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Minority Stress And Daily Affect Among Gay And Bisexual Men

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RUNNING HEAD: MINORITY STRESS AND DAILY AFFECT

Minority Stress and Daily Affect among Gay and Bisexual Men

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Master's Thesis

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Abstract

Objectives: The primary objective of this study was to examine the possible time-variant relationship between daily minority stress and same-day affect among gay and bisexual men. Additionally, this study sought to determine whether a lagged association exists between daily minority stress and next-day affect. Lastly, this study examined trajectories of minority stress and affect during the course of the study period.

Methods: 371 gay and bisexual men in New York City completed a 30-day daily diary, recording daily experiences of minority stress and daily measures of positive affect (PA), negative affect (NA), and anxious arousal (AA) ($n = 8,415$ diary days). Multilevel analyses were run to examine significant relationships between minority stress and affect.

Results: Results indicated that daily minority stress significantly predicted a same-day negative relationship with PA and significantly predicted a same-day positive relationship with both NA and AA. In cross-lagged analyses, results indicated that daily minority stress did not significantly predict subsequent-day PA, but significantly predicted a subsequent-day positive relationship with both NA and AA. Over the course of the study period, levels of minority stress and affect decreased slightly, but significantly, among study participants.

Conclusions: This is the first study to establish a time-variant relationship between sexual minority stress and affect with implications for gay and bisexual men's mental health more generally. The cross-lagged analysis provides evidence for a potentially causal pathway between minority stress and the affective basis of mood and anxiety disorders among gay and bisexual men.

Keywords: minority stress, affect, gay and bisexual men, depression, anxiety

Minority Stress and Daily Affect among Gay and Bisexual Men

Gay and bisexual men are disproportionately burdened with mental health problems, including mood and anxiety disorders and comorbidity across these disorders, compared to their heterosexual counterparts (Bostwick, Boyd, Hughes, & McCabe, 2010; Cochran, Mays, & Sullivan, 2003; Mills et al., 2004). According to minority stress theory, male sexual orientation disparities in mental health problems have their root in gay and bisexual men's disproportionate exposure to stigma-related stress (Meyer, 2003). Four sexual orientation-specific processes uniquely contribute to the development of minority stress: (1) external, objective stressful events and conditions; (2) concealment of one's sexual orientation; (3) the internalization of negative societal attitudes; and (4) expectations of stressful events and the vigilance this expectation requires (Meyer, 1995). These four processes are referred to as *prejudice*, *concealment*, *internalized homophobia*, and *rejection sensitivity*, respectively.

Prejudice can take on several forms, including, but not limited to, institutionalized discrimination, service refusal, physical violence, and anti-gay epithets and slurs (Herek, G.M., Gillis, & Cogan, 1999; Meyer, 2003; Siegel & Epstein, 1996). Stigma against sexual minority individuals, at both individual and structural levels, is associated with major depressive and anxiety disorders among sexual minorities (Hatzenbuehler, Keyes, & Hasin, 2009; Huebner, Rebchook, & Kegeles, 2004; Mays & Cochran, 2001).

Concealment of one's sexual orientation is another component of minority stress, which serves as an often-adaptive coping strategy used by sexual minorities to protect themselves from physical, social, and/or psychological harm stemming from homophobia (Herek, G.M., 1998; Meyer, 2003; Pachankis, 2007). Concealment also demonstrates

associations with depressive and anxious symptoms among gay and bisexual men (Schrimshaw, Siegel, Downing, & Parsons, 2013). *Internalized homophobia* refers to an LGB individual's direction of society's homophobic attitudes towards the self and can also involve negative global attitudes toward homosexuality, discomfort with sexual orientation disclosure, disconnectedness from other LGB individuals, and discomfort with same-sex sexual activity (Meyer, 1995; Newcomb & Mustanski, 2010). Among gay and bisexual men, several studies have shown significant correlations between internalized homophobia and depression, anxiety, and general psychological stress responses (Herek, G.M., Cogan, Gillis, & Glunt, 1998; Wagner, Brondolo, & Rabkin, 1997; Zuckerman, 1998). *Rejection sensitivity*, as it applies to sexual minorities, refers to the anxious expectation of future rejection because of one's sexual orientation, and is used to guard from potential threat arising from previous experiences of anti-gay prejudice and discrimination (Feinstein, Goldfried, & Davila, 2012; Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002; Pachankis, Goldfried, & Ramrattan, 2008). Rejection sensitivity among gay and bisexual men is associated with depression and anxiety (Feinstein, Davila, & Goldfried, 2012), as well as insalubrious coping behaviors such as and tobacco and alcohol use (Pachankis, Hatzenbuehler, & Starks, 2014).

Affect refers to the experience of mood and emotions, with mood and anxiety disorders being characterized by disruptions in affective experience, expression, and regulation (Brown, Chorpita, & Barlow, 1998; Mineka, Watson, & Clark, 1998; Steptoe, O'Donnell, Marmot, & Wardle, 2008; Watson, 1988). *Positive affect* (PA) is characterized by emotions such as alertness, joy, energy, and enthusiasm, while *negative affect* (NA) is characterized by emotions such as fear, sadness, and serenity. A third

affect dimension, *anxious arousal* (AA), has also been described, and is characterized by emotional factors specific to anxiety, such as being scared, jittery, and nervous (Clark & Watson, 1991). While PA, NA, and AA are domains of the broader affect construct, they are orthogonal dimensions operating independently of each other (Clark, Watson, & Mineka, 1994; Kercher, 1992; Watson et al., 1995). The affect domains are consistently linked to depression and anxiety, but are each differentially related to these disorders (Brown et al., 1998; Clark & Watson, 1991; Mineka et al., 1998). For example, the tripartite model suggests that PA is (negatively) related to symptoms of depression and that AA is (positively) related to symptoms of anxiety; NA, on the other hand, plays a role in the development of both depression and anxiety (Brown et al., 1998; Clark & Watson, 1991; Clark et al., 1994; Jolly, Dyck, Kramer, & Wherry, 1994). Affect refers to both state and trait experiences, whereby state affect represents fluctuations in affect across time, such as days or moments, and trait affect represent an individual's time-stable predispositions to a particular emotional experience (Diener & Emmons, 1984).

While several studies have uncovered cross-sectional associations between minority stress and mental health outcomes among gay and bisexual men (e.g., Lea, de Wit, & Reynolds, 2014; Logie, Newman, Chakrapani, & Shunmugam, 2012; Meyer, 1995; Newcomb & Mustanski, 2010), very few have examined minority stress, and its relationship to affect, as a time-varying construct across days. Further, no research has yet examined a potentially time-variant relationship between minority stress and affect every day across one month. The primary objective of the present study, therefore, was to examine the possible time-variant relationship between daily minority stress and daily affect among gay and bisexual men. In addition to examining concurrent relationships

between daily minority stress and daily affect, this study also sought to determine whether there exists a lagged association between daily minority stress and affect on the subsequent day, an analysis that would provide support for a potentially causal effect of minority stress on affect. Lastly, this study also examined trends of minority stress and affect during the course of the study period in order to understand potential reactivity to the daily diary. The analysis was conducted in a sample of highly sexually active (i.e., 9 or more sexual partners in the past 90 days) men given that HIV-risk behavior forms part of the syndemic health threat facing gay and bisexual men (Halkitis et al., 2012; Parsons, Grov, & Golub, 2012; Ron Stall, Friedman, & Catania, 2008), making this high-risk sample particularly suitable for health investigations.

Methods

This study uses data taken from a longitudinal study designed to explore mental health and HIV transmission risk among highly sexually active self-identified gay and bisexual men in New York City. Portions of the parent study are ongoing, however, baseline enrollment has concluded.

Participants and Procedures

The present study uses data taken from the full sample of 377 men enrolled in the parent study, and relies exclusively on data collected during a 30-day baseline period. Six men were dropped from the sample: three due to potential ineligibility and three due to missing data necessary for the specific analytic method used in this present study (i.e., level 2 demographic variables). The present study, therefore, maintains an analytic sample of 371 men.

Participant enrollment began in February 2011 and utilized a variety of recruitment strategies: (1) respondent-driven sampling; (2) internet-based advertisements on social and sexual networking websites; (3) email blasts through New York City gay sex party listservs; and (4) active recruitment in New York City venues such as gay bars/clubs, concentrated gay neighborhoods, and ongoing gay community events.

Participants were pre-screened for eligibility based on the following inclusion criteria: (1) 18 years of age or older; (2) biologically male and self-identification as male; (3) a minimum of nine different male sexual partners in the prior 90 days, with at least two in the prior 30 days; (4) self-identification as gay, bisexual, or some other non-heterosexual identity (e.g., queer or pansexual); (5) ability to complete assessment in English; and (6) daily access to the internet, which was necessary to complete internet-based portions of study.

Participants recruited via internet-based methods were pre-screened using the online survey platform, Qualtrics (www.qualtrics.com); participants recruited via venue-based active recruitment were pre-screened using an iPod Touch mobile survey. All participants completed an initial eligibility screening via a brief phone interview with research staff and eligibility was further confirmed at the baseline appointment. Sex criteria were confirmed using the timeline follow-back (TLFB) interview, in which a calendar was used to trigger participants' recollection of daily sexual behavior (Sobell & Sobell, 1992).

Participants were excluded if they demonstrated serious cognitive or psychiatric impairment that would interfere with their participation or ability to provide informed consent, as indicated by a score of 23 or lower on the Mini-Mental Status Examination

(MMSE) (Folstein, Folstein, & McHugh, 1975) or evidence of active and unmanaged symptoms on the psychotic symptoms or suicidality sections of the Structured Clinical Interview for the DSM-IV-IR (SCID) (First, Spitzer, Gibbon, & Williams, 2002). Cutoffs for the highly sexually active criteria – having a minimum of nine different male sexual partners in the 90 days prior to enrollment, with at least two of these partners being within the prior 30 days – were based off of prior research (Groves, Parsons, & Bimbi, 2010; Parsons et al., 2008; Parsons, 2001), including a sample of urban men who have sex with men (MSM) indicating that nine partners is two to three times the average number of sexual partners among sexually active gay and bisexual men (Stall et al., 2003; Stall et al., 2001).

Participation in the full study required both at-home (internet-based) and in-person assessments. After eligibility confirmation over the phone, participants received a link to complete an at-home internet-based baseline survey prior to their first in-office appointment. This internet-based survey took approximately one hour to complete. Informed consent for completing the at-home survey was obtained as part of the online survey. Participants then completed a series of two baseline appointments at the research site and provided informed consent for full participation in the yearlong project at the beginning of the first in-office appointment. After completion of the baseline survey and appointments, participants kept a 30-day daily diary of their affect and daily minority stress, as well as sexual and substance use behaviors, once when joining the study, and again 12 months later. At 8 p.m. on each day of the daily diary, participants received an automated email linking to an online daily diary survey. Participants were asked to complete the daily diary survey before going to bed each night. All procedures were

reviewed and approved by the Institutional Review Board of the City University of New York. This analysis relied exclusively on data collected during the baseline at-home survey and affect and sexual minority data from the daily diary kept during the first 30 days of participation in the full study.

Measures

In this study, each participant recorded daily minority stress and daily affect (PA, NA, AA) for the duration of one month, giving these data a multilevel structure. Thus, repeated daily measures exist within participants at level 1, while between-participants data exist at level 2. Level 1 measurements, which fluctuate across days, include three items assessing daily minority stress experiences, as well as the outcome measures of PA, NA, and AA. Level 2 measurements, which remain constant across days, include participant demographic characteristics.

Level 1: Within-Participant Measures

Daily Minority Stress. On each day of the daily diary survey, participants were asked to rank their level of agreement with each of the following statements based on the minority stress model: (1) “Today, I felt good about myself as a gay/bisexual man” (internalized homophobia); (2) “Today, I tried to pass as straight in public” (concealment); and (3) “Today, being gay/bisexual stressed me out” (general minority stress). For each statement, participants used a 4-point likert scale to indicate whether they “strongly disagree,” “disagree,” “agree,” or “strongly agree.” A composite score of perceived daily minority stress was created first by reverse scoring statement 1, and then averaging each participant’s response to the three statements per day. In order to test the appropriateness of a composite minority stress score, six multilevel regression models

were run whereby each of the three minority stress statements was independently predicted from the remaining two statements. Table 1 shows the associations between the three statements and indicates that each statement was significantly correlated with the remaining two statements, thereby validating use of a composite daily minority stress score.

Daily Affect. On each day of the daily diary survey, participants were asked to indicate their daily affective states along PA, NA, and AA dimensions. Daily PA and NA were measured using the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988), which has been previously used in daily diary research (Croft & Walker, 2001; Gable, Reis, & Elliot, 2000; Mustanski, 2007). Anxious arousal (AA) was measured using the Affect and Anxiety Symptom Questionnaire (MASQ) (C. A. Watson & Clark, 1991). AA items were presented together with the PANAS items, a method previously used in research on daily measurements of affect among MSM (Mustanski, 2007). The combined scale included a total of 19 items, such as alert, joy, fear, serenity, jittery, and nervous. Participants were asked to indicate the extent to which they felt each of the items on each day, with response options on a 4-point likert scale of “not at all,” “a little bit,” “quite a bit,” and “extremely.” A principle components extraction and varimax rotation of the factor solution was used to dictate each of the combined items to a respective affect scale. This combined scale has shown strong reliability in a similar population of high-risk MSM (PA: $\alpha=0.84$, NA: $\alpha=0.85$, and AA: $\alpha=0.87$; Mustanski, 2007). For each affect outcome, a composite score was calculated by averaging each participant’s response to each item on the respective scale, for each day of the daily diary, ranging from 1 (low) to 4 (high).

Level 2: Between-Participant Measures

Demographics. During the at-home baseline survey, participants were asked to report demographic characteristics, including age, race/ethnicity, sexual orientation (gay/queer/homosexual, bisexual, other), educational level, employment status, income, HIV status, and relationship status. The demographic characteristics were assessed using standard pre-defined response options, with the exception of age, which was assessed using a free-response format. For race/ethnicity, sexual orientation, educational level, and income, responses were collapsed into binary measurements to produce meaningful results in the analysis (white, other; gay/queer/homosexual, other; less than or greater than 4-year college degree; income less than or greater than \$30,000).

Analyses

Multilevel modeling was used to model a multivariate regression predicting daily affect outcomes from daily minority stress. This analysis utilized hierarchical linear modeling (HLM), HLM 7.0 statistical software (Raudenbush, 2011), to account for the nested structure of daily diary data (Raudenbush & Bryk, 2002). Multilevel modeling was appropriate for these data, given that 76% of the total variance within affect was explained by the variance between participants ($ICC = 0.76; p < 0.001$).

The relationship between daily minority stress and affect was modeled individually for each participant at level 1 to examine the average relationship among these daily variables across participants. Level 2 demographic variables were included in the final models to account for between-participant differences in key demographic variables of age, race/ethnicity, and SES.

Maximum likelihood estimation was used to model all outcome variables. The affect outcome variables were modeled as normal continuous distributions, yielding β -coefficients that represent the change in daily affect for each standard deviation unit increase in daily minority stress. Estimates are derived from population-average models using robust standard errors. All level 1 variables were group-centered, such that level 1 intercepts represent a participant's average affect score on a day when the participant scored an average score for the respective daily minority stress measure. In order to control for potential reactivity to the daily diary survey, day since beginning the daily diary was included as a covariate in models predicting affect from minority stress (Newcomb & Mustanski, 2013).

Results

Sample Description

Table 2 describes the demographic characteristics of the 371 participants in the analytic sample. The sample was racially/ethnically diverse, with approximately half of participants being men of color. 86.0% of participants identified as gay, queer, or homosexual, while 11.1% identified as bisexual and 3.0% identified as other non-heterosexual. The sample was highly educated, with over half having received at least a bachelor's degree or other 4-year degree. 31.8% of the sample was employed full-time, 25.3% part-time, 21.0% were unemployed, and all others were either unemployed students or on disability. About half of the sample had an annual income of less than \$30,000, and 80.1% were single at the time of the baseline survey. Just over half of the sample was HIV negative. The sample ranged from 18 to 73 years of age, with 36.84 ($SD = 11.38$) years being the mean age.

Participants completed a median of 26 diaries out of the full 30 days ($M = 24.68$, $SD = 5.44$), resulting in 8,415 total diary entries out of 11,130 possible entries (75.61% response rate). HLM allows for missing data at level 1, and therefore, participants who did not enter data for each of the 30 days were still included in the analyses.

Table 3 describes participants' agreement with daily minority stress questions, as well as the summary affect scores for the entire sample. The sample displayed moderately high levels of PA ($M = 2.1$, range = 1- 4) and relatively low levels of NA and AA ($M = 1.5$ and 1.4 , respectively, range = 1-4). About half of the sample strongly agreed with the statement "Today, I felt good about myself as a gay/bisexual man," and almost three quarters of the sample strongly disagreed with the statements "Today, I tried to pass as straight in public," and "Today, being gay/bisexual stressed me out." After reverse scoring the first statement, a composite daily minority stress measure was computed by averaging each individual's response for the three questions. The mean score of composite daily minority stress for all participants across all 30 days of the daily diary was 1.4 ($SD = 0.5$, range = 1-4).

Associations Between Daily Minority Stress and Same-day Affect

A bivariate analysis predicting affect from minority stress was run with key demographic variables of age, race/ethnicity, and SES (not shown in tables). There were no significant relationships between these demographic characteristics and affect in the independent bivariate analyses. One exception is that race (modeled as a binary variable of white or other) significantly moderated the effect of minority stress on positive affect ($\beta = -0.001$, $p = 0.030$), such that as minority stress increased, PA decreased more for white participants than for participants of all other races. In order to adjust for potentially

missed confounding by these variables, age, race/ethnicity, and SES were included in the final predictive models.

Table 4 displays the bivariate associations between daily minority stress and affect. Parameters listed in Table 4 indicate the main effects of each minority stress variable on the outcome variables. Results show a significant relationship between the three minority stress items, as well as the composite minority stress scale, and affect. Minority stress statement 1 (“Today, I felt good about myself as a gay/bisexual man”) was positively associated with PA and negatively associated with NA and AA. As a participant felt better about himself as a gay or bisexual man, he experienced a significant increase in PA; conversely, as a participant felt better about himself, he experienced a significant decrease in NA and AA. Minority stress statement 2 (“Today, I tried to pass as straight in public”) was significantly positively associated with NA and AA, such that as a participant reported an increase in level of sexual orientation concealment, he reported a concomitant increase in NA and AA; no significant relationship was found with PA. Minority stress statement 3 (“Today, being gay/bisexual stressed me out”) significantly predicted a negative association with PA and positively predicted NA and AA. Thus, the more daily stress a participant experienced related to his sexual orientation, the lower his daily PA and the higher his daily NA and AA.

Using the composite measure of daily minority stress, results indicate that daily minority stress significantly negatively predicted PA while positively predicting NA and AA. As daily levels of minority stress increased, participants experienced significant decreases in same-day PA ($\beta = -0.215, p = <0.001$); as daily levels of minority stress increased, men experienced significant increases in NA ($\beta = 0.312, p = <0.001$) and AA

($\beta = 0.204, p = <0.001$). In the composite daily minority stress model, the β -coefficients indicate that a one standard deviation increase in the minority stress scale corresponds to a significant 0.22 unit decrease in PA, 0.31 unit increase in NA, and 0.20 unit increase in AA.

Associations Between Daily Minority Stress and Subsequent-day Affect

Table 5 presents results of the cross-lagged analysis predicting subsequent-day affect from daily minority stress. Results indicate that minority stress experienced on one day did not significantly predict PA on the subsequent day ($\beta = -0.034, p = 0.149$). However, minority stress experienced one day did significantly predict both NA ($\beta = 0.075, p = 0.002$) and AA ($\beta = 0.059, p = 0.003$) on the subsequent day, such that as minority stress increases on day X, NA and AA increase on day X + 1. The effect sizes of the cross-lagged analyses are slightly lower than the same-day analyses, indicating a diminished effect over time.

Associations Between Time and Study Variables

In order to examine trajectories in minority stress, PA, NA, and AA over the course of the daily diary study, bivariate analyses were run predicting each primary study variable from time since beginning the diary. Table 6 indicates that for all study variables, there was a significant downward trend over time, such that experiences of minority stress and affective states decreased from day 1 of the diary to day 30 of the diary.

Discussion

This study found that daily experiences of minority stress are associated with daily positive affect, negative affect, and anxious arousal, both concurrently and in

lagged analyses, in a high-risk sample of gay and bisexual men. This finding establishes a time-variant relationship between minority stress and affect, and by extension, a potentially time-variant relationship between minority stress and mental health outcomes, such as depression and anxiety. Knowing that prejudice, concealment of sexual orientation, internalized homophobia, and rejection sensitivity – the primary components of minority stress – are each independently associated with depression and anxiety, as well as several other mental health problems, it comes as no surprise that minority stress exudes significant predictive relationships with the primary domains of emotional structure (PA, NA, and AA), which have also been consistently linked to mood and symptoms of depression and anxiety.

The cross-lagged analysis conducted here indicates that minority stress experienced on a given day positively predicts NA and AA on the following day, yielding preliminary support for a causal relationship between minority stress and affective disruptions. However, while this study uncovered a same-day concurrent relationship between minority stress and PA, no such relationship was found for the time-lagged relationship between these two variables. Previous research on rumination and minority stress supports this pattern of findings. Rumination, a defining feature of poor affect regulation, refers to a passive and repetitive focus on one's distress and related circumstances. Preliminary evidence suggests that gay and bisexual men are disproportionately likely to ruminate compared to heterosexuals (Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008) and that rumination is associated with experiences of minority stress (Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009). The fact that rumination exacerbates and maintains NA and AA, but not PA, over time

(McLaughlin, Borkovec, & Sibrava, 2007) substantiates the present study's finding that minority stress predicts NA and AA on subsequent days.

Our results further reveal that participants experienced significant decreases in both minority stress and all affect variables over the course of the 30-day study period. This indicates significant reactivity to the daily diary, although the effect sizes of these relationships with time are very small. Other studies employing daily diaries among gay and bisexual men conclude little or no reactivity to behavioral diaries, which aligns with the small (albeit significant) effect sizes found in the present study (Mustanski, 2007; Newcomb & Mustanski, 2013).

The statement, "Today, I tried to pass as straight in public," was found to have no significant relationship with PA, which contrasts the highly significant time-variant relationships with NA and AA, as well as the highly significant relationships between the other statements of minority stress and affect (Table 4). This finding suggests that concealment of sexual orientation does not predict PA, a finding that should be interpreted with caution, as it may instead represent a type II statistical error.

This study had several strengths. To-date, all other studies exploring the role of minority stress on mental health have measured minority stress as a cross-sectional snapshot in time. The longitudinal nature of the present study, however, allowed for the examination of a time-variant association between minority stress and affect, in both same-day and subsequent-day models, representing a substantial contribution to the studies of mental health among gay and bisexual men. The study sample was also very racially diverse, and was comprised of a wide age range (18 years to 73 years), allowing for the control of any potential confounding or moderation by race/ethnicity or age.

Additionally, the highly sexually active nature of the sample allowed for the examination of a wider range of affect scores, knowing that increased sexual activity is a risk factor for mood disorders among gay and bisexual men.

While the highly sexually active nature of the sample is a strength of this study, it also limits the external validity of the study's conclusions, given that only a subset of gay and bisexual men meet criteria for highly sexually active classification. The urban, educated, and male sample may also limit generalizability to other sexual minority populations, including lesbian and bisexual women or those living in rural areas. However, components of minority stress have been independently correlated with mental health among populations other than sexual minorities, specifically, racial minorities and women (Borrell et al., 2011; Mendoza-Denton et al., 2002; Okoro, 2005; Singh & Burns, 2006; Tops, Riese, Oldehinkel, Rijdsdijk, & Ormel, 2008). Thus, there may be room to extend the findings of this study to a broader population.

Lastly, data for this study rely entirely on self-reported measures. Responses may have been under- or over-estimated and may also have been subject to recall bias. Additionally, participants with poorer mental health status may have over-reported their experiences of minority stress, potentially biasing findings away from the null (Meyer, 2003).

Future studies of the time-variant relationship between minority stress and affect should enroll a more nationally representative sample, explore a wider range of moderating factors, and consider the potentially influential role of geography and place. While this is the first longitudinal study of minority stress and mental health among gay

and bisexual men, the time range should be expanded from 30 days in order to explore long-term trends in the relationship between minority stress and affect.

The complex relationships between minority stress, affect, and HIV risk among gay, bisexual, and other MSM should also be explored in future studies. Experiences of minority stress play a clear predictive role in HIV risk behavior (Hatzenbuehler, Nolen-Hoeksema, et al., 2008). Previous work has also indicated that the various domains of state affect predict HIV risk behavior among MSM (Bousman et al., 2009; Grov, Golub, Mustanski, & Parsons, 2010; Mustanski, 2007). Whether affect serves as a mediator of the relationship between minority stress and HIV risk behaviors is presently unknown. The relationship among minority stress, affect, and HIV risk among MSM are particularly important to examine given that MSM are among the few subpopulations around the world with increasing incidence of HIV, in both developed and developing countries (Beyrer et al., 2012; Beyrer et al., 2013; Sullivan, Jones, & Baral, 2014). The increasing rate of HIV among MSM is a core component of the syndemic threat to the health of gay and bisexual men (Santos et al., 2014), and delineating the mechanisms through which sexual minority stress and affect contribute to this phenomenon is essential to addressing the health concerns of sexual minority men.

The findings of this study also have great implications for the elimination of mental health disparities among sexual minorities. Disparity elimination strategies must be a priority of future national and international public health initiatives. Such strategies may take place at the upstream, midstream, or downstream level, but should prioritize the health of sexual minority populations.

At the distal level, institutional policy change that seeks to create more favorable social climates for sexual minorities may be effective in reducing minority stress in these populations. Indeed, LGB populations living in states with discriminatory policies have substantially higher levels of psychiatric disorders than LGB populations in states with more favorable policies (Hatzenbuehler, Keyes, et al., 2009; Hatzenbuehler, McLaughlin, Keyes, & Hasin, 2010). The Uganda Anti-Homosexuality Act is an unfortunate but very clear example of oppressive and discriminatory institutional and structural policies that cause sexual minorities to internalize and direct homophobic attitudes towards the self. This internalized homophobia leads to elevated levels of minority stress (Ross et al., 2010), which could in turn deteriorate the mental health of sexual minorities in Uganda. Repeal of such laws around the world may be one of the most effective methods for reducing minority stress, and therefore a most effective method for reducing sexual orientation-related health disparities.

Findings of the present study have implications at the proximate level as well. Clinical interventions for the treatment of mood and anxiety disorders among gay and bisexual men could employ therapies aimed at developing healthy coping strategies to deal with minority stress. Individual-level interventions may not optimize population health, but combined with broader upstream changes, could make a lasting impact on the reduction of mental health disparities, and ultimately reduction of the syndemic condition, among gay and bisexual men.

Table 1. Correlations Between Minority Stress Statements ^a

Predictor	Minority stress 1		Minority stress 2		Minority stress 3	
	β (SE)	p	β (SE)	p	β (SE)	p
Minority stress 1 – Today I felt good about myself as a gay/bisexual man. ^b	–	–	0.089 (0.025)	< 0.001**	0.264 (0.031)	< 0.001**
Minority stress 2 – Today, I tried to pass as straight in public.	0.116 (0.033)	< 0.001**	–	–	0.234 (0.034)	< 0.001**
Minority stress 3 – Today, being gay/bisexual stressed me out.	0.290 (0.034)	< 0.001**	0.198 (0.031)	< 0.001**	–	–

Note. $n = 371$

^a minority stress predictors are within-person centered; correlations based on estimates of robust standard errors; trends for significance based on t-tests

^b reversed scored

* $p < 0.05$, ** $p < 0.001$

Table 2. Demographic Characteristics of Analytic Sample

	Overall (<i>N</i> = 371)	
	<i>n</i>	%
Race/ethnicity		
White	189	50.9
African American	75	20.2
Latino	50	13.5
Asian/Hawaiian/Pacific Islander	7	1.9
Other	50	13.5
Sexual orientation		
Gay, queer, homosexual	319	86.0
Bisexual	41	11.1
Other non-heterosexual	11	3.0
Educational level		
High school diploma or GED	42	11.3
Some college or Associate's degree	113	30.5
Bachelor's or other 4-year degree	126	34.0
Graduate degree	90	24.3
Employment status		
Full-time	118	31.8
Part-time	94	25.3
On disability	49	13.2
Student (unemployed)	32	8.6
Unemployed	78	21.0
Annual income		
<\$30,000	199	53.6
≥\$30,000	172	46.4
Relationship status		
Single	297	80.1
Partnered	74	19.9
HIV status		
Negative	207	55.8
Positive	164	44.2
Sexually compulsive		
Yes	187	50.4
No	184	49.6
	<i>M</i>	<i>SD</i>
Age (Range: 18 – 73; Median = 35.0)	36.84	11.38

Table 3. Strength of Agreement with Minority Stress Statements and Affect Summary

Item	Strength of agreement, %			
	Strongly disagree	Disagree	Agree	Strongly agree
Minority stress 1 – Today, I felt good about myself as a gay/bisexual man.	3.3	5.7	35.4	55.6
Minority stress 2 – Today, I tried to pass as straight in public.	70.8	19.3	6.8	3.2
Minority stress 3 – Today, being gay/bisexual stressed me out.	77.1	16.7	4.9	1.3
	<i>M</i>		<i>SD</i>	
Minority stress – Composite	1.4		0.5	
Positive Affect	2.1		0.6	
Negative Affect	1.5		0.6	
Anxious Arousal	1.4		0.5	

Note. Minority stress composite score ranges from 1 (low) to 4 (high); affect scores range from 1 (low) to 3 (high)

Table 4. Multivariate Associations Between Daily Minority Stress and Daily Affect ^a

	Positive Affect		Negative Affect		Anxious Arousal	
	β (SE)	<i>p</i>	β (SE)	<i>p</i>	β (SE)	<i>p</i>
Minority stress 1 – Today I felt good about myself as a gay/bisexual man. ^b	0.196 (0.019)	< 0.001**	-0.202 (0.020)	< 0.001**	-0.110 (0.015)	< 0.001**
Minority stress 2 – Today, I tried to pass as straight in public.	0.002 (0.017)	0.913	0.047 (0.016)	0.004*	0.053 (0.013)	< 0.001**
Minority stress 3 – Today, being gay/bisexual stressed me out.	-0.069 (0.018)	< 0.001**	0.170 (0.020)	< 0.001**	0.118 (0.015)	< 0.001**
Minority stress – Composite Score	-0.215 (0.027)	< 0.001**	0.312 (0.030)	< 0.001**	0.204 (0.021)	< 0.001**

Note. *n* = 371

^a all level 1 predictors are within-person centered; all analyses controlled for day since beginning diary; parameter estimates based on estimates of robust standard errors; trends for significance based on t-tests; analyses adjusted for age, race/ethnicity, and SES

^b reversed scored

* *p* < 0.05, ** *p* < 0.001

Table 5. Multivariate Associations Between Daily Minority Stress and Cross-Lagged Daily Affect ^a

	Positive Affect		Negative Affect		Anxious Arousal	
	β (SE)	<i>p</i>	β (SE)	<i>p</i>	β (SE)	<i>p</i>
Minority stress – Composite Score	-0.034 (0.023)	0.149	0.075 (0.024)	0.002*	0.059 (0.020)	0.003*

Note. *n* = 371

^a all level 1 predictors are within-person centered; all analyses controlled for day since beginning diary; parameter estimates based on estimates of robust standard errors; trends for significance based on t-tests; analyses adjusted for age, race/ethnicity, and SES
 * *p* < 0.05, ** *p* < 0.001

Table 6. Multivariate Associations Between Time and Study Variables ^a

	Time	
	β (SE)	<i>p</i>
Minority Stress – Composite Score	-0.002 (0.001)	0.004**
Positive Affect	-0.004 (0.001)	< 0.001**
Negative Affect	-0.002 (0.001)	0.005*
Anxious Arousal	-0.002 (0.001)	0.010*

Note. *n* = 371

^a all level 1 predictors are within-person centered; parameter estimates based on estimates of robust standard errors; trends for significance based on t-tests; analyses adjusted for age, race/ethnicity, and SES
 * *p* < 0.05, ** *p* < 0.001

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