

ABSTRACT

Title of Dissertation: DAILY HETEROSEXISM EXPERIENCES AND WELL-BEING AMONG LGB PEOPLE: THE MODERATING ROLE OF MINDFULNESS, SELF-COMPASSION, AND LGB-AFFIRMATIVE SUPPORT

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Research has shown that perceived discrimination, including heterosexism, is linked to poorer mental and physical health across a variety of stigmatized populations. Given the deleterious effect of discrimination on health, scholars have called attention to resilience research and the importance of understanding factors that can protect lesbian, gay, and bisexual (LGB) people from the adverse effect. To date, most research on LGB people's resilience relied on retrospective reports of heterosexism experiences. This limits the understanding about resilience factors that help LGB people effectively cope with discrimination as it occurs on a day-to-day basis. The present study addressed this gap by using an experience sampling design to test whether internal resources (mindfulness, self-compassion) and external resources (LGB-affirmative social support) reduce the impact of daily heterosexism experience on affective and somatic well-being. A sample of 254 LGB adults completed a baseline survey that assessed resilience factors, as well as brief online surveys twice daily for 14 days that assessed heterosexism experiences and well-being, providing a total of 3,346 days of data. As anticipated, results of multilevel modeling showed that heterosexism experiences were positively related to negative affect and somatic symptoms both at the daily and person levels. Inconsistent with my hypotheses, mindfulness, self-compassion, and LGB affirmative support did not moderate the within-person associations between daily heterosexism experience and daily well-being. These factors also did not moderate the between-person association between mean heterosexism and health. They were, however, positively linked with affective well-being regardless of heterosexism experiences. These findings provide insights for practitioners to support LGB clients to thrive.

DAILY HETEROSEXISM EXPERIENCES AND WELL-BEING AMONG LGB
PEOPLE: THE MODERATING ROLE OF MINDFULNESS, SELF-
COMPASSION, AND LGB-AFFIRMATIVE SUPPORT

by

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Chapter 1: Introduction

Heterosexism is an important public health issue. A plethora of research has shown the negative impact of discrimination on the psychological and physical well-being of stigmatized individuals, including lesbian, gay, and bisexual (LGB) people (Pascoe & Smart-Richman, 2009; Schmitt, Branscombe, & Garcia, 2014). Evidence suggests that heterosexism at various levels of the ecological system may put LGB people at greater risks for poorer mental and physical health than their heterosexual counterparts (Fredriksen-Goldsen et al., 2014) and has been linked to negative health outcomes such as anxiety, anger, rumination, social isolation, physical symptoms, and substance use among LGB people (Denton, Rostosky, & Danner, 2014; Liao, Kashubeck-West, Weng, & Deitz, 2015). It is important to generate strategies to address this preventable health crisis. While it is vital to enact policies to protect LGB people from discrimination, it is equally important to identify individual factors that may mitigate the negative impact of anti-LGB discrimination (Kwon, 2013; Russell & Richards, 2003).

The notion that psychological and social/community-oriented factors can buffer against the detrimental impact of discrimination on health among LGB people is featured in theories such as the minority stress model (Meyer, 2003, 2015) and the health equity promotion model (Fredriksen-Goldsen et al., 2014). Although these models have stimulated research on such resilience processes, most research used a cross-sectional design and relied on retrospective reports of heterosexism experiences (for a review, see Kwon, 2013); thus, little is known regarding factors that help LGB people effectively cope with discrimination as it occurs on a day-to-day basis. The proposed study addresses this gap by using an experience sampling design to test whether internal resources

(mindfulness, self-compassion) and external resources (LGB-affirmative social support) reduce the impact of daily heterosexism on momentary health.

Mindfulness and Self-Compassion as Internal Protective Factors

Mindfulness has been proposed to be an internal resource people can use to cope effectively with both general and identity-specific stressors (Tomlinson, Yousaf, Vittersø, & Jones, 2018). Mindfulness can be defined as the extent to which one is aware of one's moment-to-moment experiences and attend to them without judgment (Kabat-Zinn, 2006). Mindfulness is thought to reduce one's reactivity to stress (i.e., to have a stress buffering effect) by promoting one's ability to disidentify with stressful experiences and observe them as they arise with curiosity and kindness rather than reacting to stress in an automatic fashion (Shapiro, Carlson, Astin, & Freedman, 2006). Indeed, mindfulness has been shown not only to be negatively related to psychopathology and positively linked to well-being, but also negatively related to maladaptive cognitive processes such as rumination and positively related to emotion regulation and distress tolerance (Bishop et al., 2004; Brown & Ryan, 2003; Hofmann, Sawyer, Witt, & Oh, 2010; Tomlinson et al., 2018). Evidence from a daily diary study suggested that people with higher trait mindfulness are less likely to appraise daily stressors as disturbing and more likely to engage in adaptive coping, which in turn contributes to better daily well-being (Weinstein, Brown, & Ryan, 2009).

Given evidence of the stress-buffering role of mindfulness in the general population, scholars of minority issues have proposed using mindfulness-oriented interventions to help stigmatized individuals cope with identity-salient stressors, such as discrimination (Iacono, 2018). Compared to people with lower mindfulness, those with

greater mindfulness may reduce the impact of discrimination by disidentifying from automatic reactions they may have towards discrimination, including negative thoughts (e.g., “I am less worthy”), negative emotions (e.g., embarrassment, anger), and physiological reactions (e.g., tension in the body). This possibility has been supported by some research. For instance, mindfulness attenuated the links between two types of perceived discrimination (i.e., sexual orientation- and age-related) and psychological distress in a sample of middle-aged gay men in Australia (Lyons, 2016). There was similar pattern of results with studies conducted among African American samples regarding the buffering role of mindfulness against perceived racial discrimination on distress (Graham, West, & Roemer, 2013; Shallcross & Spruill, 2017; Zapolski, Faidley, & Beutlich, 2018). Furthermore, mindfulness also mitigated the negative relation between other stigma-related stressors and health, such as gender non-conformity (Keng & Liew, 2017), rumination about mental illness-related stigma (Yang & Mak, 2017), and autism spectrum disorder related stigma (Chan & Lam, 2017). However, there were also findings inconsistent with the buffering hypothesis. For instance, mindfulness did not buffer against perceived racism on certain outcomes, such as alcohol use (Zapolski et al., 2018), and when perceived discrimination was measured as stress appraisal (Graham et al., 2013).

Another potential source of resilience is self-compassion, which can be defined as the extent to which one treats and relates to oneself with balanced understanding, kindness, and a sense of shared humanity especially when a sense of personal failure and inadequacy is activated (Neff, 2016). Similar to mindfulness, researchers suggest that one mechanism by which self-compassion buffers against stress is emotional processing —

acknowledging and understanding one's emotions (Neff, 2016; Terry & Leary, 2011).

Self-compassion is positively linked to adaptive emotional processing and negatively associated with maladaptive emotion coping strategies, such as rumination and thought suppression (Neff, 2003; Neff, Kirkpatrick, & Rude, 2007; Neff & Vonk, 2009).

Evidence also suggests it reduces people's adverse reactions to negative events. For instance, one daily diary study showed that self-compassion mitigated the association between perceived daily stress and momentary negative affect (Krieger, Hermann, Zimmermann, & grosse Holtforth, 2015). Furthermore, experimental evidence suggested that self-compassion induction may help a person acknowledge how one's personal attributes may be linked to the negative event yet still experience less negative affect, as compared to the control condition (Leary, Tate, Adams, Allen, & Hancock, 2007).

Researchers of minority issues have proposed additional pathways whereby self-compassion may attenuate the detrimental effect of discrimination on health (Wong, Knee, Neighbors, & Zvolensky, 2018). For instance, compared to stigmatized people with lower self-compassion, those with greater self-compassion may not only be able to disengage from ruminating about their perceived self-insufficiency but may also actively affirm their self-worth, generate meaning, garner social support, and even gain interpersonal insights and forgive the transgressor when encountering discriminatory events. Little research has examined the buffering role of self-compassion in the relation between discrimination and health. The only study I identified found that self-compassion induction among a sample of LGB people did not mitigate the effects of recalled discrimination on internalized stigma, fear of negative evaluation, or mood (Chandler, 2013). Most studies that tested the buffering role of self-compassion focused on its effect

on the relation between other identity-salient experiences and health. For instance, researchers found that self-compassion attenuated the negative association between gender non-conformity and well-being among Singaporeans with diverse sexual orientations (Keng & Liew, 2017) and the association between affiliate stigma and psychological distress among caregivers of children with autism spectrum disorder (Wong, Mak, & Liao, 2016). However, this buffering role of self-compassion has not consistently emerged across studies. For instance, self-compassion attenuated the indirect association of HIV-related stigma with negative affect but not with outcomes such as depression, anxiety, or positive affect among gay men living with HIV (Skinta, Fekete, & Williams, 2018); it dampened the negative link between one's own negative evaluations of their stigmatized identity and life satisfaction among people living with HIV but not among people in recovery of mental illnesses (Yang & Mak, 2017).

LGB-Affirmative Social Support as an External Protective Factor

External sources of resilience, such as LGB-affirmative social support, may also ameliorate the negative impact of discrimination on well-being. Social support can be defined as the “provision of psychological and material resources intended to benefit an individual's ability to cope with stress” (Cohen, 2004, p. 676) and the “utilization of social networks to help one deal with adverse circumstances” (Case & Hunter, 2012, p. 258). Beyond general support, scholars have asserted the value of examining LGB-affirmative support (i.e., social support that matches the needs elicited by LGB-related stressors) since it fundamentally counteracts the heterosexist culture in society (Case & Hunter, 2012; Fredriksen-Goldsen et al., 2014; Kwon, 2013).

Similar to general social support, LGB-affirmative social support may buffer against heterosexism by increasing perceived available assistance, a sense of security, and reassurance/reinforcement of worth (Case & Hunter, 2012; Cohen, 2004; Cohen & Wills, 1985; Uchino, Bowen, Carlisle, & Birmingham, 2012; Weiss, 1974). First, when encountering instances of heterosexism, LGB people may be more likely to seek and receive solution-focused assistance when they know that there are trusted others who can empathize and validate their inner experiences, guide them through the situation (e.g., transmitting cognitive and behavioral strategies in response to heterosexism) and offer tangible support (e.g., providing material/financial assistance to take legal actions). Furthermore, from an attachment perspective, individual figures and social groups to whom one is securely attached can often serve as a safe haven where the LGB person experiences affection and belonging in face of heterosexism; hence, restore their sense of security. Finally, since one common consequence of discrimination is internalized shame (Meyer, 2003), LGB people upon heterosexism experiences may return to their baseline functioning when their strengths and abilities are recognized and nurtured, especially those that are relevant to combatting heterosexism. In sum, the perception or belief that people in one's social network can provide the necessary support that an LGB person need may help them reappraise the heterosexism incident, modulate their emotional and physiological responses, and refrain from maladaptive behavioral responses to the stressful event.

Evidence suggests that perceived general social support can serve as a buffer against the harmful effect of stress. Cutrona (1986), for example, found that on days with stressful events, individuals' perceived social support at baseline predicted daily receipt

of help-oriented behaviors from others, which in turn predicted lower daily depressed mood. However, a meta-analytic study found inconsistent findings regarding the buffering role of social support in the link between discrimination and health across stigmatized populations, with the majority of the results being non-significant (Pascoe & Smart-Richman, 2009). This inconsistency is mirrored in research on LGB-affirmative support. One study found that LGB-affirmative support buffered against the negative effects of sexuality stress (combining heterosexism experiences and other sexuality-related stressors) on emotional distress among LGB youth (Doty, Willoughby, Lindahl, & Malik, 2010). However, a number of other studies have found no such buffering effect of identity-affirmative social support against the negative impact of heterosexism experiences on health (e.g., Feinstein, Wadsworth, Davila, & Goldfried, 2014; Fingerhut, 2018; Kosciw, Palmer, Kull, & Greytak, 2013; Sattler, Wagner, & Christiansen, 2016; Szymanski & Owens, 2009; Wong, Schrage, Holloway, Meyer, & Kipke, 2014). Despite the lack of evidence, it is worth noting that the majority of these studies relied on retrospective reports of heterosexism and tested the hypothesis at a between-person level of analysis. Thus, no research has tested the extent to which LGB-affirmative support lessens the adverse impact of daily heterosexism experiences on day-to-day fluctuations in well-being. Focus on daily experiences offers not only the opportunity to examine such within-person dynamics but also the means to study LGB-affirmative support at a time when it is likely personally relevant.

Present Study

Mindfulness, self-compassion, and LGB-affirmative support have the potential to protect stigmatized individuals from the deleterious effect of discrimination, but little is

known about how these factors may lessen the impact of incidental discrimination on day-to-day fluctuations in health outcomes (Fredriksen-Goldsen et al., 2014). I examined the extent to which these potential buffers protected LGB people from the negative impact of daily discrimination on positive and negative affect and somatic symptoms (see Figure 1).

Based on emerging research on the protective role of mindfulness, self-compassion, and LGB-affirmative support reviewed, the overarching hypothesis was that these proposed protective factors would moderate the concurrent relation between heterosexism experiences and health outcomes at both the day and person levels (see Figure 2). Specifically, I expected that the associations between heterosexism experiences and health outcomes at both the day and person levels would be weaker at higher levels of trait mindfulness, self-compassion, and LGB-affirmative support. Regardless of levels of these potential protective factors, I expected daily and mean heterosexism experiences to be linked with poorer outcomes, given robust evidence of the negative impact of discrimination on mental and physical health across multiple populations (Schmitt et al., 2014). Thus, I hypothesized that daily and mean heterosexism experiences would generally have a negative within-person association with positive affect and positive within-person associations with negative affect and somatic symptoms. However, I expected these associations to weaken as levels of the proposed protective factors increased.

In addition, some evidence has suggested that the negative impact of daily negative identity-salient experiences, including discrimination, on daily well-being may persist into the next day (Eldahan et al., 2016; Ong, Burrow, Fuller-Rowell, Ja, & Sue,

2013; Torres & Ong, 2010). As an exploratory question, I tested whether the proposed protective factors moderated the prospective relation between heterosexism experiences on a given day and the next-day morning health outcomes, such that the heterosexism-health link would be mitigated at higher levels of trait mindfulness, self-compassion, and LGB-affirmative support (see Figure 3).

Chapter 2: Method

Participants and Procedure

I recruited 254 participants; data from a total of 245 participants ($M_{age} = 29.4$, $SD = 8.92$) were used in my analyses (data from 4 participants were excluded because they did not respond to the survey questions as instructed and those from another 5 participants were excluded because of failure to complete any daily surveys). Table 1 summarizes the distribution of various demographic characteristics of participants. Of note, about 14.7% of participants identified as genderqueer/non-binary whereas the numbers of male and female-identified participants were similar. The majority of the participants identified as gay/lesbian, followed by queer and bisexual. Slightly over half of the participants identified as White, close to one third identified as Asian/Pacific Islander, and the rest identified as Black, Latinx, Middle Eastern, and/or native American. Over 70% of participants reported having received a Bachelor's degree and just over 60% reported being in middle class or above. Slightly more than half of participants reported either not identifying with any organized religion, being agnostic, or being atheist. Participants were from 40 different states.

I recruited participants from LGB-oriented organizations, electronic message boards, meditation groups, and databases built by the research lab with which I am affiliated. I maximized the heterogeneity of the sample using Internet-based stratified sampling with the consideration of demographic characteristics, including age, gender, sex, sexual orientation, race/ethnicity, socioeconomic status, and state of residence. Eligibility included being 18 years old or above, identifying as LGB, having home access to the Internet, and being willing to complete brief daily surveys for 14 days. Power

analysis indicates that to test the cross-level interaction effects with medium sizes, 120 people and 14 days will be needed (Mathieu, Aguinis, Culpepper, & Chen, 2012). An exclusion criterion was people whose schedule of activity is typically reverse between day and night. Eligible participants received a link to the baseline survey, which assessed person-level variables (i.e., mindfulness, self-compassion, perceived LGB-affirmative social support, and demographics). For each of the following 14 days, participants received reminder emails with individualized links to their daily morning and evening surveys. Participants completed health-related items (i.e., affective and somatic experiences) prior to starting their day between the hours of 5am and 12pm, and completed measures of daily life events in addition to the health-related items between the hours of 6pm and 3am the next day. Participants who complete the evening survey on the 14th day were thanked and invited to complete three additional daily surveys. Participants were eligible to receive up to \$25 in the form of an electronic gift card for completing the 2-week study (\$20 for a minimum of 12 pairs of daily morning and evening surveys and a \$5 bonus for completing all 14 pairs of daily surveys) and further eligible to enter a drawing for one of five \$20 electronic gift cards if they completed surveys for three additional days.

Measures

Person-level measures.

Trait mindfulness. Thirty nine items in the Five Facet Mindfulness Questionnaire (FFMQ) was used to measure trait mindfulness (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). FFMQ consists of five subscales, including observing ("When I'm walking, I deliberately notice the sensations of my body moving"), describing ("I'm good

at finding the words to describe my feelings"), acting with awareness ("I rush through activities without being really attentive to them"), non-judging of inner experience ("I think some of my emotions are bad or inappropriate and I shouldn't feel them"), and non-reactivity to inner experience ("I perceive my feelings and emotions without having to react to them"). Items were rated on a 5-point scale ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*). All subscales, except *observing*, have good convergent validity in the sample of the scale development study—positively related to emotional intelligence and self-compassion and negatively associated with absent-mindedness, thought suppression, and experiential avoidance (Baer et al., 2008). Studies have shown that the observing subscale score tends not to correlate with the overarching mindfulness construct among people who do not regularly practice meditation (Baer et al., 2008; Williams, Dalgleish, Karl, & Kuyken, 2014). Also, all subscales, except *observing*, has been shown to produce reliable scores with samples with varying degrees of gender conformity and same-sex attraction (Keng & Liew, 2017). Nonetheless, results indicated that the five facets of mindfulness were all correlated with the overall scale score from a moderate to high level ($r_s = .54 - .75$). Therefore, I used the total scale scores in the following analyses and they were calculated by averaging item scores of subscales that meaningfully correlate with the overarching mindfulness construct, where higher scale scores indicate greater mindfulness. The scale scores had satisfactory internal consistency (Cronbach's $\alpha = .92$).

Trait self-compassion. The 26-item Self-Compassion Scale (Neff, 2003) was used to measure the tendency to be compassionate toward the self in difficult times. The scale contains six subscales: self-kindness, self-judgment, common humanity, isolation,

mindfulness, and over-identification. Sample items for each of these subscales, respectively, include "I try to be loving towards myself when I'm feeling emotional pain", "I'm disapproving and judgmental about my own flaws and inadequacies", "When things are going badly for me, I see the difficulties as part of life that everyone goes through", "When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world", "When something upsets me I try to keep my emotions in balance", and "When I'm feeling down I tend to obsess and fixate on everything that's wrong". The items were rated on a 5-point scale from 1 (*almost never*) to 5 (*almost always*). The scale has been shown to produce reliable scores with a variety of populations including college students, community adults, people with recurrent depression, and gender identity and sexual orientation minorities (Keng & Liew, 2017; Neff, Whittaker, & Karl, 2017). It also has good convergent and discriminant validity in the sample of the scale development study—being negatively associated with self-criticism and positively associated with social connectedness, and lacking association with social desirability, respectively (Neff, 2003). However, researchers also found no support for the suggested six-specific-factor or one-general-factor structure proposed by the scale developer (Williams et al., 2014). Some evidence actually suggested that it may be adequate to use the 13 positively worded items to measure the concept of self-compassion (Brenner, Heath, Vogel, & Credé, 2017). Nonetheless, results indicated that the six subscale scores of self-compassion were all strongly correlated with the overall scale score in the expected direction ($|r|s = .74 - .88$). Therefore, I used the total scale scores in the following analyses and they were calculated by averaging item scores of subscales that meaningfully correlate with the overarching self-compassion construct,

where higher scale scores indicate greater self-compassion. The scale scores had satisfactory internal consistency (Cronbach's $\alpha = .95$).

Perceived LGB-affirmative social support. The 20-item Social Provision Scale (Cutrona & Russell, 1987) was adapted to measure identity-affirmative support processes. The scale contains five subscales (sample items in parentheses, adapted material underlined): Attachment ("I have close relationships with other LGB people that provide me with a sense of emotional security and well-being"), Guidance ("There is someone I could talk to about important LGB-related decisions (e.g., coming out) in my life"), Reliable Alliance ("There are people I can depend on to help me on LGB-related issues if I really need it"), Reassurance of Worth ("I have relationships where my sexual orientation is recognized"), and Social Integration ("I feel part of a group of LGB people who share my attitudes and beliefs"). The items were rated on a 5-point scale from 1 (*strongly disagree*) to 4 (*strongly agree*). Evidence from the scale development studies showed that the subscales generate scores with acceptable reliability (coefficient alpha ranges from .65 to .76) and that the overall scale generate scores with excellent reliability (coefficient alpha equals .92). The total score of the scale also demonstrates good convergent and discriminant validity—being positively related to satisfaction with support and number of supportive persons and weakly related to social desirability and number of stressful events (Cutrona & Russell, 1987). Results indicated that the five subscale scores were all strongly correlated with the overall scale score ($r_s = .74 - .92$). Therefore, I used the total scale scores in the following analyses and they were calculated by averaging item scores of subscales that meaningfully correlate with the overarching LGB-affirmative support construct, where higher scale scores indicate greater LGB-

affirmative support. Participants involved in LGB-oriented physical and/or virtual spaces reported greater perceived LGB affirmative support than those without any involvement ($d = 0.29, t = 3.07, p < .01$). All subscale scores had satisfactory internal consistency (Cronbach's $\alpha = .70 - .87$). The scale scores also had satisfactory internal consistency (Cronbach's $\alpha = .94$).

Daily measures.

Heterosexism experiences. Daily heterosexism experiences were assessed based on instructions in a previous study (Mohr, 2016). Participants were asked to indicate the occurrence of a situation involving “events, behaviors, or comments from outgroup member(s) that you believe may have reflected (a) negative attitudes or stereotypes regarding LGB people, (b) discrimination toward LGB people, (c) valuing the well-being of heterosexuals over that of LGB people, or (d) unjustified assumptions that a person is heterosexual" (p. 79). Participants indicating that such an event had occurred were asked for a brief description of the experience. They were also instructed to describe an event that had the “biggest impact on your day" if more than one such event occur that day.

A trained psychology undergraduate student and I read the descriptions of each experience and indicated whether each participant's description fit the above definition of a heterosexism experience using the following scale (0 = no 1 = unlikely, 2 = maybe, 3 = likely, 4 = yes). Descriptions of a heterosexism experience with ratings of at least a 2 (i.e., “maybe” or above) from both myself and the undergraduate assistant were coded as 1 (presence of a heterosexism experience) and the rest were coded as 0 (absence of a heterosexism experience). The only exceptions to this coding system were for the 44 events (i.e., 8.51%) where the ratings of the two raters differed by at least 2 points across

the mid-point (e.g., one rated *unlikely* and then other rated *likely*). In these cases, I asked a counseling psychology doctoral student to rate the event and used their rating to decide whether the event should be coded as a heterosexism experience. Also, of note, 75 events (i.e., 14.37%) were coded as 0 because the descriptions primarily illustrated experiences related to one's gender identity rather than sexual orientation.

This variable serves as a measure of the occurrence of a heterosexism experience at the day level (i.e., daily heterosexism). Heterosexism experience at the person level was assessed by averaging each participant's daily heterosexism experience scores, which yields scores that could be interpreted as the proportion of a participant's days featuring heterosexism experience (i.e., mean heterosexism).

Participants who report no heterosexism experiences on a given day received a score of 0 (i.e., absence of a heterosexism experience). They also received a question "Of the environment that you spent time in during the last 24 hours, which made you feel least positive" with the following options: (a) home, (b) workplace, (c) school, (d) neighborhood, (e) religious institution/place of worship, and (f) other. They were then asked to "keep the environment you selected in mind and briefly describe why spending time in this environment made you feel least positive" and to "select an identity that felt more central to the way you saw yourself in the selected environment". These questions serve as fillers so that participants have no incentive to say report "no" to the prompt for heterosexism experiences.

Affective experience. Positive and negative affect was assessed by the Positive and Negative Affect Scale—Expanded (Watson & Clark, 1999). Each subscale has ten items. Participants rated the extent to which they experience "different feelings and

emotions” that day, using a fully anchored scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). Subscales were calculated by averaging item ratings, with higher scores indicating stronger affective experience. Sample items include: “afraid”, “hostile”, and “ashamed” for negative affect, and “active”, “excited”, and “proud” for positive affect. The two subscales generated scores with excellent internal consistency at the day-level measurement in both the instrument development sample (.87 for negative affect, .89 for positive affect; Watson & Clark, 1999) and in an LGB sample (.86 – .94 for negative affect, .85 – .91 for positive affect across days; Mohr & Sarno, 2016). Validity evidence was also gathered for the subscales based on convergence between self-reports and peer-reports of affect (Watson & Clark, 1999). In an LGB sample, positive identity-salient experiences were related to positive affect and negative identity-salient experiences were related to negative affect at the day-level measurement (Mohr & Sarno, 2016). The scale scores for positive affect had satisfactory internal consistency (Cronbach’s $\alpha = .98$ for evening scores & .93 for morning scores) and those for negative affect also had satisfactory internal consistency (Cronbach’s $\alpha = .98$ for evening scores & .94 for morning scores).

Somatic experience. A 10-item daily somatic symptom checklist was used to assess participants' physical health (Larsen & Kasimatis, 1991). Participants were asked to indicate whether they experience the following symptoms in the previous 24 hours, including aches (“headaches”), gastrointestinal symptoms (“nausea/upset stomach”), upper respiratory symptoms (“sore throat”), and other physical discomforts (“allergies”). Scores were calculated by summing the number of daily symptoms reported. The checklist has been used in daily diary studies among minority populations (e.g., Asian

Americans) and the week-to-week test–retest reliability was good (correlation = .75; Ong et al., 2013). The scale scores had satisfactory internal consistency (Cronbach’s α = .99 for evening scores & .69 for morning scores).

Chapter 3: Results

Preliminary Analyses

Participants completed between 1 and 17 daily surveys ($M = 13.64$, $SD = 4.59$). There were a total of 3,346 days of data. Descriptive statistics are presented in Table 2. Results showed that 40.8% of participants did not experience any heterosexism experiences across the participation period. The mean heterosexism experience score across participants was 0.12. This indicates that, on average, 12% of a respondent's days of participation featured a heterosexism event. The mean negative affect and somatic symptom scores were substantially (about 3 SD) below the midpoint of possible scores. In contrast, the mean score for positive affect was slightly (about 1 SD) less than the midpoint of possible scores.

Intraclass correlation coefficients (ICCs) for the three outcome variables were obtained. I ran unconditional random intercept models for each variable and calculated ICCs by dividing the between-person variance estimate by the total variance. ICCs for the three well-being variables were as follows: negative affect (evening: 0.51; morning: 0.60), positive affect (evening: 0.59; morning: 0.69), and somatic symptoms (evening: 0.66; morning: 0.67). These estimates can be interpreted as the percentage of variability due to stable differences between participants. For example, 67% of the variability in morning somatic symptoms was due to systematic differences between people, whereas only 51% of the variability in evening negative affect was due to stable differences between people. In addition, ICC for the daily heterosexism variable was 0.27, calculated using the approach described by Goldstein, Browne, and Rabash (2002). This indicated

that only 27% of the variability in daily heterosexism was due to stable individual differences.

Table 2 shows the zero-order correlations among the variables of interests. LGB affirmative support was negatively associated with mean heterosexism. Mindfulness, self-compassion, and LGB support were all negatively associated with negative affect and positively related to positive affect for both morning and evening assessments. None of the hypothesized protective variables were related to somatic symptoms in the evening, and only self-compassion was negatively associated with somatic symptoms in the morning. Of note, LGB support was negatively related to mean heterosexism. Daily heterosexism was positively associated with negative affect and somatic symptoms at both levels of analysis, regarding of time of assessment. Daily heterosexism was unrelated to positive affect, however.

Main Analyses

I conducted multilevel analyses in a series of six steps using Mplus 8 for each hypothesized protective factor and for each outcome variable. Each step corresponded to a specific model. Specifically, in Model 1, the control variables were entered as predictors of the outcome at Level 1. The control variables included day of study, weekday (vs. weekend), and the corresponding outcome assessed in a previous time point. Model 2 consisted of daily heterosexism and mean heterosexism as predictors of the outcome. The Level 1 heterosexism slopes were allowed to vary randomly in Model 2 and all subsequent models. These random slopes reflected unique association between daily heterosexism experiences and well-being of each participant. In Model 3, one of the protective factor variables was entered as a predictor of the outcome. This model made it

possible to examine the unique association of each protective factor variable with well-being, controlling for mean heterosexism. In Model 4, the corresponding cross-level interaction between each protective factor variable and heterosexism was entered into the model. This interaction can be thought of as testing each protective factor variable as a predictor of the random slopes (i.e., of the association between daily heterosexism and the outcome). This model provided a test for the unique variance explained by each protective factor variable in prediction of slopes. It specifically tested the main hypothesis that each of the protective factors mitigates the link between daily heterosexism and well-being. In Model 5, the cross-level interaction between mean heterosexism and daily heterosexism was entered into the model. Finally, in Model 6, the person-level interaction between each protective factor variable and mean heterosexism was entered into the model. This model allowed us to test the hypothesis that each of the protective factors mitigates the link between mean heterosexism and well-being. Of note, throughout all six models, I centered the daily heterosexism variable at each participant's own mean of daily heterosexism across the period they participated in the study; and I centered the control variables, mean heterosexism, and the protective factor variables at the entire sample's mean of each corresponding variable. In addition, I conducted two separate sets of analyses with the aforementioned series of six models. In the same-day analyses, the outcome variable measured in the evening was regressed on the daily discrimination assessment from that evening (controlling for the corresponding outcome variable assessed in the morning on that same given day). In the next-day analyses, the outcome variable measured on a given morning was regressed on the daily discrimination

assessment from the previous evening (controlling for the corresponding outcome variable assessed in the previous evening).

For the same-day analyses, detailed discussion of results are provided for Model 2 (main effects of heterosexism), Model 3 (main effects of protective factors), Models 4 and 5 (cross-level interaction between each protective factor and daily heterosexism), and Model 6 (person-level interaction between each protective factor and mean heterosexism). For the next-day analyses, only Models 2, 4, and 5 will be discussed because of the focus on the main effect of daily heterosexism, and the cross-level interaction between each protective factor and daily heterosexism.

Tables 3–8 feature general statistics for all models, including the AIC, explained variance in the outcome, and explained variance in the random slopes. I calculated the explained variance measures based on Snijders and Bosker's (2012) recommendations. These measures of explained variance are analogous to R-squared in ordinary least squares regression. It is worth noting that the explained variance statistic may unintuitively appear smaller when nonsignificant predictors are added to a model (Snijders & Bosker, 2012).

Variability of Slopes

I first conducted a series of deviance tests to examine the variability of the slopes of daily heterosexism in association with the outcomes (i.e., same-day negative affect, positive affect, and somatic symptoms, as well as the same set of outcomes for the next day). Results either showed problematic negative values (Bryant & Satorra, 2012) or positive yet non-significant values, $\chi^2(2) = -5.24, 0.10, -6.39, -53.64, 3.93, \text{ and } -12.46$, respectively. Deviance tests (i.e., comparing whether the model with random slopes was

significantly different from the one with fixed slopes) are generally preferred over Wald tests (i.e., comparing whether the slope variance was significantly different from zero), particularly for small sample sizes (Bryant & Satorra, 2012). Since the negative values yielded from these deviance tests were not interpretable, I referred to the results of Wald tests for the variability of slopes. Findings indicated that slopes randomly varied across participants for same-day negative affect and somatic symptoms ($Bs = 0.03$ & 0.003 , $SEs = 0.01$ & 0.00 , $ps < .05$, respectively) and for next-day positive affect and somatic symptoms ($Bs = 0.03$ & 0.001 , $SEs = 0.01$ & 0.00 , $ps < .05$, respectively), but not for same-day positive affect or next-day negative affect ($Bs = 0.03$ & 0.00 , $SEs = 0.03$ & 0.00 , $ps > .05$, respectively).

Negative Affect

Same-day analyses. Model 1 featured the control variables in predicting negative affect. Since results were not of substantial interest, they are not reported. Findings from Model 2 indicated that negative affect was predicted by daily heterosexism ($B = 0.10$, $SE = 0.03$, $p < .001$) and mean heterosexism ($B = 0.37$, $SE = 0.16$, $p < .05$), indicating that heterosexism experiences explained both day-to-day differences in negative affect and stable individual differences in negative affect. Inclusion of the heterosexism variables accounted for an additional 2.43% of the variability in negative affect, above and beyond the control variables and improved the overall model quality (see Table 3). In Model 3, each of the three protective factor variables was entered as a predictor of the outcome. Results indicated that mindfulness and self-compassion were negatively related to negative affect; LGB affirmative support was unrelated to negative affect (see Tables 9–11). In Model 4, each of the protective factor variables (i.e., mindfulness, self-

compassion, and LGB affirmative support) were entered as predictors of the slopes of daily heterosexism in association with negative affect. Results indicated that none of the protective variables was related to the slopes ($Bs = -0.01-0.03$, $SEs = 0.03-0.05$, $ps = .525-.878$), counter to the hypothesis that the variables would reduce the link between daily heterosexism and negative affect. In Model 5, mean heterosexism was entered as a predictor of the slopes in addition to the protective factor variable. Results indicated that mean heterosexism was also unrelated to the slopes (see Tables 9–11). Finally, in Model 6, the person-level interaction between each protective factor variable and mean heterosexism was entered as a predictor of the outcome. Results indicated that none of the interactions was statistically significant ($Bs = -0.36-0.05$, $SEs = 0.17-0.23$, $ps = .128-.760$).

Next-day analyses. Findings from Model 2 indicated that daily heterosexism on a given day was unrelated to negative affect in the next morning ($B = -0.02$, $SE = 0.02$, $p = .256$). In Models 4 and 5, results indicated that none of the protective variables ($Bs = -0.07-0.05$, $SEs = 0.04-0.07$, $ps = .226-.359$) nor mean heterosexism were related to the slopes (see Tables 12–14).

Summary. In short, daily heterosexism was related to same-day negative affect at the within- and between-person levels but not next-day negative affect. None of the associations between daily heterosexism and negative affect were moderated by any of the hypothesized protective factors.

Positive Affect

Same-day analyses. Findings from Model 2 indicated that daily heterosexism and mean heterosexism were unrelated to positive affect ($Bs = 0.01$, $SEs = 0.04$ & 0.18 , $ps =$

.906 & .975, respectively). In Model 3, results indicated that mindfulness, self-compassion, and LGB support were all positively associated with positive affect (see Tables 9–11). In Model 4, results indicated that none of the protective variables was related to the slopes ($Bs = 0.07\text{--}0.12$, $SEs = 0.05\text{--}0.08$, $ps = .135\text{--}.174$). In Model 5, results indicated that mean heterosexism was unrelated to the slopes (see Tables 9–11). In Model 6, results indicated that none of the interactions between the protective factor variables and mean heterosexism were significant as predictors of the outcome ($Bs = -0.13\text{--}0.40$, $SEs = 0.26\text{--}0.36$, $ps = .164\text{--}.606$).

Next-day analyses. Findings from Model 2 indicated that daily heterosexism on a given day was unrelated to positive affect in the next morning ($B = 0.04$, $SE = 0.05$, $p = .369$). In Model 4, results indicated that none of the protective variables was related to the slopes ($Bs = -0.02\text{--}0.11$, $SEs = 0.03\text{--}0.09$, $ps = .218\text{--}.775$). In Models 5, results indicated that mean heterosexism was negatively related to the slopes ($Bs = -0.35\text{--}0.30$, $SEs = 0.10\text{--}0.12$, $ps < .01$). However, deviance test showed that mean heterosexism did not account for additional variance in slopes beyond that were explained by any of the protective variables, $\chi^2(1) = 3.13$, $p > .05$. In fact, the reductions in AIC was minimal if there were any (see Tables 12–14). This likely indicated that the effect of the cross-level interaction was negligible.

To interpret this cross-level interaction, I tested the simple within-person slopes. Results showed that when mean heterosexism was low, moderate, and high, daily heterosexism on a given day was positively related to positive affect the next morning after controlling for the outcome the evening on a given day ($Bs = 0.22$, 0.17 , & 0.11 , $SEs = 0.08$, 0.07 , & 0.05 , $ps < .05$). Results also showed that when mean heterosexism was

1.29 standard deviation above mean or higher, daily heterosexism on a given day was unrelated to positive affect the next morning after controlling for the outcome the evening on a given day.

Summary. In short, daily heterosexism was unrelated to same-day and next-day positive affect. None of the associations between daily heterosexism and negative affect were moderated by any of the hypothesized protective factors. An unexpected cross-level interaction emerged between mean heterosexism and daily heterosexism, wherein the association between daily heterosexism and positive affect was positive at most levels of mean heterosexism but nonsignificant at the highest levels of mean heterosexism (i.e., nonsignificant for people who reported the most heterosexism experiences).

Somatic Symptoms

Same-day analyses. Findings from Model 2 indicated that daily heterosexism and mean heterosexism were positively related to somatic symptoms ($Bs = 0.02$ & 0.20 , $SEs = 0.01$ & 0.07 , $ps < .05$, respectively). In Models 3 & 4, results indicated that none of the hypothesized protective factors were related to somatic symptoms (see Tables 9–11) or the slopes ($Bs = -0.04$ – 0.01 , $SEs = 0.02$ – 0.05 , $ps = .167$ – $.532$). In Model 5, results indicated that mean heterosexism was not associated with slopes (see Tables 9–11). In Model 6, results indicated that none of the interactions between the protector factor variables and mean heterosexism were significant as predictors of the outcome ($Bs = -0.05$ – 0.11 , $SEs = 0.08$ – 0.14 , $ps = .388$ – $.736$).

Next-day analyses. Results of Model 2 indicated that daily heterosexism on a given day was negatively related to somatic symptoms in the next morning ($B = -0.03$, $SE = 0.00$, $p < .001$). Solutions for Models 4 and 5 that involve mindfulness could not be

computed. This appeared to be due to the very low variance of slopes, which was nearly zero. Results of Model 4 indicated that self-compassion was negatively related to the slopes ($B = -0.04$, $SE = 0.01$, $p < .01$) and that LGB support was unrelated to the slopes ($B = 0.00$, $SE = 0.03$, $p = .900$). Deviance test showed that self-compassion did not account for additional variance in slopes beyond that were explained by any of the protective variables, $\chi^2(1) = -6.24$, $p > .05$. In fact, the reductions in AIC was minimal (see Tables 12–14). This likely indicated that the effect of the cross-level interaction was quite small if there was any effect at all. Finally results of Model 5 indicated that mean heterosexism was unrelated to the slopes (see Tables 12–14).

To interpret the cross-level interaction, I tested the simple within-person slopes. Inconsistent with my hypothesis, results showed that when self-compassion was low and moderate, daily heterosexism on a given day was unrelated to somatic symptoms the next morning after controlling for the outcome the evening on a given day ($Bs = 0.00$ & -0.03 , $SEs = 0.02$ & 0.01 , $ps = .843$ & $.077$). When self-compassion was high, daily heterosexism on a given day was negatively related to somatic symptom the next morning after controlling for the outcome the evening on a given day ($B = -0.05$, $SE = 0.01$, $p < .001$).

Summary. In short, heterosexism experiences were positively related to same-day somatic symptoms at both the within- and between-person levels of analysis. In contrast, daily heterosexism was negatively related to next-day somatic symptoms. The association between daily heterosexism and somatic symptoms was not moderated by any of the hypothesized protective factors, with one exception: Self-compassion moderated the link between daily heterosexism and next-day somatic symptoms. Contrary to

hypothesis, this link was nonsignificant at low and moderate levels of self-compassion but negative at high levels of self-compassion.

Chapter 4: Discussion

This study responded to the call for research on health equity promotion for LGB people by examining the protective role of psychosocial factors, namely, mindfulness, self-compassion, and LGB affirmative support (Fredriksen-Goldsen et al., 2014; Kwon, 2013). The most striking finding of the present study is that these factors largely did not moderate the associations between daily heterosexism experiences and daily well-being, concurrently or prospectively. Similarly, none of these hypothesized protective factors moderated the association between mean heterosexism experiences and health. Rather, mindfulness, self-compassion, and LGB support showed direct associations with overall affective well-being (but not somatic symptoms).

Consistent with previous studies on the impact of heterosexism (Denton et al., 2014; Liao et al., 2015; Mohr, 2016; Mohr & Sarno, 2016), findings from the concurrent analyses show that heterosexism experiences were positively related to negative affect and somatic symptoms both at the daily and person levels. In contrast, they were not related to positive affect at either levels. These results suggest that daily heterosexism experiences as well as the accumulation of daily heterosexism contribute to negative daily functioning among LGB people. These results largely corroborate previous work: For instance, daily and mean heterosexism experiences were found to be linked with negative affect (e.g., anger, fear, anxiety) but not positive affect (e.g., self-assurance, relaxed mood; Mohr, 2016; Mohr & Sarno, 2016; Swim, Johnston, & Pearson, 2009). This study adds to a relatively scarce literature on the role of heterosexism in explaining day-to-day fluctuations in somatic symptoms. Findings extended prior studies that examined person-level association between heterosexism and physical health among

LGB people (Denton et al., 2014; Frost, Lehavot, & Meyer, 2015) and studies that focused on other identity-based daily discrimination experiences and daily somatic well-being (e.g., racism; Ong et al., 2013).

Furthermore, findings from the prospective analyses show that daily heterosexism experiences on a given day were related to next-day somatic symptoms, but not next-day affect, after controlling for the corresponding outcome that given day. The association between heterosexism and next-day somatic symptoms, however, was negative, which was not anticipated. Evidence gathered in past studies seems mixed: Whereas the impact of daily racism on negative affect (Ong et al., 2013; Torres & Ong, 2010) and somatic symptoms (Ong et al., 2013) persisted into the next day, this prospective effect was not found for bisexuality-specific discrimination predicting next-day stress and anxiety (Flanders, 2015). Despite the mixed results observed in previous studies, none showed a negative association between daily discrimination experience and negative health outcome. The negative association observed in the present study indicates a prospective effect by which next-morning somatic symptoms were lower than the individuals' typical level following a heterosexism experience. This unexpected prospective effect may suggest a process wherein people actively remedy these somatic symptoms the evening after exposure to a heterosexism event (e.g., by self-medication). With regard to the lack of association of heterosexism experiences with affect, this finding may suggest that people experience a return to typical affective functioning the next morning.

Results suggested that mindfulness, self-compassion, and LGB support serve as assets that directly contribute to LGB people's affective well-being rather than factors that buffer against the adverse impact of daily heterosexism. These observed main effects

are consistent with evidence gathered in a growing body of resilience-based research (e.g., Keng & Liew, 2017; Liao et al., 2015; Lyons, 2016; Mereish & Paul Poteat, 2015; Sheets & Mohr, 2009; Vigna, Poehlmann-Tynan, & Koenig, 2017). These findings also support theorists that emphasize the positive impact of various resilience factors on people's health over time. For instance, the model of thriving proposed by Feeney and Collins (2015) argued that in the absence of adversity social support can serve as a catalyst that supports a person's full engagement in life opportunities; whereas at times of adversity social support is thought to not only restore one's baseline functioning but also encourage a person to thrive and flourish beyond this baseline.

Similar arguments apply to the main effects of mindfulness and self-compassion (Kabat-Zinn, 2006; Neff, 2016). Specifically, it has been argued that mindfulness and self-compassion are not only internal resources that support individuals to cope with stress and adversity, but such mindsets can also deepen individuals' engagement in positive life experiences and interpersonal connections, which overall contributes to quality of life. Thus, the current study suggests that mindfulness, self-compassion, and LGB affirmative support serves as a health determinant in both adverse and non-adverse situations. It is also worth noting that such positive associations with health were limited to affective well-being but not somatic, suggesting that these psychosocial factors may not be as effective in reducing somatic symptoms in a 14-day period. Given the disparities in physical health observed among LGB people (Fredriksen-Goldsen et al., 2014), more research on psychosocial factors that help manage somatic symptoms is warranted.

Of note, LGB support was significantly linked to overall negative affect in the zero-order correlation analysis but was not linked to overall negative affect in multivariate analyses. Also, LGB support was negatively associated with mean heterosexism. These results, when considered from a mediation perspective, suggest that LGB support may be an asset that indirectly contributes to lowering LGB people's overall negative affect by reducing their overall likelihood of encountering heterosexism experiences or attributing ambiguous events as heterosexist.

The lack of significant findings for the cross-level interaction effects was likely due to the low variability of the slopes for the within-person relation between daily heterosexism experiences and daily well-being. In other words, results suggest that the impact of daily heterosexism experiences on daily affect and somatic symptoms was fairly similar across individuals, leaving little heterogeneity that could be accounted for by the resilience factors. This low variability of the heterosexism slopes was unexpected and quite small compared to past studies (e.g., Mohr, 2016).

What might explain the similarity across participants in the impact of heterosexism on well-being in this study? First, it is possible that participants had effective coping strategies for heterosexism experiences. The average age of the sample is close to 30 and most participants had received a Bachelor's degree, suggesting that these individuals may be developmentally more mature and already developed strategies to effectively cope with heterosexism, compared to a younger sample. Second, it is possible that the impact of discrimination on health was not detected at the current rate of assessment (i.e., once daily), especially for a relatively high functioning group of participants. The variability of slopes for the discrimination-health link may be increased

by assessing heterosexism experiences shortly after they occur and assessing well-being several times a day. This strategy would permit study of how the health indicators changes throughout the day after the occurrence of a heterosexism experience. Finally, the limited individual differences in the impact of heterosexism may be related to the way daily experiences were assessed. Measuring heterosexism dichotomously, as the presence or absence of a reported heterosexism experience, may have limited the variability of the slopes.

The person-level interactions between mean heterosexism and various hypothesized protective factors were also not significant. Specifically, none of the hypothesized protective factors moderated the negative associations between mean heterosexism and negative affect or somatic symptoms. This is not surprising as findings from previous studies appeared to be mixed. For instance, it was found that mindfulness mitigated the association between perceived racism and distress depending on how the outcome was measured (e.g., Graham & Barnow, 2013; Zapolski et al., 2018). Self-compassion did not alleviate any deleterious effect of recalled discrimination on mood (Chandler, 2013). LGB-affirmative support did not consistently buffer against the negative impact of heterosexism (e.g., Doty et al., 2010; Fingerhut, 2018). Furthermore, it is worth noting that most of the studies that observed significant mitigating effects measured discrimination as a global perception of received biased treatment (e.g., Doty et al., 2010; Graham & Barnow, 2013; Zapolski et al., 2018). What was being measured might be a schema-based construct of discrimination rather than actual frequencies of discriminatory events even though the scale anchor points were often labeled with frequencies of occurrences (e.g., never, a few times in the past year). In other words,

participants' responses may have reflected the extent of discrimination experienced at a level appraised as "severe enough" to be remembered. Thus, this after-appraisal variable of discrimination is likely more proximal to health outcomes than the actual occurrences of discrimination which is more distal. Thus, the mitigating effect may be more easily observed in the proximal link.

Despite the overall lack of significant results regarding the hypothesized cross-level mitigating effects of the hypothesized protective factors, self-compassion moderated the link between daily heterosexism and next-day somatic symptoms. This finding should be interpreted with caution, however, due to the relatively small effect size. Specifically, this link was nonsignificant at low and moderate levels of self-compassion but negative at high levels of self-compassion. This suggests that active coping with the negative somatic responses induced by discrimination may happen faster for individuals with greater self-compassion. As previous studies have suggested, discriminatory events may elicit internalized oppressive messages and shame which in turn contribute to poor well-being, including somatic symptoms such as tension and pain held in different body parts (e.g., Liao et al., 2015; Ong et al., 2013). Individuals with greater self-compassion may be more ready to notice any internalized shame and physiological responses being elicited, and actively soothe themselves by being kind and gentle toward themselves and by being aware that they are not alone in the suffering. Self-compassion as an emotional regulation process may help individuals soothe their activated somatic symptoms.

Implications

The present study documented evidence that supports the promotion of mindfulness, self-compassion, and LGB affirmative support for members of the LGB

community. Theoretically, the findings largely did not support the hypothesized mitigating role of these resilience factors, but granted strong evidence for their health promoting benefits regardless of adversity (i.e., heterosexism in this case). Practically, these findings support initiatives that facilitate LGB individuals to cultivate mindfulness, self-compassion, and LGB-affirmative support regardless of heterosexism experiences. In both individual clinical work and outreach/group programming, clinicians can guide their LGB clients to develop the practice of mindfulness and self-compassion to cope with a variety of daily stressors, including identity-salient ones such as heterosexism. For instance, the practice of RAIN (i.e., recognizing, allowing, investigating, and non-identifying; Brach, 2020) can be applied in response to heterosexism experience. Specifically, clinicians can invite their clients to recognize any salient emotions in the moment (e.g., noting that there is anger), to allow the emotion to exist without judgement (e.g., radically accept that anger is emerging rather than defending against it), to investigate where the emotion emerges from (e.g., being curious about what triggered the anger, who the anger was directing to, what was the intensity of the anger), and to disidentify the emotion from the self (e.g., treating anger as information rather than an aspect of self-identity and exploring with compassion what unmet needs anger indicates in the moment). Adapting this in an identity-affirming manner, clinicians can make it clear that the intention of mindfulness and compassion-based practices is not to silence their LGB clients from challenging the heterosexist system, but to facilitate them to attune to moment-to-moment changes regarding ways they respond to the heterosexist system congruent to their values.

An additional finding with implications for practice is the potential mediating role that mean heterosexism played in the relationship between LGB affirmative support and negative affect. Calls to help LGB individuals develop a sense of LGB affirmative support are often framed in terms of validation, access to LGB-specific knowledge and resources, and connection to similar others associated with support. However, the present study raises the possibility that LGB affirmative support reduces exposure to heterosexism (or reduces the tendency to interpret ambiguous situations as heterosexist), which further underscores the value of interventions that can increase the experience of support. Such interventions may include creating LGB affirmative settings (e.g., LGBT affinity networks, LGBT center at universities, LGBT affirmative therapy), and increasing LGB people's sense of belonging to such settings by making sure they reflect the diversity of LGB people.

Limitations and Future Directions

The current study adds evidence to the growing resilience process literature that examines protective factors that may alleviate the negative impact of discrimination facing people from marginalized communities. This study focuses on whether internal resources (i.e., mindfulness, self-compassion) and external resources (i.e., LGB affirmative support) at the personal level mitigate any negative health impact heterosexism experiences incur on LGB people at the daily level. A number of features of the current study design are worth highlighting. This study used a daily diary design to document instances of heterosexism experiences as they occur, which is different from many past resilience studies that assessed global perception of received discrimination. Such a design boosts ecological validity and reduces potential memory bias as

participants report heterosexism experiences and their well-being at a rate close to real-time occurrence. It also allows us to answer the question about whether the hypothesized protective factors may reduce the strength of association between daily heterosexism experiences and their well-being concurrently (in predicting evening health) as well as prospectively (in predicting next-day morning health). In addition to assessing participants' affective responses to heterosexism, this study also sought to understand somatic responses as an outcome. Finally, the sample gathered in the present study represented diverse sociocultural identities (including race/ethnicity, gender, religious affiliations) within the LGB community. This boosted the generalizability of findings to the LGB population beyond cisgender White LGB people.

There are a number of limitations worth attention in this study. First, the study was largely cross-sectional, considering the concurrent analyses for daily and mean heterosexism experiences. Although this study also attempted to understand the impact of daily heterosexism on daily well-being prospectively by predicting next-day affective and somatic responses, as well as how the various hypothesized protective factors may moderate these links, this analytic strategy did not allow us to understand how effect of daily heterosexism dissipate beyond the period of a night sleep. To address this limitation, researchers can consider examining longer-term effects of daily heterosexism and the trajectory of recovery. In addition, researchers can naturalistically assess state mindfulness and self-compassion (e.g., Breines & Chen, 2013; Tanay & Bernstein, 2013), as well as whether and how people cope after the occurrence of a heterosexist event (e.g., by asking participants whether they practice mindfulness, seek affirmation

and support; Blaxton & Bergeman, 2017). This allows researchers to understand processes by which heterosexism and coping unfolds over time (e.g., Fuller et al., 2003).

It is worth noting that I assessed daily heterosexism as occurrences in the present study. I did not consider how participants appraised the heterosexist events nor situational variables that characterize such events. Researchers on stress and coping argue that perceived severity and controllability of the stressor are important stress appraisal processes that explain the stressor-health link (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Assessing daily heterosexism with perceived severity and controllability of the event can help elucidate the mechanism of potential protective effect of the hypothesized resilience factors. It is possible that the hypothesized protective factors may attenuate the severity-health link and bolster the controllability-health, which altogether in turn positively contributes to well-being. Future research can also consider situational factors (i.e., within-person moderating factor) that may moderate the discrimination-health link. For instance, the impact of a discriminatory event perpetrated by one's close family member can be quite different from that by a stranger. A discriminatory event happens in a setting that is generally perceived as inclusive and safe may also become more impactful than one that happens in a setting that is generally perceived as intolerant.

Also, a portion of the reported events were also related to gender identity rather than sexual orientation. This raises the question about how witnessing discrimination that targets an identity or intersecting identities that one does not hold may impact their well-being. For instance, a queer cisgender female partnered with a genderqueer masculine presenting person witnesses her partner being constantly misgendered may experience

distress because of the activation of feelings such as guilt because of cisgender privileges or internalized cissexism. Discriminatory events targeting identities other than sexual orientation may likely trigger a sense of threat and feelings of fear since these events may indicate how affirming and inclusive the setting is for a variety of marginalized identities, including being LGB.

The present study only considered sexual orientation-based experiences. Future research should make effort to understand factors that protect people with multiple marginalized identities from the deleterious impact of negative intersectional experiences on health. For instance, a recent study focusing on Black LGB people's daily experience found that daily racism experiences within the LGB community were positively related to identity conflict, which in turn was linked to negative affect (Jackson, Mohr, Sarno, Kindahl, & Jones, 2020). Researchers can consider examining how aspects of mindfulness, self-compassion, and LGB affirmative support may disrupt this process. Furthermore, researchers should seek to understand the roles other sociocultural identities (e.g., race/ethnicity, social class) play in the relationship between daily heterosexism experiences and health. It may be worth considering variables such as salience and commitment in various sociocultural identities individuals hold. For instance, greater identity salience for identities one holds other than sexual orientation may explain the relatively low base rate of daily heterosexism experiences. It is also possible that people with lower commitment in one's sexual orientation may experience greater detrimental effect of daily heterosexism on their health compared to their counterparts with greater identity commitment (Torres & Ong, 2010).

Finally, based on the current study design, it was not clear how mindfulness and self-compassion may help promote health with LGB affirmative support in a synergistic way. One of the major barriers of the practice of mindfulness and self-compassion is maintenance (Grow, Collins, Harrop, & Marlatt, 2015). It can be challenging to engage in mindfulness and self-compassion when one is in high distress, especially for novice practitioners. Having access to an LGB affirmative contact or space may provide external validation and attunement one needs when facing heterosexism, such that the individual's suffering can be held while cultivating and deepening their own coping with the practice of mindfulness and self-compassion.

In conclusion, scholars have argued that internal resources (such as mindfulness and self-compassion) and external ones (such as LGB affirmative support) have the potential to alleviate the negative impact of heterosexism experiences among LGB individuals. However, rather than serving as protective factors that bolster LGB people's coping with heterosexism, findings from the present study suggest that these factors contribute positively to LGB people's well-being regardless of heterosexism experiences. Future studies should further examine mechanisms underlying the contribution of these factors to the well-being of LGB people and the conditions in which each of these resources become particularly useful for coping.

Appendix A: Expanded Literature Review

Heterosexism is an important public health issue. Researchers have gathered evidence that repeatedly shows the negative health consequences of heterosexist discrimination among lesbian, gay, and bisexual (LGB) people (Pascoe & Smart Richman, 2009; Schmitt, Branscombe, Postmes, & Garcia, 2014). Evidence has suggested that greater chances of experiencing prejudice and discrimination at various levels of the ecological system may put LGB people at greater risks of having poorer mental and physical health than their heterosexual counterparts (Cook, Purdie-Vaughns, Meyer et al., 2014; Fredriksen-Goldsen, Kim, Barkan, Muraco, & Hoy-Ellis, 2013; Institute of Medicine, 2011; Lick, Durso, & Johnson, 2013). Perceived heterosexism has also been theorized and shown to negatively impact LGB people through various mechanisms (Meyer, 2003; Hatzenbuehler, 2009). Whereas perceived heterosexism may reduce LGB people's health through identity-specific processes such as increased internalized stigma and concerns for acceptance (Meyer, 2003), it may also reach the same consequence through general psychological processes such as heightened rumination and social isolation (Hatzenbuehler, 2009). Regardless of how heterosexism impacts health, it is important to generate strategies to address this preventable health crisis. While it is vital to enact policies and laws to protect LGB individuals from discrimination (Cook et al., 2014), scholars have called attention to examine individual factors that mitigate the deleterious impact of anti-LGB discrimination (Kwon, 2013; Russell & Richards, 2003; Richman & Hatzenbuehler, 2014). This proposed study seeks to answer: *What are the resources that may protect LGB people from the adverse effect of*

heterosexism experiences on their health? and *To what extent do these resources attenuate such an effect?*

Discrimination, including heterosexism experience, has been conceptualized in a stress and coping framework (Almeida, 2005; Bolger & Zuckerman, 1995; Meyer, 2003; 2015). In this framework, there are two major aspects: *exposure* and *reactivity* to stress due to heterosexism. Whereas *exposure* is useful to understand the direct association between discrimination and health, *reactivity* is useful to understand vulnerability and resilience factors that, respectively, heighten and reduce the negative impact of discrimination. Given the primary interest on resilience in this project, the key focus is on factors that effectively reduce LGB people's reactivity to anti-LGB discrimination exposure.

Reactivity to stressful experiences can be defined as the extent to which exposure to stressful experiences impacts health (Bolger & Zuckerman, 1995). In other words, although exposure to stressful experiences on average is negatively linked to health outcomes, some people have the capacity and resources to cope with stress and are less likely to be triggered by potentially stressful events. Some scholars call this the stress buffering process (Cohen & Wills, 1985). The same argument applies to stigma research: Not all stigmatized individuals suffer from poor health given the exposure to discrimination (Cochran & Mays, 2013). In fact, the notion that psychological and social/community-oriented factors can buffer against the detrimental impact of discrimination on health among LGB people is featured in theories such as the minority stress model (Meyer, 2003, 2015) and the health equity promotion model (Fredriksen-Goldsen et al., 2014). Similar argument has also been made for other axes of power and

oppression. For instance, the reserve capacity model discusses how intrapersonal and interpersonal resources may moderate the link between class-specific discrimination and negative emotions and thoughts that further determines one's health behaviors and physiological responses (Gallo & Matthews, 2003). Understanding whether, how, and when protective factors are beneficial to stigmatized individuals' well-being can help elucidate the resilience process (i.e., successfully "adapt to or defend against" oppression and "survive and thrive in the face of such adversity"; Meyer, 2015; p. 210). In this proposal, I refer to the internal and external resources collectively as protective factors and the reduced reactivity to discrimination exposure (i.e., the moderating effect of these protective factors for the stress process) as resilience.

Stigma researchers have suggested a number of individual factors that may promote resilience. These factors include ones that connote internal resources (mindfulness and self-compassion) as well as external resources (LGB-specific social support; Kwon, 2013). It is valuable to examine these protective factors since they are amenable to change. In the following literature review, I will first focus on summarizing research that examined the relation between exposure to discrimination and health. I will then review research on mindfulness and self-compassion, followed by LGB-specific social support. I will end this review by highlighting the contribution of the existent literature and the gaps the current proposed study is trying to fill.

Heterosexism Exposure and Health

Scholars have conceptualized heterosexism both as a chronic stressor that impacts a person throughout their life and an acute stressor that influences a person as a daily hassle (Meyer, 2003; 2015). These status-based stressors can operate at the societal level

(e.g., institutional discrimination in the legal and political systems) as well as at the interpersonal level (e.g., prejudicial attitudes, interpersonal rejection and harassment; Ryan, Hunger, & Major, 2017). These various ways to conceptualize heterosexism have sparked research using a variety of designs and methodologies to understand its link with health, including naturalistic studies using a design that was longitudinal (e.g., Corliss, Rosario, Wypij, Wylie, Frazier, & Austin, 2010; Hatzenbuehler, McLaughlin, Keyes, & Hasin, 2011) or cross-sectional (e.g., Denton, Rostosky, & Danner, 2014; Feinstein, Goldfried, & Davila, 2012; Lee, Gamarel, Bryant, Zaller, & Operario, 2016) as well as experimental studies (e.g., Chandler, 2013; Hatzenbuehler & McLaughlin, 2014; Parra, Benibgui, Helm, & Hastings, 2016). Across different designs and methodologies, it has been consistently found that greater exposure to discrimination have greater risk of having poorer health at a population level and maladaptive stress responses in a laboratory setting (Richman & Hatzenbuehler, 2014).

This collection of evidence has provided an important step to quantify the extent to which heterosexism affects the health of LGB people. Most experimental studies thus far relied on procedures that either compared individuals' response to discriminatory laboratory stressor or compared how individuals with and without exposure to societal discrimination respond to non-discriminatory laboratory stressor; whereas naturalistic studies often measured perceived heterosexism retrospectively. Despite the contribution of these studies, the former design is limited in providing ecologically valid understanding of individuals' heterosexism experiences, the latter suffers from potential memory bias people may have in recalling incidents of discrimination. To address these limitations, an experience sampling methodology (a.k.a. ecological momentary

assessment; Almeida, 2005; Bolger, Davis, & Rafaeli, 2003) such as daily diary studies can be useful.

Understanding the Discrimination-Health Link Using a Daily Diary Design

Stigma researchers adopting a daily diary design for their study typically measure experiences of prejudice and discrimination as well as indicators of health daily across a designated period of time (Almeida, 2005). First, such a study design has the advantage of boosting ecological validity and reducing participants' memory bias because participants are asked to report their experiences at a rate close to the actual happenings of the events of interest. It is more likely for participants to accurately recall events of prejudice given the shorter time lapse. Second, the design has the potential to maximize the understanding of situations as well as person-situation interactions. Besides the question of how people with varying degrees of perceived discrimination differ on health, daily diary studies allow researchers to answer questions such as how occurrence of prejudicial events may explain the daily fluctuations of one's health while considering individual differences. Not only can researchers rule out individual differences (e.g., prior exposure to discrimination, rejection sensitivity) to focus on understanding the link between daily discrimination and health at the within-person level, they can also seek to understand how such individual differences may change this association (e.g., how the association between daily discrimination and health may be stronger for those who are more sensitive to rejection). Third, daily diary studies can also be viewed as a repeated-measure design, which allows researchers to understand directionality of associations between the variables of interest. Researchers can examine how occurrence of discrimination is related to health on the same day in a concurrent analysis. They can also

investigate how occurrence of discrimination on any given day is related to health a day after in a lagged analysis, gathering evidence for directionality.

Given the advantages of understanding situational stressors using experience sampling methodology, there is also growing within-person evidence supporting the hypothesized negative association, particularly between heterosexism and health (e.g., Mohr, 2016; Ong et al., 2013, Fitz et al., 2015). That is, regardless of the overall amount of experiences of prejudice and discrimination one has when compared with other individuals, occurrence of stigmatizing events is linked to poor health outcomes when comparing day-to-day fluctuations within a person, including increased negative mood and somatic symptoms. To date, studies that examine the association between daily heterosexism and health are still limited in number. In the following section, besides reviewing evidence available for daily interpersonal heterosexism, I will also review studies that focused on other forms of discrimination, such as racism and sexism. It is also worthy to note that one study in particular assessed discrimination experiences and health outcomes more than once per day, where data observed in each assessment window were embedded within given days that were nested within individuals (Livingston, Flentje, Heck, Szalda-Petree, & Cochran, 2017).

A number of studies have been conducted to examine how interpersonal heterosexism experiences would be concurrently related to daily fluctuations of health among LGB people. Most of these studies focused on examining affect as an indicator of health. For instance, daily negative interactions with heterosexual people and heterosexism experiences were shown to be related to greater negative affect in general (Mohr & Sarno, 2016) and also to greater specific negative affect such as anger, anxiety,

and depressed mood (Mohr, 2016; Swim, Johnston, & Pearson, 2009). These daily stigmatizing experiences, however, were shown to be not related to positive affect in general (Mohr & Sarno, 2016; Swim et al., 2009), or specific positive affect such as self-assurance (Mohr, 2016). Furthermore, studies examining experiences among sexual minority subgroups also found the negative relation between daily heterosexism and negative affect. For example, the number of daily heterosexist hassles was found to be positively associated with negative affect among a sample of lesbian women (Mason, 2016). Likely as a proxy for interpersonal heterosexism, day-to-day intra-individual stressor (e.g., perceived stress level of being gay/bisexual) was related to greater anxiety and other negative affect among a sample of gay and bisexual men (Eldahan et al., 2016). One study focusing on bisexual people's daily experiences, similarly, showed that occurrence of bisexuality-specific microaggression was related to greater daily anxiety (Flanders, 2015).

A similar pattern of results is observed from daily diary studies focusing on racism and sexism. For instance, studies have been conducted to understand the impact of daily racism on health among Black Americans (Ong et al., 2009; Burrow & Ong, 2010), Latino Americans (Torres & Ong, 2010), and Asian Americans (Ong et al., 2013). Across these studies, findings showed that daily racism is positively related to anxiety (Ong et al., 2009), depression (Ong et al., 2009; Burrow & Ong, 2010, Torres & Ong, 2010), and negative affect overall (Burrow & Ong, 2010; Ong et al., 2009; 2013). Furthermore, when it comes to sexism experiences, it has been found that the number of daily sexist hassles was associated with greater anger, anxiety, and depression (Swim, Cohen, Hyers, & Ferguson, 2001) and negative affect in general (Mason, 2016).

Besides affect, previous studies have examined other health outcomes, including impulsive behaviors (e.g., substance use and binge eating) as well as somatic symptoms. Overall, researchers found that daily stigmatizing events were related to greater impulsive behaviors and somatic symptoms. For instance, it was found that occurrence of prejudicial events (based on sexual orientation, transgender status, and/or gender non-conforming behavior) was related to greater nicotine use as well as use of other substances (Livingston et al., 2017). Mason (2016) found that the number of daily sexist and heterosexist hassles both were found to be associated with daily binge eating. Further, Ong et al., (2013) examined somatic symptoms as a daily outcome and found among a sample of Asian Americans that racial microaggression accounted for greater somatic symptoms.

In addition to evidence that tested concurrent association between daily prejudicial events and health outcomes, a limited number of studies tested their prospective effect. A majority of evidence gathered so far seems to support the notion that stigma predicts health prospectively. Specifically, lagged effects were found for sexual orientation and gender identity-related discrimination predicting greater substance use across time (Livingston et al., 2017), for daily stress of being gay or bisexual predicting greater negative affect and lower positive affect (Eldahan et al., 2016), and for daily racism predicting day-to-day increase in negative affect (Torres & Ong, 2010; Ong et al., 2013), and somatic symptoms (Ong et al., 2013). However, such a prospective effect was not found for bisexuality-specific discrimination predicting next-day stress and anxiety (Flanders, 2015),

In sum, findings thus far suggest that occurrence of heterosexism experience is negatively associated with negative affect, including anger and anxiety, and positively associated with substance use on a day-to-day basis (e.g., Livingston et al., 2017; Mohr, 2016; Mohr & Sarno, 2016; Swim et al., 2009). Findings also suggest that such occurrence may not be related to daily positive affect (e.g., Mohr, 2016; Mohr & Sarno, 2016; Swim et al., 2009). This pattern of results based on within-person level analysis appears to mirror those of person-level studies. Meanwhile, there are research gaps noted. While studies using ecological momentary assessment have the advantage of understanding the effect of discrimination prospectively rather than retrospectively, limited number of extant studies tested such effects. Another research gap noted is the lack of understanding of heterosexism on day-to-day fluctuations of physical health, which is consistent with the delayed documentation of physical health disparities among LGB people when compared to disparities observed for mental health and substance abuse (Lick et al., 2013). Currently, virtually no daily diary studies have attempted to examine physical health outcomes among LGB people. However, based on evidence gathered from person-level studies that suggest a negative relation between heterosexism and physical health (Denton et al., 2014; Frost, Lehavot, & Meyer, 2015), it is reasonable to expect the same pattern of result will be observed at the day level.

Internal Resources for Reduced Reactivity to Heterosexism

Mindfulness as an Internal Resource

Mindfulness has been proposed to be an internal resource people can use to cope effectively with both general and identity-specific stressors (Tomlinson, Yousaf, Vittersø, & Jones, 2018). Rooted in Buddhist philosophy, mindfulness can be defined as the extent

to which one is aware of one's moment-to-moment experiences and attend to them without judgment (Kabat-Zinn, 2006). The practice of mindfulness is about cultivating a mindset to pay attention to the present moment, especially one's internal experiences such as thoughts, emotions, behaviors, and bodily sensations, with a sense of ease and compassion (Germer, 2009). More specifically, some scholars highlight three major components embedded in the practice of mindfulness, including *intention* (a sense of purposefulness), *attention* (observing experiences as they arise with the suspension of interpretations), and *attitude* (non-judgment, curiosity, acceptance; Shapiro et al., 2006). Mindfulness can be thought of as a "way of being" (Kabat-Zinn, 1991) and thus requires practice, formally with exercises such as meditation and yoga, or informally with exercises like mindful eating and reading (Mace, 2007).

It is posited that mindfulness can help a person cope with stress by "shifting in perspective" in relation to stress (a.k.a., decentering or disidentification; Garland et al., 2015; Shapiro et al., 2006). What it means is that when encountering stressful events, people with greater mindfulness will be able to disidentify from various stress-induced experiences (including thoughts, emotions, and bodily sensations), and observe these experiences with "greater objectivity and less reactivity" (Shapiro et al., 2006). It is also posited that this shift in perspective can enhance one's capacity to self-regulate (e.g., pausing, disrupting automatic maladaptive response to stress), increase one's cognitive, emotional, and behavioral flexibility (e.g., responding to the stressful event more flexibly), facilitate clarification of one's values (e.g., re-orienting from stress and aligning one's actions with values that are authentically important to them), and enhance one's tolerance (e.g., approaching and making peace with difficult stress-inducing experiences).

More recently, scholars further proposed that “disengaging from negative appraisals and generating reappraisals” can iteratively free up cognitive resources to “broaden the scope of attention to encompass pleasurable and meaningful events and thereby build motivation toward purposeful engagement with life” (Garland et al., 2015, p. 312).

It is likely that mindfulness can strengthen one’s ability to cope with stressful identity-salient experiences such as discrimination and hence restore the well-being of the stigmatized individual. Studies have shown that discrimination may lower one’s attention span and cognitive resources (e.g., Salvatore & Shelton, 2007) and be negatively related to an increased likelihood to apprehend neutral stimuli in a negative way (e.g., rejection sensitivity; Pachankis et al., 2008). For an LGB person, heterosexism experiences such as overhearing jokes about gay people may trigger one to have negative thoughts (e.g., “I am less worthy”), negative emotions (e.g., embarrassment, anger), and physiological reactions (e.g., tension in the body). To this end, people with greater mindfulness may be able to observe these arrays of reactions to heterosexism without resistance or judgment whereas those with lower mindfulness may react to heterosexism immediately, perhaps, by suppression or obsession.

Self-Compassion as an Internal Resource

Another promising source of resilience is self-compassion. It is suggested as a useful emotion regulation strategy particularly when individuals encounter adversities (Neff, 2016; Terry & Leary, 2011). Self-compassion can be defined as the extent to which one treats and relates to oneself with kindness (self-kindness vs. self-judgment), balanced understanding (disidentification vs. over-identification), and a sense of shared humanity (common humanity vs. isolation; Neff, 2016). Specifically, self-kindness

“entails being gentle, supportive, and understanding (unconditional acceptance) toward oneself rather than harshly judging oneself for personal shortcomings”; disidentification “involves being aware of one's present moment experience of suffering with clarity and balance, without running away with a dramatic storyline about negative aspects of oneself”; and common humanity “involves recognizing the shared human experience, understanding that all humans fail and make mistakes rather than feeling isolated by one's imperfection” (Neff, 2016, p. 265).

Being self-compassionate allows individuals to bring awareness to their emotions and approach their painful or distressing feelings with kindness, understanding and a sense of shared humanity, instead of avoiding or suppressing their negative emotions. With a more adaptive way to approach their emotions, individuals may transform their negative emotions into more positive states, whereby facilitate their apprehension of situations and development of effective ways to cope with their stressors. Recently, scholars have proposed how self-compassion can specifically help stigmatized individuals to cope with distal stressors such as discrimination and protect them from developing greater internalized stigma and from damaging their well-being (Wong et al., 2018). It is posited that self-compassion can reduce the likelihood of developing maladaptive cognitive, emotional, and social consequences in face of discrimination (Wong et al., 2018).

Cognitively, self-compassion may counteract negative self-schema triggered by discrimination through intrinsic self-affirmation where the stigmatized individual is able to recognize their valued identities as well as core personal values they hold. Self-compassion may also counter discrimination-induced hopelessness by stress reappraisal

and benefit-finding. Not only may self-compassion lead the stigmatized individual to perceive discrimination as less stressful or threatening, it may also support the person to discern intra- and interpersonal resources available to them in adversity. The person with greater self-compassion may be better able to reframe the negative experience in a positive light potentially resulting in insights that may further facilitate adaptive responding (Wong et al., 2018).

Emotionally, self-compassion may help stigmatized individuals regulate difficult emotions induced by discrimination by acknowledging them without avoidance, suppression, or exaggeration. Self-compassion may also help regulate such emotions by reducing the likelihood of rumination, which is a common reaction to discrimination (Wong et al., 2018).

Socially, given the emphasis on common humanity, self-compassion may particularly help stigmatized individuals feel less isolated by realizing that there are others who similarly experience discrimination, which may further enhance their willingness to seek help. In addition, given that discrimination is a form of transgression, self-compassion may also help stigmatized individuals recognize the common need for acceptance and love between them and the transgressors, which in turn liberate them from the hurt and resentment toward the transgressors through forgiveness (Wong et al., 2018).

Let's return to the example of an LGB person encountering heterosexist jokes. Similar to mindfulness, people with greater self-compassion may be able to disengage from ruminating about the humiliation induced by jokes and approach these negative reactions to the incident with gentle awareness and a sense of clarity and balance. In

addition, people with greater self-compassion may be able to cope by actively affirming their self-worth (e.g., paying attention to values such as *courage*), generating meaning and social support (e.g., noticing personal strengths and growth gained from previous heterosexist incidents, noting support available from friends who may help process the incident and being open to seek help), and even generating understanding and forgiving the transgressor (e.g., contemplating on the fundamental need for love and acceptance for all humankind regardless of sexual orientations).

Although mindfulness and self-compassion are two closely related concepts, there are distinctions between them. Conceptually, some scholars argue that the practice of mindfulness is foundational for cultivating self-compassion (e.g., Yip, Mak, Chio, & Law, 2017). For instance, *disidentification* as a facet of self-compassion, labeled as *mindfulness* by Neff (2003), has been thought to be founded upon the broader concept of mindfulness. In other words, one can argue that the practice of mindfulness can help cultivate non-identification, which is part of Neff's (2003) definition of self-compassion. Moreover, there are also other scholars positing an iterative process between mindfulness and self-compassion in contributing to well-being (e.g., Bluth & Blanton, 2014). Some researchers illustrated this iterative nature of the two constructs by highlighting how each quality may uniquely buffer against processes and content resulted from discrimination (Yang & Mak, 2017). Whereas mindfulness may be especially effective in intervening *stigma processes* such as rumination; self-compassion may be especially useful to counteract *stigma content*, such as self-depreciating thoughts and feelings of shame.

Given that there was a limited number of studies that examined mindfulness, self-compassion, and their relations with health outcomes among LGB populations, the

present review incorporates studies focusing on other stigmatized populations, including gender non-conforming individuals (e.g., Keng & Liew, 2017), people living with HIV (PLHIV; e.g., Gayner et al., 2012; Gonzales et al., 2009; Yang & Mak, 2017), people with mental illness (e.g., Yang & Mak, 2017), racial/ethnic minorities, particularly African Americans (e.g., Graham; 2013; Shallcross & Spruill, 2017; Zapolski et al., 2018), and parents of children with autism-spectrum disorders (ASD; e.g., Chan & Lam, 2017; Wong et al., 2016). One study, in particular, examined perceived discrimination based on a variety of marginalized identities (e.g., race/ethnicity, gender, sexual orientation, age, religion, income level, physical appearance, body weight; Brown-Iannuzzi et al., 2015).

Main Effect of Mindfulness

Among the studies I reviewed, evidence consistently suggests that trait mindfulness is related to less psychological distress and greater well-being among stigmatized populations. For instance, mindfulness is negatively related to psychological distress (Lyons, 2016; Chan & Lam, 2017; Graham; 2013; Zapolski et al., 2018), including depression (Shallcross & Spruill, 2017; Keng & Liew, 2017; Brown-Iannuzzi et al., 2014; Gonzales et al., 2009), anxiety (Keng & Liew, 2017; Gonzales et al., 2009). Mindfulness was also negatively related to alcohol use among a sample of African-American young adults (Zapolski et al., 2018). In addition, mindfulness is also negatively related to health risk factors such as internalized stigma (e.g., Yang & Mak, 2017). Besides negative health indicators, evidence also suggests that mindfulness is linked to positive health indicators. For instance, mindfulness is positively related to self-esteem (Lyons, 2016) and life satisfaction (Yang & Mak, 2017; Keng & Liew, 2017).

Going beyond trait mindfulness, evidence suggests that mindfulness-based interventions (e.g., mindfulness-based stress reduction [MBSR], acceptance commitment therapy [ACT]) may help reduce psychological distress and promote well-being among stigmatized individuals (e.g., among PLHIV; Riley & Kalichman, 2015; LGB people; Yadavaia et al., 2012). Specifically, researchers found that MBSR has small-to-moderate effects on distress reduction and promotion of psychological well-being across the 11 studies they reviewed (Riley & Kalichman, 2015). However, the same review study also found mixed results for the effect of MBSR on the physical health in the form of CD4+ cells count, which is an indicator for disease progression for PLHIV (Riley & Kalichman, 2015). In particular, a randomized control trial among a sample of gay men living with HIV showed that those in the MBSR condition developed mindfulness (in the form of curiosity and decentering) which in turn contributed to reduction in avoidance and depression as well as promotion of positive affect at 6-month follow-up, when compared to those in the treatment-as-usual condition (Gayner et al., 2012). Initial evidence also shows that ACT may help reduce internalized homonegativity and psychological distress as well as promoting quality of life and perceived support for a sample of LGB people (Yadavaia et al., 2012).

Moderating Effect of Mindfulness

Among the studies I reviewed that examined the buffering role of trait mindfulness against the negative impact of discrimination on health among stigmatized populations, evidence appears to support mindfulness as a buffer but with some contradictory findings. For instance, one study conducted among middle-aged and older gay men in Australia found that trait mindfulness attenuated the associations of the

presence of age- and sexual orientation-related discrimination in the past two years with self-esteem and psychological distress (Lyons, 2016). Another study found that mindfulness attenuated the link between gender non-conformity and psychological distress (Keng & Liew, 2017). Studies among African Americans also found similar buffering effects of trait mindfulness against the impact racial discrimination on depressive symptoms (Shallcross & Spruill, 2017; Zapolski et al., 2018) and anxiety symptoms (Zapolski et al., 2018; Graham et al., 2013). Finally, a study among parents of children with ASD found that trait mindfulness mitigated the association between public stigma (i.e., perceived prejudicial attitudes from public toward children with ASD) and courtesy stigma (i.e., perceived prejudicial attitudes toward people associated with children with ASD) with psychological distress (Chan & Lam, 2017). Most of these studies treated mindfulness as one single construct. However, researchers in one study further examined specific underlying facets of mindfulness that contributed to the buffering effects (Keng & Liew, 2017). Their follow-up analyses showed that *non-judging* and *non-reactivity*, respectively, mitigated the positive association of gender non-conformity with depression and anxiety. It was also found that *non-judging* and *acting with awareness* reduced the negative association with gender non-conformity and well-being (Keng & Liew, 2017). These findings raise the possibility that some facets of mindfulness may be more effective in reducing the impact of discrimination. In view of the supportive evidence, it is worth noting that all of these studies used a cross-sectional design and were limited in drawing conclusions regarding the directionality of relations among the variables studied.

There are a few exceptions. Among a sample of same-sex attracted female young adults, one study found that mindfulness (in the form of awareness and acceptance) did not mitigate the link between past-year gay-specific stressors and depression (Bergfeld, 2015). Endorsement of mindfulness skills emphasized by dialectical behavioral therapy did not moderate the relation between internalized homonegativity and behavioral health outcomes, including harmful alcohol use and risky sexual behavior, among LGB people (Worhach, 2016). In addition, researchers did not find any moderating effect for mindfulness in the relation between self-stigma process (i.e., repeatedly and unintentionally thinking about the negative aspects of one's stigmatized identity) and life satisfaction among PLHIV (Yang & Mak, 2017). Also, although researchers found a trend for mindfulness to mitigate the relation between perceived racism and alcohol use, the effect was not significant (Zapolski et al., 2018). One study examined the mitigating effect of trait mindfulness in the relations between discrimination (measured as past year frequency and appraised stress level of racist experiences) and psychological distress (measured as general anxiety and acute anxious arousal; Graham et al., 2013). Results showed that mindfulness attenuated the association between frequency of past-year racist events and anxious arousal symptoms (but not general anxiety). Also, such a buffering effect was not found on neither outcome when discrimination was measured as stress appraisal (Graham et al., 2013). The authors suggest that mindfulness may be more helpful during acute experiences of anxious arousal elicited from racist experiences (Graham et al., 2013). In addition, in the study that examined the buffering effects of specific facets of mindfulness, researchers found that *observing* intensified the negative relation between gender non-conformity and well-being (Keng & Liew, 2017). The

authors argued that this intensifying effect driven by *observing* may indicate the importance of the practicing observing the present in combination with a non-judgmental attitude so that it would not be observing like self-monitoring (Keng & Liew, 2017).

Main Effect of Self-Compassion

Across a number of studies among LGB people, evidence suggests that self-compassion is negatively related to psychological distress, including depression and anxiety (Keng & Liew, 2017; LaDuke, 2016; Liao et al., 2015; Matos, Carvalho, Cunha, Galhardo, & Sepodes, 2017; Vigna, Poehlmann-Tynan, & Koenig, 2017). It was also negatively related to negative affect (Chandler, 2013), including shame (Matos et al., 2017), and maladaptive emotion regulation such as anger rumination (i.e., “tendency to think repetitively about current anger-provoking events and past memories of anger episodes”; Liao et al., 2015). Similar associations were found college women with eating concerns (Kelly et al., 2016), PLHIV (Skinta et al., 2018), and parents of children with ASD (Wong, Mak, & Liao, 2016). In addition, self-compassion is negatively linked to a variety of health risk factors. Among LGB people, self-compassion is negatively related to health risk factors such as internalized homonegativity and acceptance concerns (e.g., Beard, Eames, & Withers, 2017; Gertler, 2014). Among other marginalized populations, it is negatively linked to risk factors, such as internalized stigma related to HIV status and mental illness (Yang & Mak, 2017) as well as body image concerns (e.g., Kelly, Miller, & Stephen, 2016). Self-compassion was also positively associated with well-being and life satisfaction among LGB people (Beard et al., 2017; Chandler, 2013; Greene & Britton, 2015; Jennings & Tan, 2014; LaDuke, 2016; Liao et al., 2015) and other stigmatized populations (Yang & Mak, 2017; Keng & Liew, 2017).

Moderating Effect of Self-Compassion

In a population-based study, researchers have found among youth in Dane County, Wisconsin that the negative association between bias-based bullying and self-compassion is greater for sexual and gender minority youth than their majority counterparts, which suggests the importance for LGB people to cultivate self-compassion to counteract heterosexism (Vigna et al., 2017). However, evidence seems to be mixed in supporting the hypothesized buffering effect of self-compassion against the impact of discrimination and stigma-related stress on health across a variety of stigmatized populations. A number of studies found evidence supporting the buffering role of self-compassion. The most relevant study used a daily diary design to examine how female college students' self-compassion may moderate the association between their daily interaction with body-focused individuals and health outcomes (e.g., intuitive eating, body appreciation, body image concerns, and negative affect; Kelly et al., 2016) over a week. The authors found supportive evidence. Specifically, at the between-person level, more frequent interactions with body-focused individuals over a week was only related to less intuitive eating and poorer body appreciation among those with lower mean levels of self-compassion whereas such relations were absent those with greater self-compassion (Kelly et al., 2016). At the within-person level, more frequent daily interactions with body-focused individuals was only associated with more body image concerns when these college women's self-compassion was lower than their own usual level (Kelly et al., 2016). Furthermore, self-compassion emerged to not only buffer against but also invert the negative association between daily interactions with body-focused with certain outcomes (e.g., intuitive eating, body appreciation, and negative affect).

A few other studies found support for the buffering hypothesis at the between-person level. For instance, one study conducted among a sample of gay men living with HIV found that self-compassion attenuated the indirect association of HIV-related stigma on greater negative affect through heightened internalized homonegativity, such that the indirect association was not significant for those with high self-compassion (Skinta et al., 2018). Another study conducted among PLHIV further found that self-compassion attenuated the negative association between one's negative evaluations toward their PLHIV identity and life satisfaction (Yang & Mak, 2017). In addition, it was found that self-compassion attenuated the negative association between gender non-conformity and well-being among Singaporeans with diverse sexual orientations (Keng & Liew, 2017) and the association between affiliate stigma and psychological distress among caregivers of children with ASD (Wong et al., 2016).

Despite the supportive evidence for the buffering role of self-compassion, I also noted a number of null findings. For instance, self-compassion induction among a sample of LGB people did not mitigate the effects of recalled discrimination on internalized stigma, fear of negative evaluation, and mood (Chandler, 2013). Although researchers found support for the buffering role of self-compassion in the relation between HIV-related stigma and negative affect among a sample of gay men living with HIV, such an effect was not observed for outcomes, such as depression, anxiety, or positive affect (Skinta et al., 2018). Furthermore, self-compassion did not attenuate the association between self-stigma content and life satisfaction among people in recovery of mental illness (Yang & Mak, 2017). Finally, one study specifically tested as a post-hoc analysis for the specific facets of self-compassion that attenuated the relation between gender non-

conformity and well-being; and found that it was the lack of negative dimensions of self-compassion (e.g., self-judgment, over-identification, and isolation) that contributed to the buffering effect (Keng & Liew, 2017). This contradicts with the expectation that the positive dimensions of self-compassion (e.g., self-kindness, disidentification, and common humanity) as active ingredients that drive the buffering effect; and raised potential measurement issues with the self-compassion scale (Brenner et al., 2017).

In sum, both mindfulness and self-compassion have sound theoretical foundations for their buffering effect against discrimination. There is some evidence supporting the stress buffering role of mindfulness against discrimination (e.g., Shallcross & Spruill, 2017; Zapolski et al., 2018) and other stigma-related stressors (e.g., Chan & Lam, 2017). Studies that gathered evidence for the buffering role of self-compassion mostly focused on stigma-related stressors other than discrimination (e.g., Skinta et al., 2018; Yang & Mak, 2017) although there is generally a lack of studies focusing on discrimination as a predictor. Despite the supportive evidence, there were also findings inconsistent with the buffering hypothesis. One possibility for these inconsistent findings is that studies measured mindfulness and self-compassion under a timeframe that is not responsive to the discrimination experience (e.g., assessing recent mindfulness and self-compassion while measuring perceived past-year or lifetime discrimination). This measurement issue also poses challenge in generating support for the resilience processes since theoretically protective factors would be qualities that individuals possess prior to the heterosexual events.

External Resources for Reduced Reactivity to Heterosexism

Theories of Social Support

Social support can be defined as the “provision of psychological and material resources intended to benefit an individual’s ability to cope with stress” (Cohen, 2004, p. 676) and the “utilization of social networks to help one deal with adverse circumstances” (Case & Hunt, 2012, p. 258). By such definitions, researchers have long conceptualized social support as a stress buffering agent where social support is hypothesized to only impact health at times of adversity (Cohen & Wills, 1985). Indeed, previous reviews suggest that social support, in the form of perceived availability of social support, buffers against the negative impact of stress on psychological well-being (Cohen & Wills, 1985; Kawachi & Berkman, 2001). More recently, scholars proposed honing in on understanding social support as a health determinant in both adverse and non-adverse situations (i.e., the main effect of social support; Feeney & Collins, 2017). These researchers argue that social support has a positive impact on people’s health in general over time. Put it briefly, they posit that in the absence of adversity social support can serve as a catalyst that supports a person’s full engagement in life opportunities; whereas at times of adversity social support is thought to not only restore one’s baseline functioning but also encourage a person to thrive and flourish beyond this baseline (Feeney & Collins, 2017). The following discussion will focus on the theoretical underpinning of social support at times of adversity given this study’s primary interest in protective factors for discrimination.

While there is not one single explanation for why social support can lessen the impact of stress, scholars generally propose that the perception or belief that people in one’s social network can provide the necessary aid that one needs (be it emotional, instrumental, or informational) can facilitate one’s adaptive response to stressful events

(Cohen, 1988; 2004; Cohen & Wills, 1985; Uchino et al., 1996). It is argued that such perceived availability of assistance already helps one reappraise the situation as well as modulating one's emotional and physiological responses and refraining from maladaptive behavioral responses, such as substance use (Cohen, 2004). Other scholars add that the buffering effect occurs when one actually receives the appropriate assistance they need at times of adversity from a sensitive and responsive other because the bolstered sense of personal control and reduced situational demands of the stressful event (Thoits, 2011; Uchino et al., 2012). Similarly, Weiss's (1974) theory of social provisions posits that assistance-related provisions, such as *guidance* (i.e., having someone provide advice, information, and solutions when needed) and *reliable alliance* (i.e., the assurance that there is someone who can be relied on for tangible assistance), are especially important in times of stress. Furthermore, some scholars argue from an attachment perspective and assert that figures with whom one is securely attached can often serve as a safe haven and restore the person's sense of security by providing "comfort, reassurance, and assistance" during adversity (Feeney & Collins, 2017, p. 118). Such consistent and stable affectional ties one shares with others can be conceptualized in two ways: *attachment* (i.e., a sense of intimacy and emotional closeness to other individuals) and *social integration* (i.e., a sense of belonging to a group that shares similar interests, concerns, and activities; Weiss, 1974).

One less emphasized effect in the interaction hypothesis of social support is one that predicts how one flourishes through adversity with *fortification* where one's strengths and abilities (especially those that are relevant to stress coping) are recognized and nurtured (Feeney & Collins, 2017). Some scholars refer this process of being

affirmed and acknowledged for one's competence, skills, and value as *reassurance of worth* (Weiss, 1974). It is further posited that fortification occurs when there are provisions of assistance to use one's strengths to approach the stressful situation in a constructive way and assistance to reframe an adversity into one that benefits and meaning can be found (Feeney & Collins, 2017).

Theories of LGB-Specific Social Support

Under the stress buffering hypothesis, scholars propose that social support will be most beneficial in reducing one's reactivity to stress when it specifically matches the needs elicited by the stressors at hand (a.k.a., the stress-support matching hypothesis; Cohen & Wills, 1985). To this end, scholars focusing on multicultural and LGBT issues have also suggested identity-specific social support as a protective factor that is supposed to counteract the negative effect of oppression (Case & Hunter, 2012; Kwon, 2013). Although these scholars did not specify how various identity-specific social support processes may specifically moderate the relation between discrimination and health, there are similarities when comparing them with general social support processes.

Similar to how general social support may moderate the relation between stress and health (Feeney & Collins, 2017), in times of discrimination identity-specific support (as conceptualized by Case & Hunter, 2012) may both restore one's baseline level of functioning (i.e., stress buffering) and provide support to surpass one's baseline and grow (i.e., thriving through stress). Specifically, *direct relational transactions* (i.e., provisions of empathy as well as strategies for adaptive response to oppression through a sense of community) are similar to the concept of provisions of aid through a safe haven. These provisions of emotional support and concrete strategies in response to oppression may

serve as buffer against the negative effect of discrimination. Further, *narrative identity work* (i.e., developing a shared narrative that speaks to the nature of stigmatized individuals' lived experiences in relation to oppression as well as their strengths and capability to overcome such oppression) and *acts of resistance* (i.e., engaging in behaviors specifically meant to challenge the oppressive conditions as well as behaviors that are regarded as non-normative and are typically devalued by society) functions as reassurance of worth and reinforcement of strengths in combatting oppression. Such provisions of assistance in developing and building on one's strengths in face of oppression and reframing experiences of discrimination may even turn the negative association between discrimination and health into a positive relation. Still, LGB-specific social support, to say the least, may buffer against heterosexism by increasing perceived available assistance, a sense of security, and reassurance/reinforcement of worth.

Given the understanding of theories related to general and LGB-specific social support, I summarized findings from studies that examined exclusively among LGB people the relations between each type of social support and health in the following sections.

Main Effect of General Social Support

There are different ways to conceptualize and measure perceived general social support. Among the articles I reviewed, the majority of researchers measured the construct by the perceived availability of support received from others, typically including friends and family (e.g., Fingerhut, 2018, Doty et al., 2010) whereas others asked participants the number of supportive contacts they have (e.g., Sattler et al., 2016; Szymanski, 2009), support satisfaction (Wang et al., 2018), and a general sense of

belonging (Detrie & Lease, 2007). Regardless of how it is measured, results largely showed that perceived general social support has negative associations with health and behavioral problems among both youth and adults. For instance, perceived social support was negatively associated with mental health problems, such as depression and psychological distress (e.g., Antonio & Moleiro, 2015; Fingerhut, 2018; Feinstein et al., 2014; Lehavot & Simoni, 2011; Mereish & Poteat, 2015; Sattler et al., 2016; Shilo & Savaya, 2011; Szymanski, 2009; Sheets & Mohr, 2009), self-blame (e.g., Burns, Kamen, Lehman, & Beach, 2012), and suicidality (e.g., Antonio & Moleiro, 2015; Poteat et al., 2011; Wang et al., 2018). Perceived general social support was also shown to be negatively associated with impulsive behaviors (e.g., Antonio & Moleiro, 2015) and marijuana use (though not alcohol use; Needham & Austin, 2010) among LGB youth, and with physical distress among LGB adults (e.g., Mereish & Poteat, 2015). However, studies also did not find any association between general social support and distress (Doty et al., 2018) and only find weak associations between support and substance use (Lehavot & Simoni, 2011). Besides negative outcomes, studies also showed that perceived general social support is positively related to life satisfaction (Beals, Peplau, & Gable, 2009; Sheets & Mohr, 2009), mental health (Shilo & Savaya, 2011), and psychological functioning (Detrie & Lease, 2007).

Not all forms of perceived social support have been related to health outcomes in research on LGB people. One possibility is that results may be dependent upon life stage because of varying developmental needs. For example, one study measured perceived family support, peer support, and a general sense of belonging to understand how these different functions of social relationships correlate with psychological functioning (Detrie

& Lease, 2007). Results showed that family support is an important correlate consistently for various aspects of psychological functioning after controlling for peer support and sense of belonging for participants under 18, whereas sense of belonging was found to be consistent correlate for those above 18. In a similar vein, two studies conducted among young adult populations found that only perceived family support, but not peer support, was a significant correlate. It was shown that only family support was associated with lower odds of past-year suicidality (Wang et al., 2018) and with reduced cortisol response upon recalled heterosexism experiences (Burton et al., 2014). Nonetheless, one study showed that both family support and peer support were significant correlates for well-being and psychological distress after accounting for the correlations between the two support variables (Shilo & Savaya, 2011).

Moderating Effect of General Social Support

Although evidence suggests that general social support contributes to LGB people's well-being and reduced distress, the findings are less conclusive regarding its role as a minority stress buffering agent. Among the eight studies and 20 tests I reviewed that investigated the role of general social support (including perceived friend support, parental support) in moderating the relation between heterosexism experiences and health (e.g., Doty et al., 2010; Feinstein et al., 2014; Poteat et al., 2011; Sattler et al., 2016; Szymanski, 2009; Wang et al., 2018), only three tests from two studies showed significant buffering effects (Antonio & Moleiro, 2015; Fingerhut, 2018). It is worth noting that all of these studies involved examining mental health as the outcome (e.g., psychological distress, depressive symptoms, suicidality). Also, none of the tests involving general parental support as the buffer indicated the proposed buffering effect

against heterosexism experiences (e.g., Antonio & Moleiro, 2015; Feinstein et al., 2014; Fingerhut, 2018; Poteat et al., 2011; Wang et al., 2018). This lack of significant findings for general parental and family support may indicate its insufficiency when LGB people encounters negative identity-salient experiences, perhaps due to the dilemma of potentially facing family rejection upon disclosing one's sexual orientation for identity-specific support (Poteat et al., 2011). This also indicates the importance of understanding how LGB people adopt creative strategies to cope with discrimination, such as forming their "chosen families" or "fictive kinship networks with other members of LGB communities" (Frost, Meyer, Schwartz, 2016, p. 93).

Nevertheless, there were a few significant findings for the hypothesized buffering role of general social support. For instance, peer support was found to moderate the relations between victimization and emotional symptoms as well as suicidal ideation such that the positive relations were only found among those with low peer support (Antonio & Moleiro, 2015). However, similar moderating effects were not found in the same study for another hypothesized buffer (e.g., parental support) nor for outcomes (e.g., impulsive behaviors, substance use; Antonio & Moleiro, 2015). In addition, it was found that perceived friend support moderated the link between daily minority stress (measured by the combination of heterosexism experiences, internalized homonegativity, and acceptance concerns) and distress, such that the negative link between daily minority stress and negative affect only exists for those with little perceived friend support (Fingerhut, 2018). Despite the significant finding, the lack of individual tests for each of the minority stressors compromise the ability to understand how general social support may specifically moderate the effect of heterosexism experiences.

Main Effect of LGB-Specific Social Support

There is no one way to measure LGB-specific social support. Previous attempts to measure this construct include acceptance of one's sexual orientation from friends and family (e.g., Feinstein et al., 2014; Shilo & Savaya, 2011; Sheets & Mohr, 2009), sense of belonging to the LGB community (e.g., Mereish & Poteat, 2015; Szymanski & Owen, 2009), perceived available support on sexual orientation-related issues (e.g., Doty et al., 2010), and number of supportive gay friends (e.g., Sattler et al., 2016). Similar to general social support, results from these studies largely showed that identity-specific social support is negatively associated with health problems. For instance, perceived LGB-specific social support was negatively related to psychological distress (Doty et al., 2010; Sattler et al., 2016; Shilo & Savaya, 2011), depressive symptoms (e.g., Berghe, Dewaele, Cox, & Vincke, 2010; Feinstein et al., 2014; Mereish & Poteat, 2015). Of note, some correlations between identity-specific support and health outcomes found in previous studies were small in their effect sizes. For instance, acceptance of one's sexual orientation from family and friends were correlated with depression ($r_s = -.10$ & $-.11$; Sheets & Mohr, 2009). Sense of belonging to the LGB community was correlated with anxiety and physical distress ($r_s = -.09$; Mereish & Poteat, 2015).

Besides negative outcomes, it has been shown that LGB-specific social support is linked to positive outcomes. For instance, perceived LGB-specific support from one's supervisors, coworkers, and institutions each contribute to one's job and life satisfaction (Huffman et al., 2008). Family and peer acceptance of one's sexual orientation were linked with mental well-being (Shilo & Savaya, 2011). At the group level, it has been shown that suicidality among LGB youth is lower in schools that have LGB-specific

supportive spaces such as LGB support groups and gay-straight alliances (e.g., Goodenow et al., 2006). At a within-person level, results from daily diary studies showed that supportive interpersonal experiences related to one's sexual orientation was shown to have a positive relation with positive affect (Mohr & Sarno, 2016), self-esteem and life satisfaction (Beals & Peplau, 2005) on a day-to-day basis. However, there was no relation between such experiences and daily negative affect (Mohr & Sarno, 2016). Meanwhile, results from one study indicated no relation between identity-specific support and psychological distress among a sample of lesbian and bisexual women (Szymanski & Owen, 2009). This may be due to the fact that the researchers fused items that measure support processes (i.e., a sense of belonging and a sense that one's needs can be met through community membership) with those that tap onto the participants' power in the community (i.e., to extent to which they can influence and be influenced by the community).

To understand if identity-specific support uniquely contributes to explaining health outcomes above and beyond the contribution of general support, a few studies examined both types of support in one single model in a multivariate fashion. Findings appear to be mixed. For instance, one study showed that both perceived support from gay and non-gay contacts were negatively associated with mental health symptoms (Sattler et al., 2016), whereas another study showed that general social support was a stronger correlate of depression than identity-specific support (Sheets & Mohr, 2009). In addition, one study showed that, after controlling for general family and peer support, family and peer acceptance of one's sexual orientation were not correlated with distress (Shilo & Savaya, 2011).

Moderating Effect of LGB-Specific Social Support

Based on the evidence reviewed, it appears rare for researchers to be able to find results supporting the stress-buffering hypothesis when considering identity-specific social support as the buffer. In fact, only one out of seven studies found that identity-specific social support moderated the relations between minority stressors (which combined heterosexism experiences with other proximal stressors) and psychological distress (Doty et al., 2010). Since the researchers did not specifically test the buffering effect against discrimination-related stress, it is not entirely clear whether identity-specific support is equally useful for LGB people to deal with both distal and proximal stressors. Evidence generally suggests a lack of effect for identity-specific social support as a buffer against the negative impact of discrimination on health (e.g., Feinstein et al., 2014; Fingerhut, 2018; Kowsciw et al., 2013; Sattler et al., 2016, Szymanski & Owen, 2009; Wong et al., 2014). This pattern of results was observed regardless how identity-specific social support was measured, including sense of belonging and connectedness to the LGB community (Fingerhut, 2018; Szymanski & Owen, 2009; Wong et al., 2014), family acceptance of one's sexual orientation (Feinstein et al., 2014), teachers' support for LGB students (Kowsciw et al., 2013), and support from gay contacts (Sattler et al., 2016).

Furthermore, when significant findings have been found, identity-specific social support has moderated the effect of proximal stressors (i.e., internalized homonegativity, acceptance concerns) rather than distal stressors (i.e., heterosexism experiences; Feinstein et al., 2014; Sattler et al., 2016) on health. For example, parental acceptance was only found to attenuate the positive relation between proximal stressors (e.g., internalized

homonegativity and rejection sensitivity) and depressive symptoms but not the corresponding relation for heterosexism experiences (Feinstein et al., 2014). Social support from gay contacts was found to moderate the relation between rejection sensitivity and mental health symptoms but not for internalized homonegativity nor heterosexism experiences (Sattler et al., 2016). Also, one study examined how social constraints with LGB friends may buffer against the negative relation between external heterosexism and internalized heterosexism and found supportive evidence for the hypothesis (Mason, Lewis, Winstead, & Derlega, 2015).

Taken together, despite the theoretical foundation of why and how identity-specific social support may moderate the detrimental effect of discrimination (Case & Hunter, 2012; Kwon, 2013), there is a lack of empirical evidence supporting this assertion. Given the majority of the studies reviewed here tested the hypothesis with a between-person level of analysis (except Fingerhut, 2018), moderation effects may emerge at the within-person level (i.e., perceived social support may moderate the effect of discrimination on health in specific situations). Also, since the one study that tested the hypothesis with a within-person level of analysis (a) combined both distal and proximal minority stressors and (b) measured social support in the form of sense of belonging without tapping into the perception of available assistance embedded in one's network, it is possible that the null finding was due to lack of measurement specificity.

Present Study

A few insights can be drawn from the current literature review on the potential buffering roles of internal resources (mindfulness, self-compassion) and external resources (LGB-specific social support) against the negative impact of heterosexism on

LGB people's health. First, it is worth noting that most of the studies conducted in the past have examined the suggested mitigating effects by using a cross-sectional and retrospective reports of heterosexism experiences, and by testing the hypothesis at a between-person level of analysis. Using such designs, as suggested from the review, findings for the buffering role of mindfulness were fairly mixed and there was minimal supportive evidence for the buffering roles of self-compassion and LGB-specific support. The null findings could be due to a lack of relevance because of a mismatch between the timeframe used to measure heterosexism experiences and protective factors. Focus on daily experiences offers not only the opportunity to examine such within-person dynamics but also the means to study the protective factors at a time when it is likely personally relevant. Second, ecological momentary assessment has the advantage of understanding the effect of discrimination on health across time, limited number of studies tested this effect. The current study will address this gap by analyzing how discrimination on a given day impacts next-day health controlling for health on a given day. Finally, there is a lack of understanding of heterosexism on day-to-day fluctuations of physical health. The measurement of somatic symptoms in the current study will help contribute knowledge to this.

Appendix B: Eligibility Survey

Thank you for your interest in our study. Please answer the following page of questions to determine if you are eligible to participate.

Where did you hear about our study?

- An online discussion forum (please specify):
 - An organization mailing list (please specify):
 - A direct email from the UMD Social Identity Research Team
 - A friend
 - Other sources (please specify):
-

Are you 18 years of age or older?

- Yes
 - No
-

Which of the following best describes your sexual orientation?

- Asexual
 - Bisexual
 - Gay
 - Heterosexual
 - Lesbian
 - Queer
-

Which of the following best describes how you view your gender?

- Female
 - Male
 - Genderqueer/Non-Binary
-

Which of the following labels describe how you view your race/ethnicity? Please check all that apply.

- Asian
- Black/African American/Caribbean American
- Latinx/Hispanic
- Middle Eastern
- Native American/Alaska Native
- Native Hawaiian/Pacific Islander
- White/Caucasian/European American

In which country/territory do you currently reside?

▼ Algeria ... Other country/territory

How long have you lived in the U.S.?

- I have lived in the U.S. since birth
- I came to the U.S. before turning 18 years old
- I came to the U.S. after turning 18 years old

Within which state do you currently reside?

▼ Alabama ... Wyoming

Do you work or attend school in a state different from where you live?

- Yes
- No

Display This Question:

If Do you work or attend school in a state different from where you live? = Yes

In which state do you work or attend school?

▼ Alabama ... Wyoming

Display This Question:

If stateN != \${q://QID28/ChoiceGroup/SelectedChoices}
Or stateN != \${q://QID29/ChoiceGroup/SelectedChoices}

Are you currently traveling outside of \${c_state/ChoiceGroup/SelectedChoices} \${e://Field/s_conj} \${c_statew/ChoiceGroup/SelectedChoices}?

- Yes
- No

Display This Question:

If Are you currently traveling outside of \${q://QID28/ChoiceGroup/SelectedChoices} ... = Yes

Which state are you in right now?

▼ I am currently traveling outside of the U.S. ... Wyoming

Some people prefer using VPN (virtual private network) when using the Internet and some do not. Do you typically use VPN services when using the Internet?

- Yes
- No
- I don't know

Which time zone are you primarily based in? If you are eligible to participate in our study, we will send surveys to you based on your selected time zone. You can find out your time zone on [google](#).

- EDT Eastern daylight time (e.g., New York, NY)
- CDT Central daylight time (e.g., Chicago, IL)
- MDT Mountain daylight time (e.g., Navajo County, AZ; Salt Lake City, UT)
- MST Mountain standard time (e.g., Phoenix, AZ)
- PDT Pacific daylight time (e.g., Los Angeles, CA)
- AKDT Alaska daylight time (e.g., Anchorage, AK)
- HDT Hawaii daylight time (e.g., Aleutian Islands, AK)
- HST Hawaii standard time (e.g., Honolulu, HI)

Display This Question:

If Are you 18 years of age or older? = Yes

And Do you currently live in the United States or attend a university in the U.S.? = Yes

And If

Which of the following best describes your sexual orientation? = Bisexual

Or Which of the following best describes your sexual orientation? = Gay

Or Which of the following best describes your sexual orientation? = Lesbian

Or Which of the following best describes your sexual orientation? = Queer

Good news! Your responses indicate that you are eligible to participate in the study. Now, we will briefly explain how you can contribute to our project and also what you will receive for participating. Please watch the following video. *If you would like to read the content of this video, please click [here](#).*

You will have the opportunity to select which weeks you would be available to participate, and can reschedule if necessary. If you later decide not to participate, we will remove you from our subject pool and delete your email address from our records to protect your privacy.

Are you interested in participating?

Yes

No

Display This Question:

If Good news! Your responses indicate that you are eligible to participate in the study. Parti... , Yes Is Not Displayed

Sorry, based on your responses, you are not eligible to participate in the study.

Display This Question:

If Good news! Your responses indicate that you are eligible to participate in the study. Parti... = Yes

During which of the following periods would you be able to participate in our study? For example, if you choose to participate in our study from Sunday, February 3 to Sunday, February 17, you will need to complete **Phase One** (the initial survey) on Sunday, February 3, followed by **Phase Two** (the 14-day daily surveys) between Monday, February 4 and Sunday, February 17.

Please select a period during which you will be in the following time zone:

{{timezone/ChoiceGroup/SelectedChoices}}. If you later have a conflict during the period you are scheduled to participate, we can reschedule you to another week.

- Sunday, March 10 to Sunday, March 24
- Sunday, March 17 to Sunday, March 31
- Sunday, March 24 to Sunday, April 7
- Sunday, March 31 to Sunday, April 14
- Sunday, April 7 to Sunday, April 21
- Sunday, April 14 to Sunday, April 28
- Sunday, April 21 to Sunday, May 5
- Sunday, April 28 to Sunday, May 12
- Sunday, May 5 to Sunday, May 19
- Sunday, May 12 to Sunday, May 26

Display This Question:

If Congratulations! Your responses indicate that you are eligible to participate in the study. Parti... = Yes

Please provide your email address so you can be emailed with more information about participation:

Thank you for your interest in participating in Project #RADIATE. You have opted to participate in our study from **#{q://QID9/ChoiceGroup/SelectedChoices}**. We will send you an email with instructions to participate in our study a few days before your chosen period.

Appendix C: Demographic Survey

How old are you? (In years)

▼ 18 ... 100

What is the highest level of education you have completed?

▼ Less than high school ... Professional degree

What is your employment status? (Select all that apply)

- Employed part-time
 - Employed full-time
 - Full-time student
 - Part-time student
 - Military (active duty)
 - Military (reservist)
 - Unemployed and currently looking for work
 - Unemployed and NOT currently looking for work
 - Unable to work due to disability
 - Homemaker/full-time caretaker
 - Retired
-

What is your total personal income before taxes, from all sources, last year?

▼ I do not have any income. ... \$150,000 or over

What socio-economic class have you spent the majority of your life in?

- Lower class
 - Working class
 - Middle class
 - Upper middle class
 - Upper class
 - Other (please specify):
-

Think of the ladder below as representing where people stand in the U.S.

At the top of the ladder are the people who are the best off, those who have the most money, most education, and best jobs. At the bottom are the people who are the worst off, those who have the least money, least education, and worst jobs or no job.

Where would you place yourself on this ladder?

▼ 10 ... 1

Which of the following best describes you?

- Man
 - Woman
 - Genderqueer/Non-Binary
 - Other (please specify):
-

Does any of the following labels apply to you?

- Intersex
 - Transgender
 - None of the above
-

Which of the following best describes how you view your sexual orientation? (Please choose all that apply).

- Asexual
 - Bisexual
 - Gay
 - Lesbian
 - Pansexual
 - Queer
 - Same-Gender-Loving
 - Straight/Heterosexual
 - Other (please specify):
-

What is your relationship status?

- Single
 - Casually dating/hooking up with a single partner
 - Casually dating/hooking up with multiple partners
 - In a committed relationship with a single partner
 - In a committed relationship with multiple partners
 - One primary partner and at least one casual partner
 - Other (please specify):
-

*Display This Question:
If What is your relationship status? != Single*

What are the gender(s) of your current romantic/sexual partner(s)? (Check all that apply)

- Male
- Female
- Genderqueer/nonbinary
- Other (please specify):

Display This Question:

If What is your relationship status? != Single

How satisfied are you with your current romantic/sexual relationship(s)?

- Extremely dissatisfied
- Somewhat dissatisfied
- A little dissatisfied
- Neither satisfied nor dissatisfied
- A little satisfied
- Somewhat satisfied
- Extremely satisfied

Some LGBTQ people are involved in groups that primarily serve and support LGBTQ people. Some prefer not to.

Are you involved in any of these groups? (Please choose all that apply)

- LGBTQ student groups in school
- LGBTQ alliances at workplace
- LGBTQ social/political groups in the local community
- LGBTQ affinity groups in a religious/spiritual community
- Online LGBTQ social/discussion groups (e.g., Reddit, Tumblr, Facebook)
- Other LGBTQ groups (Please specify):
- ☒ I am not involved in any of these groups

Which of the following best describes how you view your race/ethnicity? (Please choose all that apply)

- Asian
- Black/African American/Caribbean American
- Latinx/Hispanic
- Middle Eastern
- Native American/Alaska Native
- Native Hawaiian/Pacific Islander
- White/Caucasian/European American

Which of the following describes your religious faith/spirituality? (Please choose all that apply)

- I do not identify with any
 - Agnostic (not sure if there is a God)
 - Atheist (do not believe in God)
 - Buddhist
 - Catholic
 - Hindu
 - Muslim
 - Protestant Christian
 - Spiritual
 - Other (please specify):
-

How often do you practice mindfulness in face-to-face group settings? Note: Mindfulness can be defined as the process of bringing one's attention to the present moment through practices such as meditation and yoga.

- Never
 - less than once a month
 - Once a month
 - 2-3 times a month
 - Once a week
 - 2-3 times a week
 - Daily/Almost daily
-

How often do you practice mindfulness individually, with or without the aid of audio, videos, or mobile device apps?

- Never
 - less than once a month
 - Once a month
 - 2-3 times a month
 - Once a week
 - 2-3 times a week
 - Daily/Almost daily
-

Within which state do you reside?

▼ Alabama ... Wyoming

Within which type of area are you located?

- Urban
 - Suburban
 - Rural
-

Who are you currently living with? (Check all that apply)

- Living on my own
- Roommate(s)
- My partner(s)
- My friend(s)
- My parent(s) or permanent legal guardian(s)
- My child(ren)
- I am currently homeless
- Other (please specify):

Appendix D: Mindfulness

Please rate each of the following statements using the scale provided. Select the option that best describes your own opinion of what is generally true for you.

Response:	Never or very rarely true	Rarely true	Sometimes true	Often true	Very often or always true
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					
31.					
32.					
33.					
34.					
35.					
36.					
37.					
38.					
39.					

Appendix E: Self-Compassion

Please read each statement carefully before answering. Then, indicate how often you behave in the stated manner, using the following scale:

Response:	Almost never 1	2	3	4	Almost always 5
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1. I'm disapproving and judgmental about my own flaws and inadequacies.
 2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.
 3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
 4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
 5. I try to be loving towards myself when I'm feeling emotional pain.
 6. When I fail at something important to me I become consumed by feelings of inadequacy.
 7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.
 8. When times are really difficult, I tend to be tough on myself.
 9. When something upsets me I try to keep my emotions in balance.
 10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
 11. I'm intolerant and impatient towards those aspects of my personality I don't like.
 12. When I'm going through a very hard time, I give myself the caring and tenderness I need.
 13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.
 14. When something painful happens I try to take a balanced view of the situation.
 15. I try to see my failings as part of the human condition.
 16. When I see aspects of myself that I don't like, I get down on myself.
 17. When I fail at something important to me I try to keep things in perspective.
 18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.
 19. I'm kind to myself when I'm experiencing suffering.
 20. When something upsets me I get carried away with my feelings.
 21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.
 22. When I'm feeling down I try to approach my feelings with curiosity and openness.
 23. I'm tolerant of my own flaws and inadequacies.
 24. When something painful happens I tend to blow the incident out of proportion.
 25. When I fail at something that's important to me, I tend to feel alone in my failure.
 26. I try to be understanding and patient towards those aspects of my personality I don't like.
-

Appendix F: LGB-Affirmative Support

Think about your current relationship with friends, family members, coworkers, community members, and so on. Please indicate to what extent you agree that each statement describes your current relationships.

Response:	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				

Appendix G: Affective Well-Being

Using the following items, please indicate how you have felt this morning / since this morning.

Response:	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
1. Interested					
2. Distressed					
3. Excited					
4. Upset					
5. Strong					
6. Guilty					
7. Scared					
8. Hostile					
9. Enthusiastic					
10. Proud					
11. Irritable					
12. Alert					
13. Ashamed					
14. Inspired					
15. Nervous					
16. Determined					
17. Attentive					
18. Jittery					
19. Active					
20. Afraid					

Appendix H: Somatic Symptoms

Please indicate to what extent you are experiencing the following symptoms this morning / since this morning.

Response:	Not at all	A little	Some	A lot
1. headaches				
2. backaches				
3. muscle soreness				
4. poor appetite				
5. nausea/upset stomach				
6. sore throat				
7. runny nose				
8. congestion				
9. allergies				
10. hangover				

Appendix I: LGB-Related Positive Events and Heterosexism Experience

Take a moment and reflect on whether you experienced any POSITIVE events or situations since yesterday evening that related in some way to your being LGBQ. Consider both minor, everyday experiences as well as more intense, major events.

Can you think of a positive event like this since yesterday evening?

Yes

No

In five sentences or less, briefly describe one positive event you experienced since yesterday evening that related in some way to your being LGBQ. If you experienced more than one positive event since yesterday evening related to this identity, please choose the one which had the biggest impact on you.

In this description, please state why the event was positive and how it related to your being LGBQ.

Now, take a moment and reflect on whether you experienced any NEGATIVE events or situations since yesterday evening that related in some way to your being LGBQ.

Specifically, have you had any experiences involving (a) negative attitudes or stereotypes regarding LGBQ people, (b) discrimination toward LGBQ people, (c) valuing the well-being of heterosexuals over that of LGBQ people, or (d) unjustified assumptions that you are heterosexual, or that someone else is heterosexual.

Can you think of an event like this since yesterday evening?

Yes

No

In five sentences or less, briefly describe one such potentially discriminatory event you experienced since yesterday evening. If you experienced more than one such event since yesterday evening, please choose the one which had the biggest impact on you.

In this description, please state why the event was potentially discriminatory and how it related to your being LGBQ.

Table 1

Demographics of Participants

	<i>n</i>	%
Gender		
Man	100	40.8
Woman	105	42.9
Genderqueer/Non-Binary	36	14.7
Other reported identities	4	1.6
Sexual orientation		
Gay/lesbian	138	56.3
Bisexual	77	31.4
Queer	86	35.1
Race/ethnicity		
Asian/Pacific Islander	73	29.8
Black/African American/Caribbean American	30	12.2
Latinx/Hispanic	26	10.6
Middle Eastern	10	4.1
Native American	3	1.2
White	135	55.1
Education attainment		
Less than high school	1	0.4
High school or GED	11	4.5
Some college	44	18.0
Associate's degree (Two-Year Degree)	11	4.5
Bachelor's degree	92	37.6
Master's degree	55	22.4
Professional degree (M.D., J.D., Ph.D.)	31	12.7
Perceived class		
Lower class	14	5.7
Working class	81	33.1
Middle class	99	40.4
Upper middle class	44	18.0
Upper class	6	2.4
Religion		
Do not identify with any	39	15.9
Agnostic	58	23.7
Atheist	36	14.7
Buddhist	25	10.2
Catholic	18	7.3
Hindu	3	1.2
Muslim	13	5.3
Protestant Christian	17	6.9
Spiritual	41	16.7

Note. The percentages exceeded 100% for some demographics because of the multiple categories participants endorsed.

Table 2

Univariate and Bivariate Descriptive Statistics for Main Variables

Variable	Possible range	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1. Mindfulness	[1, 5]	3.22	0.51	—	—	—	—	—	—	—	—	—	—
2. Self-compassion	[1, 5]	2.80	0.78	.67***	—	—	—	—	—	—	—	—	—
3. LGB affirmative support	[1, 4]	3.26	0.58	.23***	.27***	—	—	—	—	—	—	—	—
4. Heterosexism experience	[0, 1]	0.12	0.17	-.03	-.07	-.22**	—	.13***	.01	.09***	.06**	.02	.08***
5. Negative affect (evening)	[1, 5]	1.52	0.47	-.30***	-.35***	-.16*	.26***	—	-.11***	.33***	.62***	-.08***	.26***
6. Positive affect (evening)	[1, 5]	2.36	0.70	.37***	.47***	.20**	.01	-.09	—	-.08***	-.06**	.67***	-.07***
7. Somatic symptoms (evening)	[1, 4]	1.40	0.31	-.11 ⁺	-.12 ⁺	-.09	.21**	.47***	-.06	—	.32***	-.14***	.77***
8. Negative affect (morning)	[1, 5]	1.40	0.43	-.29***	-.28***	-.23***	.29***	.87***	-.06	.47***	—	-.08***	.34***
9. Positive affect (morning)	[1, 5]	2.06	0.70	.35***	.45***	.18**	.03	-.12 ⁺	.85***	-.15*	-.07	—	-.15***
10. Somatic symptoms (morning)	[1, 4]	1.38	0.29	-.11 ⁺	-.14*	-.08	.17**	.47***	-.08	.91***	.51***	-.17**	—

Note. Means and standard deviations reflect day-level variables aggregated to the person level. Within-person correlations are above the diagonal; between-person correlations are below the diagonal. ⁺ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3

Overall Model Statistics for Multilevel Models Predicting Same-Day Well-Being from Heterosexism and Mindfulness

Model	Predictors added to model	AIC	% of variance explained	
			Outcome	Slopes
Negative Affect				
Model 1	Control variables	8285.89	36.36	—
Model 2	Heterosexism	8266.57	38.79	—
Model 3	Mindfulness	8617.76	40.61	10.34
Model 4	Mindfulness (predicting slopes)	8619.78	40.61	10.34
Model 5	Heterosexism (predicting slopes)	8620.65	40.30	31.03
Model 6	Heterosexism x Mindfulness	8114.65	40.61	34.48
Positive Affect				
Model 1	Control variables	13727.17	34.87	—
Model 2	Heterosexism	13736.92	36.46	—
Model 3	Mindfulness	14080.98	40.42	-20.00
Model 4	Mindfulness (predicting slopes)	14078.04	40.42	-10.00
Model 5	Heterosexism (predicting slopes)	14080.17	40.42	-10.00
Model 6	Heterosexism x Mindfulness	13574.08	40.69	-13.33
Somatic Symptoms				
Model 1	Control variables	2175.60	50.39	—
Model 2	Heterosexism	2174.89	53.49	—
Model 3	Mindfulness	2545.00	52.71	0.00
Model 4	Mindfulness (predicting slopes)	2545.47	53.49	0.00
Model 5	Heterosexism (predicting slopes)	2546.86	53.49	0.00
Model 6	Heterosexism x Mindfulness	2041.72	53.49	0.00

Note. Lower Akaike's information criterion (AIC) values indicate better model fit.

Table 4

Overall Model Statistics for Multilevel Models Predicting Same-Day Well-Being from Heterosexism and Self-Compassion

Model	Predictors added to model	AIC	% of variance explained	
			Outcome	Slopes
Negative Affect				
Model 1	Control variables	8285.89	36.36	—
Model 2	Heterosexism	8266.57	38.79	—
Model 3	Self-Compassion	8805.55	41.82	20.69
Model 4	Self-Compassion (predicting slopes)	8807.96	41.82	13.79
Model 5	Heterosexism (predicting slopes)	8809.49	41.52	27.59
Model 6	Heterosexism x Self-Compassion	8512.03	41.52	27.59
Positive Affect				
Model 1	Control variables	13727.17	34.87	—
Model 2	Heterosexism	13736.92	36.46	—
Model 3	Self-Compassion	14271.08	41.48	-23.33
Model 4	Self-Compassion (predicting slopes)	14269.29	41.22	10.00
Model 5	Heterosexism (predicting slopes)	14271.55	41.35	-20.00
Model 6	Heterosexism x Self-Compassion	13973.18	41.48	-16.67
Somatic Symptoms				
Model 1	Control variables	2175.60	50.39	—
Model 2	Heterosexism	2174.89	53.49	—
Model 3	Self-Compassion	2749.56	53.49	0.00
Model 4	Self-Compassion (predicting slopes)	2751.64	54.26	0.00
Model 5	Heterosexism (predicting slopes)	2753.18	53.49	0.00
Model 6	Heterosexism x Self-Compassion	2455.72	53.49	0.00

Note. Lower Akaike's information criterion (AIC) values indicate better model fit.

Table 5

Overall Model Statistics for Multilevel Models Predicting Same-Day Well-Being from Heterosexism and LGB affirmative support

Model	Predictors added to model	AIC	% of variance explained	
			Outcome	Slopes
Negative Affect				
Model 1	Control variables	8285.89	36.36	—
Model 2	Heterosexism	8266.57	38.79	—
Model 3	LGB support	8699.89	38.79	10.34
Model 4	LGB support (predicting slopes)	8701.40	38.79	13.79
Model 5	Heterosexism (predicting slopes)	8702.38	38.48	34.48
Model 6	Heterosexism x LGB support	8388.54	39.39	37.93
Positive Affect				
Model 1	Control variables	13727.17	34.87	—
Model 2	Heterosexism	13736.92	36.46	—
Model 3	LGB support	14160.87	37.65	6.67
Model 4	LGB support (predicting slopes)	14161.26	37.78	20.00
Model 5	Heterosexism (predicting slopes)	14163.43	37.78	0.00
Model 6	Heterosexism x LGB support	13854.55	37.78	0.00
Somatic Symptoms				
Model 1	Control variables	2175.60	50.39	—
Model 2	Heterosexism	2174.89	53.49	—
Model 3	LGB support	2608.53	52.71	33.33
Model 4	LGB support (predicting slopes)	2606.83	53.49	0.00
Model 5	Heterosexism (predicting slopes)	2608.42	53.49	0.00
Model 6	Heterosexism x LGB support	2299.68	53.49	0.00

Note. Lower Akaike's information criterion (AIC) values indicate better model fit.

Table 6

Overall Model Statistics for Multilevel Models Predicting Next-Day Well-Being from Heterosexism and Mindfulness

Model	Predictors added to model	AIC	% of variance explained	
			Outcome	Slopes
Negative Affect				
Model 1	Control variables	4219.31	28.86	—
Model 2	Heterosexism	4279.25	39.02	—
Model 3	Mindfulness	4635.68	39.84	No estimation
Model 4	Mindfulness (predicting slopes)	4630.35	40.24	No estimation
Model 5	Heterosexism (predicting slopes)	4629.83	40.24	No estimation
Positive Affect				
Model 1	Control variables	7045.91	23.61	—
Model 2	Heterosexism	7051.03	24.49	—
Model 3	Mindfulness	7409.00	33.87	51.85
Model 4	Mindfulness (predicting slopes)	7410.78	33.87	51.85
Model 5	Heterosexism (predicting slopes)	7410.60	33.43	81.48
Somatic Symptoms				
Model 1	Control variables	1336.66	45.00	—
Model 2	Heterosexism	1344.68	47.50	—
Model 3	Mindfulness	1715.10	45.83	0.00
Model 4	Mindfulness (predicting slopes)	No estimation	—	—
Model 5	Heterosexism (predicting slopes)	No estimation	—	—

Note. Lower kaike's information criterion (AIC) values indicate better model fit.

Table 7

Overall Model Statistics for Multilevel Models Predicting Next-Day Well-Being from Heterosexism and Self-Compassion

Model	Predictors added to model	AIC	% of variance explained	
			Outcome	Slopes
Negative Affect				
Model 1	Control variables	4219.31	28.86	—
Model 2	Heterosexism	4279.25	39.02	—
Model 3	Self-Compassion	4842.22	39.84	No estimation
Model 4	Self-Compassion (predicting slopes)	4838.29	39.84	No estimation
Model 5	Heterosexism (predicting slopes)	4837.41	39.84	No estimation
Positive Affect				
Model 1	Control variables	7045.91	23.61	—
Model 2	Heterosexism	7051.03	24.49	—
Model 3	Self-Compassion	7594.10	37.10	55.56
Model 4	Self-Compassion (predicting slopes)	7594.68	36.95	55.56
Model 5	Heterosexism (predicting slopes)	7594.47	36.80	66.67
Somatic Symptoms				
Model 1	Control variables	1336.66	45.00	—
Model 2	Heterosexism	1344.68	47.50	—
Model 3	Self-Compassion	1916.91	45.83	0.00
Model 4	Self-Compassion (predicting slopes)	1914.40	46.67	-100.00
Model 5	Heterosexism (predicting slopes)	1914.69	46.67	0.00

Note. Lower Akaike's information criterion (AIC) values indicate better model fit.

Table 8

Overall Model Statistics for Multilevel Models Predicting Next-Day Well-Being from Heterosexism and LGB affirmative support

Model	Predictors added to model	AIC	% of variance explained	
			Outcome	Slopes
Negative Affect				
Model 1	Control variables	4219.31	28.86	—
Model 2	Heterosexism	4279.25	39.02	—
Model 3	LGB support	4702.11	39.84	No estimation
Model 4	LGB support (predicting slopes)	4699.95	39.84	No estimation
Model 5	Heterosexism (predicting slopes)	4696.76	39.84	No estimation
Positive Affect				
Model 1	Control variables	7045.91	23.61	—
Model 2	Heterosexism	7051.03	24.49	—
Model 3	LGB support	7492.80	29.62	55.56
Model 4	LGB support (predicting slopes)	7492.10	29.18	77.78
Model 5	Heterosexism (predicting slopes)	7492.55	29.18	62.96
Somatic Symptoms				
Model 1	Control variables	1336.66	45.00	—
Model 2	Heterosexism	1344.68	47.50	—
Model 3	LGB support	1775.84	45.83	0.00
Model 4	LGB support (predicting slopes)	1777.49	45.83	0.00
Model 5	Heterosexism (predicting slopes)	1777.60	45.83	0.00

Note. Lower Akaike's information criterion (AIC) values indicate better model fit.

Table 9

Fixed Effects and Random Effect Variances for Multilevel Regression Models Predicting Same-Day Well-Being from Heterosexism Experiences and Mindfulness

Predictor	Outcome variables					
	Negative Affect		Positive Affect		Somatic Symptoms	
	Model 3	Model 5	Model 3	Model 5	Model 3	Model 5
Fixed effects						
Level 1 (within person)						
Outcome, morning same day	.46 (.04) ^{***}	.46 (.04) ^{***}	.42 (.03) ^{***}	.42 (.03) ^{***}	.53 (.03) ^{***}	.52 (.03) ^{***}
Day of study	.00 (.00) [*]	.00 (.00) [*]	-.01 (.00) ^{***}	-.01 (.00) ^{***}	.00 (.00)	.00 (.00)
Weekday	.05 (.02) ^{**}	.05 (.02) ^{**}	-.01 (.03)	-.02 (.03)	.01 (.01)	.01 (.01)
Daily heterosexism	.10 (.03) ^{***}	.08 (.04) [*]	.00 (.04)	.01 (.05)	.02 (.01) ⁺	.02 (.01)
Level 2 (between person)						
Intercept	1.49 (.02) ^{***}	1.49 (.02) ^{***}	2.35 (.03) ^{***}	2.35 (.03) ^{***}	1.40 (.01) ^{***}	1.40 (.01) ^{***}
Mean heterosexism	.36 (.14) [*]	.36 (.14) [*]	.04 (.18)	.05 (.18)	.20 (.07) ^{**}	.19 (.07) ^{**}
Mindfulness	-.16 (.03) ^{***}	-.16 (.03) ^{***}	.33 (.06) ^{***}	.33 (.06) ^{***}	-.04 (.02) ⁺	-.04 (.02) ⁺
Cross-level interactions						
Mean heterosexism × daily heterosexism		.16 (.10) ⁺		-.11 (.28)		.06 (.03) ⁺
Mindfulness × daily heterosexism		.00 (.05)		.12 (.08)		-.02 (.02)
Random effect variances						
Level 1						
Residual	.15 (.01) ^{***}	.15 (.01) ^{***}	.27 (.02) ^{***}	.27 (.02) ^{***}	.04 (.00) ^{***}	.03 (.00) ^{***}
Level 2						
Intercept	.05 (.01) ^{***}	.05 (.01) ^{***}	.18 (.02) ^{***}	.18 (.02) ^{***}	.03 (.00) ^{***}	.03 (.00) ^{***}
Daily heterosexism slopes	.03 (.01) ^{**}	.02 (.02)	.04 (.02) ⁺	.03 (.03)	.00 (.00) [*]	.00 (.00) [*]

Note. $n = 3346$. Standard errors are in parentheses. Model 3 features all main effects with no cross-level interactions; Model 5 features both main effects and cross-level interactions. In both models, daily heterosexism slopes are allowed to vary randomly across participants.

⁺ $p < .10$. ^{*} $p < .05$. ^{**} $p < .01$. ^{***} $p < .001$.

Table 10

Fixed Effects and Random Effect Variances for Multilevel Regression Models Predicting Same-Day Well-Being from Heterosexism Experiences and Self-Compassion

Predictor	Outcome variables					
	Negative Affect		Positive Affect		Somatic Symptoms	
	Model 3	Model 5	Model 3	Model 5	Model 3	Model 5
Fixed effects						
Level 1 (within person)						
Outcome, morning same day	.47 (.04) ^{***}	.47 (.04) ^{***}	.41 (.03) ^{***}	.41 (.03) ^{***}	.53 (.03) ^{***}	.53 (.03) ^{***}
Day of study	.00 (.00) [*]	.00 (.00) [*]	-.01 (.00) ^{***}	-.01 (.00) ^{***}	.00 (.00)	.00 (.00)
Weekday	.05 (.02) ^{**}	.05 (.02) ^{**}	-.01 (.03)	-.01 (.03)	.01 (.01)	.01 (.01)
Daily heterosexism	.10 (.03) ^{***}	.08 (.03) [*]	.00 (.04)	.02 (.05)	.02 (.01) [*]	.02 (.01)
Level 2 (between person)						
Intercept	1.48 (.02) ^{***}	1.48 (.02) ^{***}	2.36 (.03) ^{***}	2.35 (.03) ^{***}	1.40 (.01) ^{***}	1.40 (.01) ^{***}
Mean heterosexism	.33 (.15) [*]	.33 (.15) [*]	.09 (.17)	.09 (.17)	.19 (.07) ^{**}	.19 (.07) ^{**}
Self-Compassion	-.13 (.02) ^{***}	-.13 (.02) ^{***}	.26 (.04) ^{***}	.26 (.04) ^{***}	-.02 (.01)	-.02 (.01) ⁺
Cross-level interactions						
Mean heterosexism × daily heterosexism		.15 (.10)		-.14 (.29)		.07 (.04) ⁺
Self-Compassion × daily heterosexism		-.01 (.03)		.07 (.05)		.01 (.02)
Random effect variances						
Level 1						
Residual	.15 (.01) ^{***}	.15 (.01) ^{***}	.27 (.02) ^{***}	.27 (.02) ^{***}	.03 (.00) ^{***}	.04 (.00) ^{***}
Level 2						
Intercept	.05 (.01) ^{***}	.05 (.01) ^{***}	.17 (.02) ^{***}	.17 (.02) ^{***}	.03 (.00) ^{***}	.03 (.00) ^{***}
Daily heterosexism slopes	.02 (.01) [*]	.02 (.01)	.04 (.02) ⁺	.04 (.03)	.00 (.00) ^{**}	.00 (.00) [*]

Note. $n = 3346$. Standard errors are in parentheses. Model 3 features all main effects with no cross-level interactions; Model 5 features both main effects and cross-level interactions. In both models, daily heterosexism slopes are allowed to vary randomly across participants.

⁺ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 11

Fixed Effects and Random Effect Variances for Multilevel Regression Models Predicting Same-Day Well-Being from Heterosexism Experiences and LGB Affirmative Support

Predictor	Outcome variables					
	Negative Affect		Positive Affect		Somatic Symptoms	
	Model 3	Model 5	Model 3	Model 5	Model 3	Model 5
Fixed effects						
Level 1 (within person)						
Outcome, morning same day	.47 (.04) ^{***}	.47 (.04) ^{***}	.42 (.03) ^{***}	.42 (.03) ^{***}	.53 (.03) ^{***}	.53 (.03) ^{***}
Day of study	.00 (.00) [*]	.00 (.00) [*]	-.01 (.00) ^{**}	-.01 (.00) ^{***}	.00 (.00)	.00 (.00)
Weekday	.05 (.02) ^{**}	.05 (.02) ^{**}	-.01 (.03)	-.01 (.03)	.01 (.01)	.01 (.01)
Daily heterosexism	.10 (.03) ^{***}	.08 (.03) [*]	.01 (.04)	.03 (.05)	.02 (.01) ⁺	.01 (.01) ⁺
Level 2 (between person)						
Intercept	1.49 (.02) ^{***}	1.49 (.02) ^{***}	2.35 (.03) ^{***}	2.35 (.03) ^{***}	1.40 (.01) ^{***}	1.40 (.01) ^{***}
Mean heterosexism	.36 (.15) [*]	.35 (.15) [*]	.12 (.19)	.12 (.18)	.19 (.07) ^{**}	.19 (.07) [*]
LGB Support	-.03 (.03)	-.03 (.03)	.17 (.05) ^{**}	.17 (.05) ^{**}	-.01 (.02)	-.01 (.02)
Cross-level interactions						
Mean heterosexism × daily heterosexism		.19 (.10) ⁺		-.23 (.32)		.06 (.07)
LGB Support × daily heterosexism		.04 (.05)		-.08 (.06)		-.03 (.02)
Random effect variances						
Level 1						
Residual	.15 (.01) ^{***}	.15 (.01) ^{***}	.27 (.02) ^{***}	.27 (.02) ^{***}	.04 (.00) ^{***}	.03 (.00) ^{***}
Level 2						
Intercept	.06 (.01) ^{***}	.06 (.01) ^{***}	.20 (.02) ^{***}	.20 (.02) ^{***}	.03 (.00) ^{***}	.03 (.00) ^{***}
Daily heterosexism slopes	.03 (.01) ^{**}	.02 (.01)	.03 (.03)	.03 (.03)	.00 (.00) [*]	.00 (.01)

Note. $n = 3346$. Standard errors are in parentheses. Model 3 features all main effects with no cross-level interactions; Model 5 features both main effects and cross-level interactions. In both models, daily heterosexism slopes are allowed to vary randomly across participants.

⁺ $p < .10$. ^{*} $p < .05$. ^{**} $p < .01$. ^{***} $p < .001$.

Table 12

Fixed Effects and Random Effect Variances for Multilevel Regression Models Predicting Next-Day Well-Being from Heterosexism Experiences and Mindfulness

Predictor	Outcome variables		
	Negative Affect Model 5	Positive Affect Model 5	Somatic Symptoms Model 5
	Fixed effects		
Level 1 (within person)			
Outcome, evening previous day	.34 (.06) ^{***}	.26 (.03) ^{***}	—
Day of study	.00 (.00)	-.01 (.00) [*]	—
Weekday	.02 (.02)	-.01 (.03)	—
Daily heterosexism	.00 (.07)	.17 (.07) [*]	—
Level 2 (between person)			
Intercept	1.37 (.03) ^{***}	2.06 (.05) ^{***}	—
Mean heterosexism	.28 (.12) [*]	.16 (.24)	—
Mindfulness	-.13 (.03) ^{***}	.37 (.08) ^{***}	—
Cross-level interactions			
Mean heterosexism × daily heterosexism	-.10 (.20)	-.30 (.10) ^{**}	—
Mindfulness × daily heterosexism	-.05 (.07)	-.01 (.03)	—
	Random effect variances		
Level 1			
Residual	.10 (.01) ^{***}	.20 (.01) ^{***}	—
Level 2			
Intercept	.05 (.01) ^{***}	.25 (.03) ^{***}	—
Daily heterosexism slopes	.01 (.01)	.01 (.00) [*]	—

Note. $n = 1837$. Standard errors are in parentheses. Model 5 features both main effects and cross-level interactions. Daily heterosexism slopes are allowed to vary randomly across participants.

⁺ $p < .10$. ^{*} $p < .05$. ^{**} $p < .01$. ^{***} $p < .001$.

Table 13

Fixed Effects and Random Effect Variances for Multilevel Regression Models Predicting Next-Day Well-Being from Heterosexism Experiences and Self-Compassion

Predictor	Outcome variables		
	Negative Affect Model 5	Positive Affect Model 5	Somatic Symptoms Model 5
	Fixed effects		
Level 1 (within person)			
Outcome, evening previous day	.34 (.06) ^{***}	.26 (.03) ^{***}	.45 (.03) ^{***}
Day of study	.00 (.00)	-.01 (.00) [*]	.00 (.00)
Weekday	.02 (.02)	-.01 (.03)	.00 (.01)
Daily heterosexism	-.01 (.06)	.17 (.07) [*]	-.04 (.02) ⁺
Level 2 (between person)			
Intercept	1.37 (.03) ^{***}	2.06 (.05) ^{***}	1.37 (.01) ^{***}
Mean heterosexism	.27 (.13) [*]	.22 (.22)	.11 (.08)
Self-Compassion	-.07 (.02) ^{***}	.31 (.05) ^{***}	-.02 (.02)
Cross-level interactions			
Mean heterosexism × daily heterosexism	.10 (.17)	-.39 (.10) ^{***}	.07 (.06)
Self-Compassion × daily heterosexism	-.05 (.04)	.00 (.02)	-.03 (.02) ⁺
	Random effect variances		
Level 1			
Residual	.10 (.01) ^{***}	.20 (.01) ^{***}	.04 (.00) ^{***}
Level 2			
Intercept	.05 (.01) ^{***}	.23 (.03) ^{***}	.03 (.00) ^{***}
Daily heterosexism slopes	.01 (.01)	.01 (.00) ^{***}	.00 (.00)

Note. $n = 1837$. Standard errors are in parentheses. Model 5 features both main effects and cross-level interactions. Daily heterosexism slopes are allowed to vary randomly across participants.

⁺ $p < .10$. ^{*} $p < .05$. ^{**} $p < .01$. ^{***} $p < .001$.

Table 14

Fixed Effects and Random Effect Variances for Multilevel Regression Models Predicting Next-Day Well-Being from Heterosexism Experiences and LGB Affirmative Support

Predictor	Outcome variables		
	Negative Affect Model 5	Positive Affect Model 5	Somatic Symptoms Model 5
	Fixed effects		
Level 1 (within person)			
Outcome, evening previous day	.35 (.06) ^{***}	.27 (.03) ^{***}	.44 (.04) ^{***}
Day of study	.00 (.00)	-.01 (.00) [*]	.00 (.00)
Weekday	.02 (.02)	-.01 (.03)	.00 (.01)
Daily heterosexism	.00 (.08)	.16 (.08) [*]	-.05 (.03) ⁺
Level 2 (between person)			
Intercept	1.37 (.03) ^{***}	2.06 (.05) ^{***}	1.37 (.01) ^{***}
Mean heterosexism	.24 (.12) [*]	.17 (.24)	.12 (.08)
Self-Compassion	-.10 (.03) ^{**}	.15 (.07) [*]	.00 (.02)
Cross-level interactions			
Mean heterosexism × daily heterosexism	-.09 (.23)	-.35 (.12) ^{**}	.10 (.09)
Self-Compassion × daily heterosexism	-.07 (.09)	.06 (.05)	.00 (.03)
	Random effect variances		
Level 1			
Residual	.10 (.01) ^{***}	.20 (.01) ^{***}	.04 (.00) ^{***}
Level 2			
Intercept	.05 (.01) ^{***}	.28 (.04) ^{***}	.03 (.01) ^{***}
Daily heterosexism slopes	.01 (.01)	.01 (.00) ^{***}	.00 (.00)

Note. $n = 1837$. Standard errors are in parentheses. Model 5 features both main effects and cross-level interactions. Daily heterosexism slopes are allowed to vary randomly across participants.

⁺ $p < .10$. ^{*} $p < .05$. ^{**} $p < .01$. ^{***} $p < .001$.

Figure 1. Conceptual model

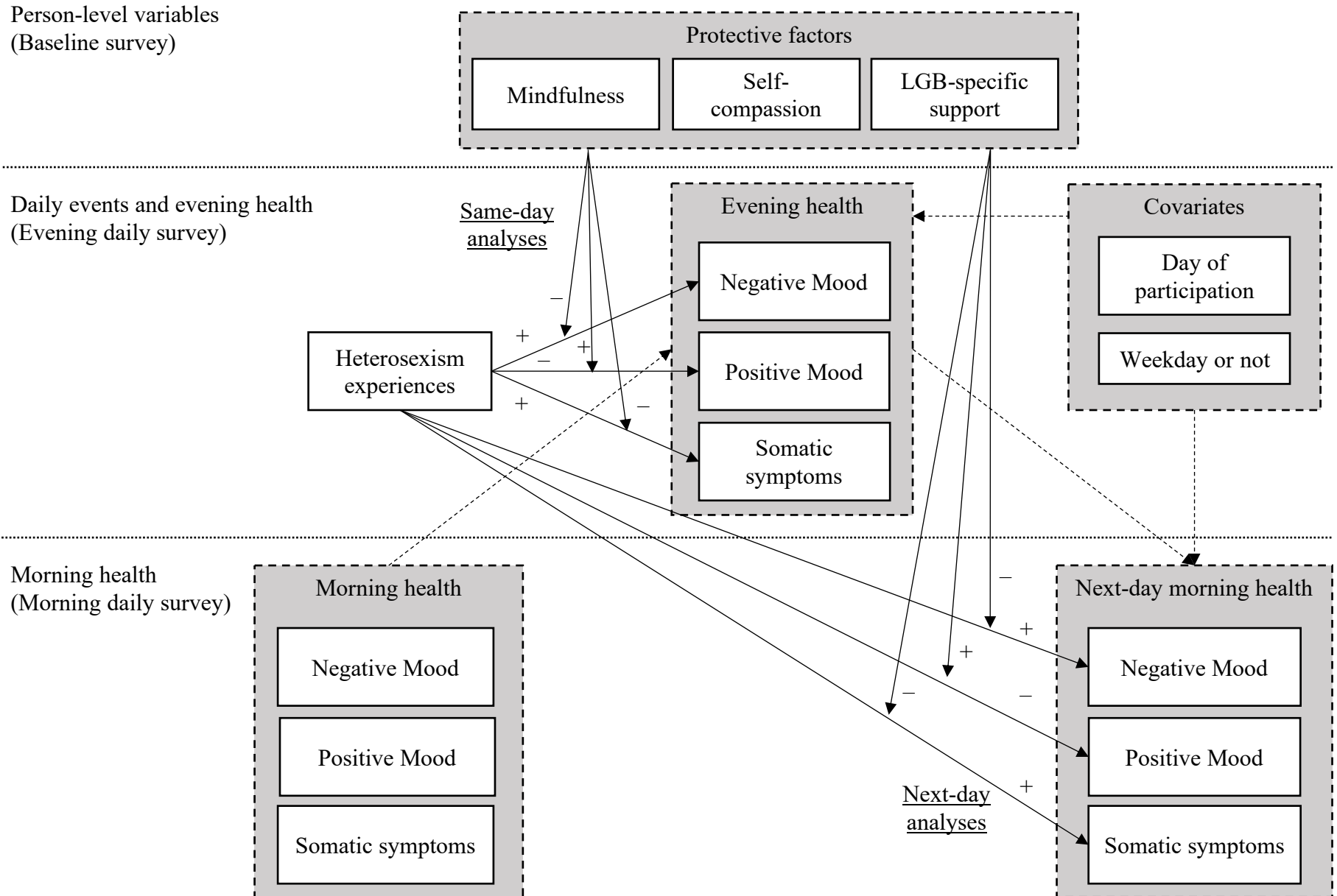
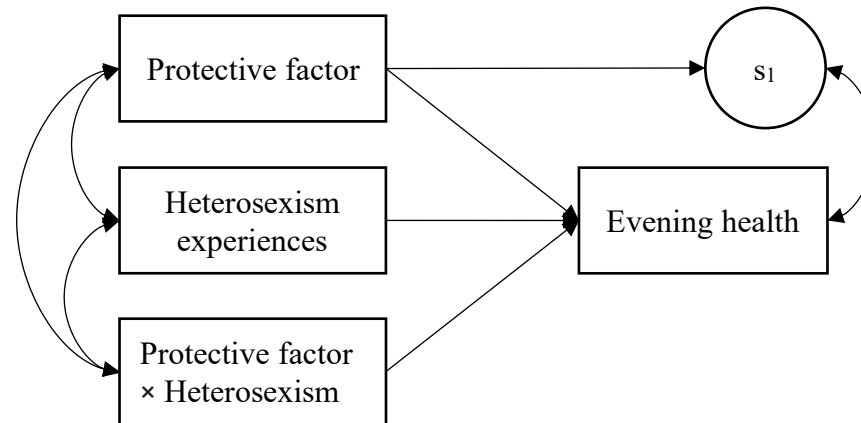


Figure 2. Multilevel model of interactions between heterosexism experiences and various protective factors in predicting health on the same day



Between-Person Level (Level 2)

Within-Person Level (Level 1)

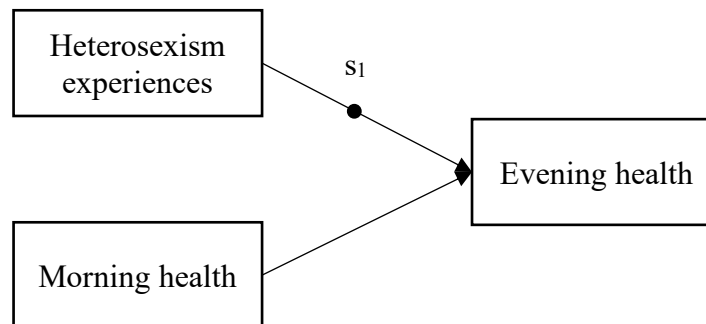
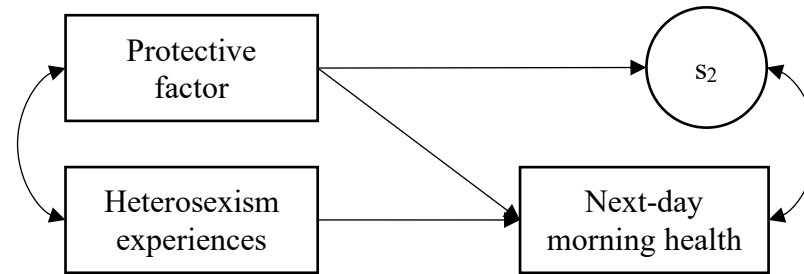
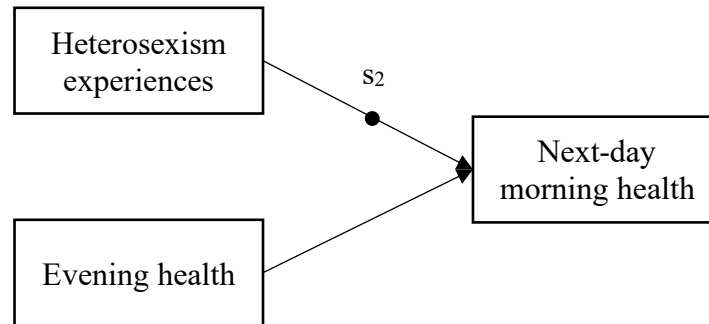


Figure 3. Multilevel model of interactions between heterosexism experiences and various protective factors in predicting health on the next day



Between-Person Level (Level 2)

Within-Person Level (Level 1)



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