No Title. *Addictive Behavior*, *7*(4), 363 – 371.

Swim, J. K., Johnston, K., & Pearson, N. B. (2009). Daily experiences with heterosexism:

Relations between heterosexist hassles and psychological well-being. *Journal of Social and

Clinical Psychology*, *28*(5), 597–629. http://doi.org/10.1521/jscp.2009.28.5.597

Szymanski, D. M. (2006). Does Internalized Heterosexism Moderate the Link Between

Heterosexist Events and Lesbians' Psychological Distress? *Sex Roles*, *54*(3-4), 227–234.

http://doi.org/10.1007/s11199-006-9340-4

Szymanski, D. M., & Kashubeck-West, S. (2008). Mediators of the relationship between

internalized oppressions and lesbian and bisexual women's psychological distress. *The

Counseling Psychologist*, *36*(4), 575–594.

Szymanski, D. M., & Sung, M. R. (2010). Minority stress and psychological distress among

Asian American sexual minority persons. *The Counseling Psychologist*, *38*(6), 848–872.

http://doi.org/10.1177/0011000010366167

Testa, R. J., Habarth, J., Peta, J., Balsam, K., & Bockting, W. (2014). Development of the

Gender Minority Stress and Resilience Measure. *Psychology of Sexual Orientation and Gender Diversity*. Advance online publication. http://doi.org/10.1037/sgd0000081

Thompson, B. (2004). *Exploratory and Confirmatory Factor Analysis*. Washington, DC: American Psychological Association.

Velez, B. L., Moradi, B., & DeBlaere, C. (2015). Multiple oppressions and the mental health of

sexual minority Latina/o individuals. *The Counseling Psychologist*, *43*(1), 7–38. http://doi.org/10.1177/0011000014542836

Ward, B.W., Dahlhamer, J.M., Galinsky, A.M., & Joestl, S.S. (2014). Sexual orientation and

health among U.S. adults: National health interview survey. National Health Statistics Reports, 77(1), 1-10.

Ware, J. E. (1976). Scales for measuring general health perceptions. *Health Services Research*,

11(4), 396–415.

Williams, D. R., Yu, Y., Jackson, J., & Anderson, N. B. (1997). Racial differences in physical

and mental health: Socio-economic status, stress and discrimination. *Journal of Health Psychology*, *2*(3), 335–351. http://doi.org/http://dx.doi.org.ezproxy2.library.colostate. edu:2048/10.1177/135910539700200305

Wong, C. F., Schrager, S. M., Holloway, I. W., Meyer, I. H., & Kipke, M. D. (2013). Minority

stress experiences and psychological well-being: The impact of support from and connection to social networks within the Los Angeles House and Ball communities. *Prevention Science*, 1–12. http://doi.org/10.1007/s11121-012-0348-4

Appendix - The LGBT Minority Stress Measure

Instructions: Please read each statement carefully, and then indicate how frequently the situation described occurs in your life. OR
Please read each statement carefully, and then indicate how much you agree or disagree with the statement.

Scoring: The Community Connectedness subscale should be reverse scored before it is included with the total score. The measure is scored by averaging all of the items. Total scores can range from 1 to 5, with higher scores indicating greater LGBT minority stress. Note that the italicized items are the ones that were retained for the shortened form of the scale.

Identity Concealment- 6 items
(1- never happens 2- happens a little bit 3- happens sometimes 4- happens a lot 5- happens all of the time)

1. I avoid telling people about certain things in my life that might imply I am LGBT.
2. I avoid talking about my romantic life because I do not want others to know I am LGBT.
3. I change my mannerisms or speech because I do not want others to think I am LGBT.
4. I do not bring a date to social events because I do not want others to know I am LGBT.
5. I do not object when I hear anti-LGBT remarks because I do not want others to assume I am LGBT.
6. I limit what I share on social media, or who can see it, because I do not want others to know I am LGBT.

Everyday Discrimination/ Microaggressions- 13 items
(1- never happens 2- happens a little bit 3- happens sometimes 4- happens a lot 5- happens all of the time)

7. I have difficulty finding people like me represented in TV, movies, books, music, etc.
8. I have been accused of "flaunting" my LGBT identity.
9. I am expected to educate non-LGBT people about LGBT issues.
10. I have been told that I am not really LGBT because I am confused or looking for attention.
11. In school, I was not taught about the important contributions of people in history who are LGBT.
12. I have been introduced by others as "my LGBT friend" or "the LGBT one."
13. People assume my sexual orientation or gender is something different from what it really is.
14. People have re-labeled my identity, or referred to me by a name/pronouns that are different than how I identify myself.
15. I have been introduced to a potential date/ friend and expected to like them solely because the person is also LGBT.
16. I have overheard people make anti-LGBT remarks.
17. I feel uncomfortable using public restrooms or locker rooms because I am LGBT.

18. When in an organization or activity that is sorted by gender, I feel out of place because I am LGBT.
19. I have been accused of being too defensive or politically correct when talking about LGBT issues with someone who is not LGBT.

Rejection Anticipation- 6 items
(1- never happens 2- happens a little bit 3- happens sometimes 4- happens a lot 5- happens all of the time)

20. When I meet someone new, I worry that they secretly do not like me because I am LGBT.
21. When I go out in public with my partner, I fear that people will treat us unkindly because I am LGBT.
22. I stay on guard and alert because something bad might happen to me because I am LGBT.
23. I brace myself to be treated disrespectfully because I am LGBT.
24. I expect that others will not accept me because I am LGBT.
25. I worry about what will happen if people find out I am LGBT.

Discrimination Events- 6 items
(1- never happens 2- happens a little bit 3- happens sometimes 4- happens a lot 5- happens all of the time)

26. I have been excluded from an organization (e.g. a religious group, sports team, etc.) because I am LGBT.
27. I have been pressured to receive unnecessary services or been denied service, by a healthcare professional because I am LGBT.
28. I have been denied housing or been mistreated by others in my housing organization (e.g. college dorm, home owner's association, homeless shelter, etc.) because I am LGBT.
29. I have received poor service at a business because I am LGBT.
30. I am forced to consider my LGBT identity when I think about politics.
31. I have been treated unfairly by supervisors or teachers because I am LGBT.

Internalized Stigma- 7 items
(1- strongly disagree 2- disagree 3- neither disagree nor agree 4- agree 5- strongly agree)

32. If I was offered the chance to be someone who is not LGBT, I would accept the opportunity.
33. I wish I wasn't LGBT.
34. I feel that being LGBT is a personal flaw in me.
35. I feel that me being LGBT must have been a mistake of fate/nature/God/etc.
36. I wonder why I am not "normal" and like everyone else.
37. I envy people who are not LGBT.
38. I have tried to stop being LGBT.

Victimization Events- 7 items
(1- never happens 2- happens a little bit 3- happens sometimes 4- happens a lot 5- happens all of the time)

39. I have been verbally harassed or called names because I am LGBT.
40. I have received unwanted sexual attention or been asked inappropriate questions about my sexual life because I am LGBT.
41. I have been physically attacked because I am LGBT.
42. I have had my personal property purposefully damaged by others because I am LGBT.
43. I have endured unwanted sexual contact because I am LGBT.
44. Others have threatened to harm me because I am LGBT.
45. I have been bullied by others because I am LGBT.

Community Connectedness- 5 items
(1- strongly disagree 2- disagree 3- neither disagree/ agree 4- agree 5- strongly agree)

46. I feel connected to other LGBT people.
47. I feel like I am a part of the LGBT community.
48. I feel that I could find information and pamphlets on LGBT issues.
49. I feel that I could find professional services for LGBT issues if I needed to.
50. I feel that I could find a public space that is supportive of LGBT activities.